

Evaluation of On-line Learning
at the
Addiction Technology Transfer
Center of New England

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May 1, 2000

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Grant No. U98 T100846

CSAT

Center for Substance

Abuse Treatment

SAMHSA

Produced under a grant funded by the Center for Substance Abuse Treatment,

Substance Abuse and Mental Health Services Administration,

U.S. Department of Health and Human Services

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EXECUTIVE SUMMARY

The Addiction Technology Transfer Center of New England (ATTC-NE) has pioneered on-line education in addiction technology transfer. This document details an evaluation of the effectiveness of the ATTC-NE on-line education program in delivering the technology and producing change in addictions treatment practices.

Significant Findings

- **87.3% of respondents integrated transferred technologies into their practices**
- **87.3% of respondents diffused the technologies within their organizations**
- **51.5% of respondents changed their therapeutic approach after training**

The significance of these findings is high. Previously published studies show rates of adoption for technology transfer in behavioral health organizations to approach 30% (Sorensen et al., 1988). These unsatisfactory results were the outcome of high-cost, high-intensity and specific programming that is difficult to employ in the current treatment environments. The ATTC-NE on-line education remedies these problems inclusively:

- The technology transfer is done at the convenience of the clinical staff
- The technology transfer utilizes easily reproducible methodologies
- The technology transfer often utilizes existing infrastructure
- The technology transfer is not dependent on the topic; the method generalizes
- The methodology is more efficient and cost-effective relative to any other method

The following evaluation of the ATTC-NE on-line education program is dependent upon non-standard evaluation techniques. These techniques are tailored to the specific mission of the ATTC-NE and the specific theories of organizational change that emerge from understanding that knowledge does not produce change. The on-line education methodology identifies, by its very nature, those individuals in organizations who are most likely to be opinion leaders and change agents within their organizations. At this point in the development of addiction treatment, professionals who are using computers and computer-aided learning are more likely to be on the leading edge of behavioral healthcare. Likewise, the group who responds to the on-line evaluation

survey (49.4% of total on-line partners) is a self-selected group who is most likely to embrace new technologies and disseminate them.

The ATTC-NE, through the use of on-line education, targets that group: the group most likely to lead change. Technology transfer is not simply transferring knowledge to a large group of people. Knowledge, by itself, rarely produces change. Transferring knowledge to the right people in an organization is more likely to produce change. By using the newest technologies to engage treatment professionals, the ATTC-NE is effectively finding those individuals most likely to embrace change, become the early adopters and opinion leaders in their organizations, and to become local change agents. In an increasingly resource sensitive healthcare environment, projects like the ATTC-NE on-line education program efficiently and simultaneously identify change agents within individual treatment settings and provide them with the newest addiction technologies. The following report provides the evidence for these conclusions.

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Introduction

An effective low-cost distribution of new science-based knowledge to the substance abuse treatment field is essential to its application. In an era of shrinking resources, cost savings has become increasingly important. One of the challenges for policy makers, administrators, researchers, educators, and clinicians lies in collaborating to discern which findings will have the greatest impact on treatment improvement. The Addiction Technology Transfer Center of New England (ATTC-NE) has conducted one of the first studies in the effectiveness of using the low-cost distance learning tool in providing training to addiction treatment workers.

The ATTC-NE, located at Brown University's Center for Alcohol and Addiction Studies, enabled collaboration by fostering a regional infrastructure, representing a consortium of the six New England states (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont), universities, consumers, and managed care and behavioral managed care organizations. The ATTC-NE reflects the partnerships developed in an effort to exchange resources, promote culturally competent treatment services, and translate and disseminate research-based substance abuse information, including distance learning programs. The ATTC-NE's objective is to translate and disseminate current research and best clinical practice in alcoholism and substance abuse treatment in an effort to promote systems development, improve client outcomes, and increase treatment effectiveness in state and local treatment programs.

Common Barriers to the Diffusion of Innovations in the Substance Abuse Prevention and Treatment System

Despite the potential benefits of incorporating advances in clinical research into clinical care, many barriers exist to the successful dissemination and adoption of evidence-based practice guidelines within the community-based organizations and the clinical settings. According to Backer, David, and Soucy (1995), "Potential users of drug abuse treatment technology must overcome a host of financial, psychological, and organizational challenges in order to have new technologies implemented in their settings" (p. 1). Earlier work by Backer (1991) identified several special circumstances in the drug abuse arena that complicate the technology transfer process. These include: the nature of drug abuse for individuals and society (fear of legal action, moral values, societal pressures, economics, recidivism); the characteristics of drug abuse treatment practitioners (varied backgrounds, limited training opportunities, differing cultural perspectives); and the nature of the drug abuse treatment system (overburdened facilities, economic limitations). Other pertinent

factors include difficulties in changing health behavior, and the inextricable link between substance abuse treatment and other health care systems.

A Definition of Technology Transfer and On-line Learning

Recognizing that knowledge is needed to change clinical practice in the field, providers must be convinced that "new" techniques have merit. Technology transfer, as defined by the National Institute on Drug Abuse is the systematic process through which skills, techniques, models and approaches emanating from research are delivered to and applied by practitioners (Backer, David, & Soucy, 1995). In addition, successful technology transfer involves a two-way interaction between research and practice thereby opening a viable channel through which practitioners can share clinical observations with the research and academic community. Such input influences the direction of future applied research and knowledge development efforts. It is important to note that true technology transfer does not occur unless new practices are adopted and used in the field.

Insofar as the on-line medium caters to the needs of adult students participating from around the world, on-line instruction emphasizes an experience-based group-interactive approach to the learning process. This structure can have a major impact on conventional instruction by expanding learning resources beyond the individual teacher and classroom materials to encompass widely distributed sources of information, expertise, and fellowship.

The challenge of technology transfer raises other thematic issues around the context in which substance abuse prevention and treatment issues are embedded, the need to focus research on the process of technology transfer and dissemination, and identification of the key variables to be measured. In addition, the human dynamic involved in adopting innovations (e.g., resistances, fears, anxieties, involvement, ownership, and perceived awards by people targeted to implement the innovation) must be addressed at the individual level, but also at community, organizational, and system levels (Backer, David, & Soucy, 1995). Practitioners must be engaged in the process and given opportunities to master new protocols and techniques "by doing." At the same time, policy makers and providers need incentives to change. The practical value associated with acquiring additional skills or redirecting services must be clear; and the barriers to adaptation must be understood and overcome. There must be a systematic plan to disseminate information in such a way as to: ensure that appropriate individuals at all levels recognize the benefits provided by the innovation; train appropriate individuals at all levels of the organization; and follow-up appropriately thereby ensuring adoption and use.

Innovation as a Process

As we look to address the systematic change required to decrease the gap between research and clinical practice, we explore how the diffusion and adoption of a new treatment, prevention intervention or strategy may create an environment that fosters systematic change. Rogers (1995) defines diffusion as “the process by which an innovation is communicated through certain channels over time among the members of a social system.” The concept of systematic change is clearly multidimensional, involving various aspects of knowledge, attitude, and skill development. These aspects vary along a continuum from high to low.

Building on our previous experience, both in curriculum development and on-line learning, the ATTC-NE continues to make a positive contribution to the process of change through its uniquely designed training activities. Distance learning activities bring information to groups of individuals who would not otherwise have access to educational opportunities due to geographic and/or time constraints. Through these distance learning courses, people from remote areas interact with faculty experienced state-of-the-art research based teaching modalities, clinical skills, and knowledge.

In addition, because the focus of the content is on emerging research, we expect this training to result recognizable improvements in treatment practice. Finally, the active promotion and delivery of these trainings, using advanced technology, encourages further development of this educational technique by other groups, and desensitizes trainees to the newness or strangeness of this approach.

The Addiction Technology Transfer Center of New England On-line Learning Program

The market for addictions technologies is highly dynamic and subject to forces that are less concerned with technology (best practices) and more concerned with costs (managed behavioral healthcare). As clinical services streamline, practitioners are less and less able to engage in lengthy, often unreimbursed trainings on topics of perceived marginal utility. The ATTC-NE has responded to the rapidly changing behavioral health environment by offering a variety of accredited trainings through the Internet, using web-based instruction and E-mail support. This program parallels Internet-based instructional and training programs in use in other industries.

Since 1997, the ATTC-NE, funded by the Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Treatment, has been offering a premier selection of on-line courses for professionals in the addiction field. The goal of ATTC-NE Online Education Program was to develop a distance learning initiative that would allow participants to earn

continuing education units over the Internet. Since the inception of this unique distance learning program, participants have been awarded 992 National Association of Alcoholism and Drug Abuse Counselors (NAADAC) certificates, equaling 8,942 Continuing Education Units. Classes have included participants from 41 of the United States and 11 different countries including Asia, Eastern and Western Europe, Southeast Asia, South America, and North America.

The ATTC-NE provides courses on a wide range of pertinent issues in addictions. The offerings include clinical courses (e.g., Clinical Supervision in Substance Abuse Programs, The Core Functions of Addictions Counseling), special populations issues (e.g., Substance Abuse Issues in Gay and Lesbian Clients: Considerations for Effective Practice and Substance Abuse Among Older Adults) treatment modalities (e.g., An In-Depth Study of the 12 Steps and 12 Traditions, Motivational Interviewing) and other equally important topics. Refer to Appendix A for a complete listing course descriptions.

Instructors for the ATTC of New England On-line Education Program must have at minimum 20 years of experience in the addictions field, at least 10 years of experience in teaching or presenting their subject matter, and have obtained at least a Masters level of education. ATTC-NE faculty are instructed to integrate cultural diversity, managed care, criminal justice, and consumer advocacy issues. In addition, all ATTC-NE instructors are now provided a copy of the Center for Substance Abuse Treatment Publication TAP 21 “Addiction Counselor Competencies: The Knowledge, Skills, and Attitudes of Professional Practice.” They incorporate this information in their curriculum in such a way that it is passed on to addiction specialists in the field and implemented in everyday practice. Faculty must also be research oriented such that their lectures integrate the latest advances in the subject area, and their lessons contain the most informative and current Internet links available.

Instructors for the program redesign lessons that are usually presented to a live audience into a written format while keeping them interesting, intellectually stimulating, and personable. Lessons are conducted entirely on-line with homework assignments returned electronically. Through the use of email, real-time chat, and electronic bulletin boards, participants are able to interact effectively with the course instructors, fellow class members, and the program administrator. Most importantly, the ability to access course materials 24 hours a day, seven days a week allows many addiction professionals the opportunity to earn CEU’s that they would not have the ability to earn on a traditional structured schedule. Self-reports have indicated that the flexibility of on-line education has been a real asset to busy professionals juggling education, careers, and family commitments.

Literature Review

The literature on technology transfer in substance abuse treatment is less well developed than the general literature on innovation and change. The significant empirical work is lacking and what exists is quite restricted in specificity. The general consensus that traditional methods of technology transfer in addictions treatment is ineffective in generating changes in practices is justified through various rhetorical methods. Leshner (1997), for example, cites the overlap between treatment providers and consumers as a major impediment to change. Horgan and Levine (1998) and Lamb et al. (1998) suggest that the diversity of providers, modalities of treatment, and the heterogeneity of clients inhibit innovation. Sorensen (1988), reiterated through Brown (1999), focuses on modality of training as a barrier to successful innovation. However, both authors neglect current pragmatics associated with training in clinical settings in the current health care environment. The wide gap between the research community's scientific needs and the realities of clinical practice in community settings generates dissonance, revealed in the general inability of addictions technology transfer to create actual change at the level of clinical practice. Current understanding on the relationship between innovation, technology transfer, and the subsequent diffusion of innovation can be utilized as a framework within which to characterize the nature of technology transfer. (Refer to Appendix B for a comprehensive presentation of the literature.)

Innovation and Diffusion

The transfer of new technologies requires agencies, or at least some of the treatment providers within an agency, to adopt new practices before others, and to persist in those practices over time. Rogers (1995) has defined diffusion as "the process by which an innovation is communicated through certain channels over time among the members of a social system." Innovation diffusion research can be traced to Tarde's turn of the century examination regarding how innovative ideas, technologies, and processes are initiated and adopted. Tarde is credited with making the observation that the innovation process follows the path of an S-curve. In this most basic of models, a few individuals initially adopt an innovation, adoption accelerates as people embrace the innovation, and finally, the rate of adoption levels off. Tarde's discovery of predictable diffusion patterns led to an explosion of innovation diffusion studies, and literally thousands exist today (Rogers, 1995).

The innovators are followed by four categories of adopters. Rogers parses the adopters into four groups: early adopters, early majority, late adopters, and the laggards. The characteristic S-shaped curve will vary in slope, relative to the speed of the innovation. Rogers suggests that there is a

point in every innovation when there develops a sufficient level of adopters, estimated between 10% and 25% of the total population, that the innovation adoption accelerates rapidly. Rogers refers to this sufficient level of adoption as the “critical mass.”

Rogers lists five characteristics of an innovation that will facilitate adoption and the speed of adoption. These are the relative advantages offered by the innovation.

- The perception must be that the innovation exceeds current practices.
- The innovation must be perceived as compatible with ongoing activities or ideologies.
- Innovations of lower perceived complexity are more successful.
- The innovation must lend itself to testing, (Rogers’ “trialability”)
- The advantages of the innovation must be observable.

These five characteristics are of particular importance when weighing non-tangible processes. Innovations that are material or structural, such as fax machines, readily lend themselves to experimentation and outcome assessment. Treatment technologies, as ideas, face difficulty in that they are at the lower end of the ranges for: ease of use, observability of outcomes, trialability, and perception of superiority to present practices. They are not always ideologically compatible or even neutral, when compared to ongoing treatment practices. Rogers’ diffusion model can account for the relative rates of implementation of innovations, even in the field of treatment technologies.

Valente and Davis (1999) describe the diffusion of innovations through the utilization of “opinion leaders.” Within social networks, there are identifiable persons who have a greater density of connections to others within the same social network. To their credit, the authors simulate the diffusion of innovation using computer models of social networks, an application of innovation in their own work. These models can be used to generate multiple outcomes by manipulating the relationships imbedded in the models. For the present effort, Valente and Davis demonstrate that diffusing innovation to more connected members of the social network (opinion leaders), the subsequent diffusion process to the whole community proceeds at a greater rate. This model establishes a that allows one to achieve more efficient diffusion within the constraints of limited resources.

Farrell (1998) has a much more sophisticated and non-linear set of models of change in social organizations that are less dependent on individuals and more dependent on the social network itself. This work, unlike Valente and Davis’, incorporates the dissipative aspects of social networks (the ‘drag’ or ‘friction’ that slows change) as previously demonstrated by Kauffman (1996) in his work in evolutionary change¹.

If the critique of the modeling done by Valente and Davis consists primarily of being “insufficiently robust” (a criticism applicable to Rogers as well), it is the practical aspects of their model that are more important, and more difficult. Valente and Davis’ methods presume a social network that is organized around the behavior to be changed. In substance abuse treatment, providers may very well be organized around ideologies that exist outside of the technologies and can be impervious to those technologies. For example, providers who are themselves members of a self-help recovery movement and use that experience in treating others may be less inclined to adopt technologies that are at odds with their personal ideologies around substance abuse and recovery. There are multiple, competing, and often irreconcilable social networks that exist simultaneously and envelope us all. The energy for change in one can be dissipated by another.

Level of Perceived Need for Training

Specific research on technology transfer through the existing national Addiction Technology Transfer Center network is quite limited. A recently completed needs assessment (Shaffer et al., 1994) of the ATTC-NE, identifies the needs of treatment providers in the six New England states, but does not recommend strategies for implementing the technology in the clinical setting. The survey, conducted on a sample of 1590 treatment providers, reveals the perceived deficiencies among providers as well as areas of interest in additional training. Of specific interest to this project are the problems perceived to prevent treatment providers from engaging in training. The most significant of these perceived barriers were: competing work responsibilities (74.3%), insufficient financial resources to pay for training (73.5%), competing time commitments (72.7%), and inconvenient training locations (50.4%). These barriers to technology transfer can, in part, be overcome by using more sophisticated training modalities than those traditionally employed by addiction educators and trainers.

Other findings drawn from this needs assessment point to some of the subtle difficulties in implementing technology transfer, aside from logistical difficulties. For example, Shaffer et al. (1994) found that the surveyed treatment providers (n=1590) rate themselves as well trained in the dual diagnosis area. This group also identifies dual diagnosis as one of their most needed training areas. Bilt et al. (1997), working with the same data, shows that the treatment staff are not skilled in using screening tools in evaluating clients, yet have little interest in developing such skills. These two findings give some idea of the contradictory processes at work in the clinical settings.

The ATTC-NE has developed the on-line education program to meet the stated needs of its constituency using the most flexible technology available. The use of technology to transfer

technology has a kind of screening process that may draw innovators, early adopters, and opinion leaders to find new drug treatment and prevention technologies as they pursue the new Internet and other digital technologies. The relationship between digital technology and education is not yet defined. The tools available through digital technology are radically transforming multiple domains, including those that are not derived out of the application of digital technologies. For example, the value of companies involved in the emerging digital technologies cannot be represented through a simple valuation of assets versus liabilities as had been done in traditional economics. Human capital, knowledge, and creativity are rapidly becoming the most valuable commodity in the digital age. The way in which companies are valued has had to be re-invented in order to account for the emergence of the digital technology companies.

Likewise education, which is not a derivative of digital technologies, will find itself transformed through the use of digital technologies that emerge and merge with everyday life. Traditional methods of technology transfer, if the “method” is not inappropriate, are as inefficient as they are ineffective. Journals and other types of publications reporting “current” research findings may actually be reporting data that lags by years. Furthering the process, curricula and training based on those findings, lags even further. Digital technologies, as they become increasingly ubiquitous, can be utilized to more efficiently and coherently deliver new technologies to a wide audience. The ATTC-NE is discovering the extent to which the current knowledge base can be disseminated and implemented through the most current technological means.

Methodology

In the summer of 1999, the ATTC-NE completed a follow-up evaluation of the on-line education program. This follow-up was conducted through the on-line education system. Previous enrollees received an E-mail a letter describing the follow-up and eliciting their cooperation. This consisted of responding to an anonymous Web-based, password-secured, questionnaire. The follow-up itself consisted of demographic and customer satisfaction questions, as well as questions surrounding the implementation and dissemination of on-line education materials (Refer to Appendix A). This follow-up was conducted in addition to the standard, 30-day follow-up. Of 245 solicitations, 121 responded by completing the follow-up survey (response rate of 49%). The relationship between the total population and the responding population is not known. The baseline data on the total population does not correspond to data solicited during the follow-up and precludes comparison of the populations.

Results

In this section, we will describe the sample in general and highlight some of the more interesting findings.

Sample: Distance Learning Follow-up Survey 1999

Total n = 121

Respondents' Characteristics n = 121

Education Level	Percentage
Some College	6.6%
Associate's Degree	4.1%
Bachelor's Degree	22.3%
Master's Degree	55.4%
Ph.D. or Equivalent	11.6%

Summary

This distribution of respondents reveal a predominantly well educated group of individuals. This finding suggests that professionals are more highly motivated as individuals to seek training; higher education brackets entail greater familiarity and access to on-line education and individuals in higher education brackets have greater flexibility to pursue professional development (for example, access to the on-line education while at the workplace). Of the proposed factors to explain the education distribution of our survey participants, the most likely is that access to on-line education, especially in the workplace, is more prevalent among advanced professionals².

Certification Status in Addictions n = 116

Certification Status	Percentage
Currently Certified/Licensed	55.2%
Not Certified/Licensed	41.4%
Student Intern	3.3%

Summary

Just over half of the participants are certified (55.2%). One implication is that distance learning is disseminating research based substance abuse information to a wider audience than just addiction counselors. This finding implies that there is utility in addictions technology beyond the restricted network of clinical practitioners.

Primary Participant Occupations n = 121

Occupation	Percentage
Addiction's Counseling	32.2%
Social Work	14%
Psychology	6%
Other Counseling	5.8%
Medical: Primary care	0.8%
Nursing	0.8%
Other Medical	3.3%
Administration	14%
Education	2.5%
Human Services	2.5%
Criminal Justice	3.3%
Vocational/Rehabilitation	0.8%
Other	14.9%

Summary

Over 58% of the respondents provide some form of counseling. A significant portion identified themselves as administrators (14%). The level of administrator participation may reflect treatment providers who are now in administrative positions. Participation in technology transfer by both administrators and practitioners is more likely to result in changes in practices than simply providing education to practitioners alone. The medical services are relatively poorly represented in the respondent group. One explanation may be that of marketing, as ATTC-NE services are not differentially directed at medical professionals. The lack of emphasis during medical training on the importance of substance abuse screening and intervention may influence medical practitioners' assessments of the value of addictions-related continuing education.

The second part of the survey asked several questions on the usefulness of course content and the respondents' preferences for future offerings.

Involvement in Addictions Treatment

Time spent working in addictions counseling, weekly **n=120**

Hours Weekly	Percentage
More than 30 hours	44.2%
Less than 30 hours	25.8%
Not counselor	15.8%
Not in addictions	14.2%

Client Caseloads **n = 113**

Clinical Duties	Percentage
Carries caseload	46.0%
No caseload	54.0%

Summary

Seventy percent of respondents indicated that they work in addictions counseling, but only 46% of the respondents carry an active caseload. The significant increase in group-based counseling and 12-step programming accounts for this discrepancy. In addition, there is a significant number of administrators involved in the distance learning program, who may have responsibilities relative to counseling, such as clinical supervision, but not be delivering client counseling directly.

Uses of ATTC-NE Distance Learning **n = 121**

Use Training	Percentage
Integrated training into practice	87.3%
Shared training materials with other clinicians	87.3%
Training changed therapeutic approach	51.5%
Applied training to certification	42.1%
Sought additional training on ATTC-NE topics	36.8%

Summary

These figures are exceptional: over 87% of distance learning participants reported that they integrated aspects of the training into their jobs. The results are even more surprising when one considers that the reports came not only from those in the addictions field, but outside it as well. Recalling the research on technology transfer in addictions, it is unusual to have more than a small effect on practice after initiating technology transfer, even through the most effective means

(Sorensen et al., 1988). The results may indicate that the students are more motivated. It is also possible that as with other trends, the novel experience of technology transfer over the Web may increase participants' receptivity to the information. The endorsement by 87.3% of the participants who responded that they shared their materials with others indicates an unprecedented gain in the effectiveness of the technology transfer. This clearly demonstrates not only increased effectiveness in diffusion of research driven technologies in addictions treatment, but a gain in diffusion and cost effectiveness combined. These responses indicate a fairly large effect. This response is a strong endorsement of the ATTC-NE on-line education program, particularly, in light of the existing literature on technology transfer in addictions.

Perhaps even more important, and certainly more stunning, is the rate of endorsement by the participants on the technology transfer changing their practices. More than fifty-one percent of the respondents endorse the training as affecting their approach to therapy³. This level of penetration of new technologies into clinical practice is significantly higher than that seen in other technology transfer studies.

Less surprising was the percentage applying their training towards their certifications. Once again, one must take into account that the participant group includes those not certified. Among the clinicians, the result increases to 55%. The last question was designed to see if the trainings were simply stimulating interest or fulfilling a need. The lower level of continued training interest implies that the ATTC-NE met the needs of most. However, the very high level of implementation would seem to require that clinicians seek to enhance their skills further, depending on their initial familiarity with the topics and techniques available in the trainings.

Training Participation		n = 121
Training Hours Yearly	Percentage Currently	Percentage Preferred
1 to less than 20 hrs	14.2%	8.3%
21 to less than 40 hrs	42.4%	33.4%
41 to less than 60 hrs	20.4%	25%
61 to less than 80 hrs	8.8%	7.3%
81 to less than 100 hrs	13.3%	12.3%
Over 100 hrs	0.9%	17.7%

Summary

In the design of this section of our evaluation, the time increment of 20 hours (per year devoted to training) was chosen because 20 hours represents roughly one percent of the work year. The

investment in training can be thought of in terms of what percentage of a clinician’s on the job effort is spent acquiring new and improved skills and knowledge. The respondents were asked: how much time they presently spent in training; and how much they would like to spend if given the option. More than 56% of respondents invest less than two percent of their time developing new skills and acquiring new knowledge through training.

Very few respondents invest more than five percent of their time engaged in training. The differences between time allocated and time preferred are not great. The largest difference appears in the “over 100 hours” group indicating that there is a group of individuals who have a strong commitment to maximizing their training (up to 10% of working time or 200 hours), serving the client and/or creating a more adaptive workforce. It is important to take into account the variety of effects training may have on income. For example, a clinician working in a fee-for-service system must engage in training outside of any billable hours, and may even have to lose billable hours during training schedules. An administrator or salaried clinician may be compensated for training time as part of their benefits. Yet, all respondents indicate a preference for more time for training. The ATTC-NE distance-learning program, because it operates independently of location and time, provides the greatest opportunity to conveniently increase technology transfer.

Economics of Training

n = 121

Impact of fees	Percentage
Reimbursed for training	61.7%
Fees affect decision on participation	56.4%
Affected by \$25.00 fee	24.2%
Affected by \$50.00 fee	76.3%
Believe fee increases completion rates	89.7%

Summary

The majority of participants are reimbursed for their participation, but not a great majority. Despite that, less than a quarter are concerned with a \$25.00 registration fee (the current ATTC-NE on-line education fee), while over three-quarters are concerned with a \$50.00 registration fee. Almost all of the participants agree that the registration fee serves two purposes: it increases completion rates (a real investment in training); and provides financial support for the program. Other forms of registration could be considered, including facility subscriptions to the ATTC-NE on-line education system. With such an arrangement an employer/grant would cover the costs for unlimited access (Free or reduced cost) to the ATTC-NE on-line education program. In this way,

the provider could encourage training without incurring the cost of clinicians' lost billable hours as they travel to trainings and conferences.

Interest in Future Trainings **n = 121**

Type	Percentage
Dual Diagnosis	83.5%
New Therapies	66.9%
Assessment	65.3%
Cultural Awareness	63.6%
Research Outcomes	62.8%
Family Issues	62.8%
Interviewing	54.5%
Spirituality	52.1%
Pharmacotherapy	47.9%
Genetics	28.1%
Grant Writing	28.9%
Management Training	22.3

Summary

Dual diagnosis training is heavily regarded. This may reflect the increasing prevalence of such clients in clinical practice, as well as a new direction, away from the traditional separation in substance abuse treatment providers and mental health treatment providers. Clinicians employed in addictions treatment services are being faced with an increasing amount of clients who require psychiatric management as well as treatment for substance abuse problems. These results indicate a need for courses that integrate dual diagnosis knowledge with general psychiatric issues. There is strong interest in new and research-based therapies, which may be predictable results from a group of participants who utilize the Internet. Computer and Internet savvy clinicians are more likely to see the benefit of new technologies, possibly the “early-adopter” effect described by Rogers (1985) above. Interest in cultural issues and families implies a level of awareness of these domains in substance abuse treatment, as well as recognition of the systemic issues involved in successful substance abuse treatment. There continues to be an interest in fundamentals, such as assessment and interviewing. This may reflect the ongoing changes in those areas as more standardized

methodologies are required by reviewers, third-party payers, and accreditation and licensing organizations.

Satisfaction with ATTC-NE Distance Learning Program n = 121

Satisfaction	Percentage
ATTC-NE Service	88.7%
ATTC-NE Staff	95.5%
Would use ATTC-NE on-line education again	97.5%
Satisfied with follow up instrument	81.5%
Consent to future follow up	94.9%

Summary

The satisfaction levels are very high, as well as continued interest in the ATTC-NE on-line education program. The follow-up instrument itself, while generally satisfactory, did not reach the same levels of satisfaction as the other areas. This may be because of the strong clinical orientation to the instrument, derived from the interest in the technology transfer aspect of evaluation. A very high level of respondents agreed to future follow-up surveys, a very good indication of the positive association between the ATTC-NE on-line education program and the clinical community.

Instructor Survey

The ATTC-NE conducted a short survey to gather information from the available instructors of ATTC-NE on-line education courses. There were thirteen respondents (100%) to the instructors survey. Twelve of the interviews were conducted over the telephone and one survey was filled out directly⁴.

The survey sought background information regarding the instructors as well as the instructors' satisfaction level with the ATTC-NE program and staff. The respondents are typically working in a clinical setting, engaged in multiple modalities of care and provide either supervisory and/or training expertise in addition to clinical duties. Several teach in formal academic settings and all have conducted more traditional forms of training in the field of addictions treatment.

The instructors were asked to indicate their preferences for future training at the ATTC-NE. The list of endorsements ("endorse as many as you wish") is as follows⁵:

Type	Percentage
Dual Diagnosis	92.3%
Research Outcomes	92.3%
Pharmacotherapy	84.6%
New Therapies	76.9%
Family	76.9%
Cultural Awareness	69.2%
Interviewing	61.5%
Genetics	53.8%
Spirituality	53.8%
Management Training	30.8%
Grant Writing	23.1%

Summary

When comparing the results to the results received from students, the prioritization of training needs among instructors is more homogeneous with respect to the value of research outcomes and pharmacotherapy, which are often interrelated areas. Participants in the classes may be more focused on issues that fall within their daily activities. Pharmacotherapy and research are unlikely to be so distributed. Grant writing, interestingly, is of little interest to the instructors, although a potentially valuable source of funding as other payers tighten criteria and reduce reimbursement.

The instructors evaluated the ATTC-NE staff and on-line education program in terms of satisfaction. The ratings were all at least satisfactory (except where indicated):

- **ATTC-NE Staff: 92.3% rated their performance as “very satisfactory”**
- **ATTC-NE Presentation of materials: 83%⁶ “very satisfactory”**
- **ATTC-NE support: 84.6% “very satisfactory”**
- **100% would teach through the on-line education program again**

These satisfaction rates are significantly higher than the student’s rates (38.5% satisfied and 61.5% very satisfied). The only “unsatisfied” responses regarding the ATTC-NE were in evaluating the variety of course offerings. Of the respondents, 23 % indicated that they were unsatisfied with the course offerings. These respondents indicated specific courses they thought should be offered,

which included topics such as behavior modification, holistic therapy, gambling, and family violence. It is possible that these proposed courses are of specific interest to the respondents (i.e. they would like to teach them through the ATTC-NE on-line education program) rather than a coherent criticism of the current curriculum.

This instructors survey provided opportunities for open-ended comments on the program. These comments were always favorable, including praise for specific staff members, suggestions to increasing the scope of the on-line education component, and multiple suggestions regarding publicizing the program to encourage expansion. There were no negative or critical comments on any aspect of the ATTC-NE on-line education program nor the staff.

Conclusion

This evaluation of the ATTC-NE distance learning education program consisted of a Web-based on-line survey. Participants included those who have completed an on-line education course; a second survey (telephone) targeted the instructors of those classes. The evaluation methodology itself was piloted at this time and appears to be reasonably successful, given the response rates (51% of students, 100% of instructors). The survey of the participant community reveals a high level of success for the on-line education program, as judged relative to the previously stated mission of the ATTC-NE to transfer technology to addiction treatment organizations. The major findings include:

- **87.5% of participants implemented the new technologies**
- **87.5% of the participants disseminated their training to others**
- **51.2% of participants changed their practices based on the new technology**

These findings are strong endorsements of the ATTC-NE on-line education program. Further endorsements are realized in the high level of satisfaction, expressed by participants and instructors relative to their experience with the ATTC-NE staff and program.

The participation in on-line education courses is not accessible to all. Yet the Web is more widely accessible than geographically centralized training programs as Internet access is becoming more commonly available in libraries and education centers around the globe. Some treatment facilities offer access and many families have private access as well.

On the state level, the Rhode Island Department of Mental Health, Retardation and Hospitals, Division of Substance Abuse has committed to providing Internet access to all licensed clinical facilities for data collection purposes. This will soon make it possible for all those working in licensed facilities in Rhode Island to gain access to the system. A similar program is being implemented in New Hampshire as well. Other states have varying degrees of state-supported access. In the same way that the telephone came to link many remote sections of the country to others, the Internet will provide resources that cannot be provided in a cost-effective or efficient manner otherwise. The ATTC-NE is utilizing the Internet to provide a more democratic access to state-of-the-art addiction technologies.

Issues around the self-selection of both participants in on-line education and completion of the follow-up survey, can be addressed in this fashion: those who participate in on-line education and subsequent follow-up surveys do differ from the rest of the addiction treatment professionals. This is precisely what is expected when any new technology in any field is implemented. The organizational change literature and change theories, such as those described previously (see Rogers 1984, 1995 and Valente 1999 for examples), point to a cohort of “early adopters” or “opinion leaders” who engage in novel behaviors. These are clinicians using computers and engaging in on-line education before it becomes a standard means of technology transfer in addictions studies. The high level of implementation and change endorsed by these participants marks them as agents of change within their organizations. In a sense, the ATTC-NE on-line education program is targeting precisely the early-adopters that are necessary to produce change within existing programs. In the case of this evaluation, the respondents to the survey are self-selected. A self-selection that can enhance dissemination and implementation of change so long as the ATTC-NE continues to support it.

The strong endorsement of the content, support, and direction of the ATTC-NE on-line education program is evidenced in both the participant and instructor surveys. Both groups are uniformly interested in an expansion of the ATTC-NE on-line programming and state that they will continue to participate. Mapping these results onto theories of change, even the more common linear theories, suggests that the ATTC-NE on-line education program targets the individuals who are most interested in novel ideas, most open to change. These early-adopters and administrative opinion leaders will be the key members of the addictions treatment community in implementing the new, research-based technologies. The on-line education mechanism is not only efficient, but is highly effective in targeting the most adaptable members of the addiction treatment community. The transfer of technology can be accomplished by many methods, but real, fundamental change

requires both the knowledge of how to change coupled with the willingness to undertake that change. The ATTC-NE on-line education program is able to fulfill both.

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Appendix A

Annotated List of Courses Offered by the ATTC-NE

Addictionology

This course approaches addiction to psychoactive substances by examining the perspectives and theories of the following models: (1) Health-Disease Model, 2) Bio-Psycho-Social Model, and 3) Public Health Model. Discussions will include the maladaptive behavior changes (as identified by the presence of a persistent recurrent social, occupational, psychological, or physical problem(s) exacerbated by the use of the substances. The relationship of these problems in crime causation, offender rehabilitation (education, prevention, treatment, probation, parole), and offender classification will also be examined.

Adolescent Chemical Dependency: Current Perspectives And Treatment Approaches

This workshop reviews current perspectives on the adolescent treatment population. A number of effective treatment techniques and approaches will be presented. Specific topics reviewed include developmentally appropriate assessment techniques, bio-genetic influences and consequences, neurological functioning and condition progression, as well as intervention and recovery strategies that combine cognitive, behavioral, and 12 step approaches.

Advanced Pharmacology - Staying Current with Drugs of Abuse

The focus of this course is to look at some of the new drugs of abuse and old drugs that are returning in popularity. We will discuss some of the research findings that are providing new direction for treatment approaches. Special attention is given to the following drugs: marijuana, alcohol, Rohypnol(r), Ketamine(r), Gamma-hydroxybutyrate, and methamphetamine. Participants are provided the opportunity to post inquiries about specific drugs of abuse. Numerous links and web resources will also be provided to allow students to keep current on the newest findings from federal research projects. This course is designed for a wide audience and (in general) will not exceed the graduate level in difficulty of material.

An In-Depth Study of the 12 Steps and 12 Traditions

This introductory course familiarizes mental health and addictions professionals to the 12 steps and 12 traditions of Alcoholics Anonymous. Each step and tradition is read and discussed in-depth. Participants have an opportunity to ask questions regarding the actual process of practicing the steps.

AOD and Disabilities

This course explores the relationship of alcohol and other drug use to injuries that cause disabilities. We will explore the risk factors for substance abuse in persons with disabilities, both physical and cognitive. Information on screening, assessment and treatment will be included.

Chemical Dependency and Post-Traumatic Stress Disorder

This course provides an overview of the connection between Post-Traumatic Stress Disorder (PTSD) and chemical dependency. The diagnostic criteria, presenting symptomatology, biological aspects and predisposing variables of both conditions are explored. These often co-existing conditions are presented in models of representation that are easily understood and have direct applicability to treatment delivery for the addiction treatment provider.

Clinical Supervision in Substance Abuse Programs

This course examines the many different dimensions of clinical supervision including: administration, support, education, and leadership. It explores the responsibilities of clinical supervisors and discusses specific skills necessary to provide effective clinical supervision in substance abuse treatment settings. This course also addresses issues of importance of both administrative and clinical supervision in substance abuse settings. Class topics include: legal issues in clinical supervision, employee performance appraisals, assessing the supervisee, developing supervisory guidelines and principals, guides for effective interventions with ineffective supervisees, progressive discipline, elements of effective supervision, working with adult learners, guidelines for criticism, writing an employee development or educational plan, and knowledge and applicability of ethical issues in supervision. The course is designed for either current clinical supervisors or those preparing for the IRC chemical dependency clinical supervisor examination. However, anyone desiring to participate may enroll. Generally speaking, it will not exceed the graduate level in difficulty of content.

Discovering the Meaning of Prevention: A Workshop for Treatment Professionals

Professionals in the helping professions are often expected to know about and speak to the full continuum of care – prevention, intervention, treatment, and aftercare. Yet few of us have had much formal training on the discipline and technology of prevention. This course gives an overview of prevention including defining terms, community development, prevention strategies, and science-based prevention.

Strategies to Deal with Individuals and Social Risks Associated with Substance Abuse and Dependence

This course introduces the concept of reducing the harmful effects of drug abuse on the addicted individual. We will examine differing viewpoints on ‘what disease prevention is’ and ‘what its ultimate goal is.’ Needle exchange and other AIDS prevention approaches are covered along with their applications to treatment and drug education programs. Participants are provided the opportunity of posting comments and raising questions in a virtual group discussion on the Web. Numerous links and Web resources are also provided to allow students to maintain the opportunity of staying on top of the newest findings from federal research projects. This course is designed for a wide audience and, generally, will not exceed the graduate level in difficulty of material.

Effective Strategies For Working With Offender Populations

This course approaches treatment of offenders by providing the training participant with increased knowledge and understanding in the delivery of successful substance abuse treatment services. Participants become more familiar with, and gain a better understanding of, working with offender populations. The application of effective strategies and approaches for dealing with this population are included.

Lifestyle and Stress Management: The Balancing Act

As the first in a series of courses on the holistic relationship between the components of wellness and addictive behavior, this introductory course is designed to focus on the importance of prevention and the development of healthy behaviors. Materials will be presented via a class Web page and processed through group discussions, self health risk assessments, and group projects.

Linking Substance Abuse and Interpersonal Violence: Implications for Effective Interventions

This on-line course is designed to review issues related to the links between substance abuse and interpersonal violence. It focuses on a review of theoretical models of interpersonal violence and their related interventions. A review of current research linking the two major social issues is provided. The knowledge developed from this research base provides a framework for discussing effective interventions.

Living Life on Life's Terms: Integrating Spirituality into the Therapeutic Process with Addicted Adults

For years the spiritual component of the recovery process has largely fallen under the auspices of Twelve Step programs such as Alcoholics Anonymous. Recently, however, there has been an increased awareness and interest in spiritual practices and processes as adjuncts to more traditional medical and psychotherapeutic interventions in the addictive process. This course explores some of the latest thinking on the value of spiritual beliefs and practices in the recovery process and how addiction counselors can integrate a spiritual focus into treatment without pushing a particular religion or set of beliefs on the client.

Motivational Interviewing

A highly successful treatment approach developed by Dr. William Miller, Motivational Interviewing techniques have been well established as an effective means of helping individuals recognize present and potential problems, while creating an openness to the concept of change. This introductory course provides a fundamental understanding of Motivational Interviewing techniques, and Prochaska and Di Clemente's transtheoretical model "Stages of Readiness to Change." This workshop concludes with an on-line chat where the instructor, through role play, will demonstrate these techniques and respond to questions.

Multicultural Awareness: A Personal, Professional and Organizational Journey

This course is designed as an introduction and expansion of cultural competencies for human service practitioners. This is a four-session course with the expectation that participants will complete an action plan for further development of cultural competency.

Over-eating As A Response To Stress: Basic Behavior Change Strategies

This course addresses eating behaviors related to stress and multi-disciplinary behavior change strategies. Content is based on the holistic relationship between the components of wellness and addictive behavior. Focus is placed on the importance of long-term diet modification, understanding of basic nutrition/physiology, vision goal setting and the absolute importance of regular physical activity. Stages of Change Theory are applied to body fat-loss and eating habit changes. This course is designed for a wide audience and, in general, does not exceed the graduate level in difficulty of material. Diagnosable conditions such as bulimia and anorexia, are not covered in the content of this course.

Problem and Compulsive Gambling

Problem and compulsive gambling is an ever-increasing issue in our society and yet, as one of the more silent addictions, most practitioners know very little about it. In this four-week course experts in the field cover a variety of topics including: distinguishing between various types of gambling (problem vs. compulsive gambling); prevalence rates; clinical definitions of pathological gambling (including the DSM-IV diagnostic criteria); assessment; screening instruments; and comprehensive approaches to out-patient treatment.

Problem Gambling and the Impact on the Family

This introductory course examines the issue of problem gambling from a family perspective. An overview of problem and pathological gambling is followed by a discussion of the impact on the family, survival techniques, and recovery issues. The course is based on the book Behind the 8-Ball by Linda Berman and Mary-Ellen Siegel.

Relapse Prevention: Theory and Practical Application

Relapse is a very complex and often emotionally laden issue. This course presents current theories and practices for the identification and prevention of relapse. Participants are introduced to professional literature on theories of relapse, understanding the dynamics of the process, addressing prevention strategies, identifying special issues related to relapse, and examining practical application in clinical case reviews.

Substance Abuse Among Older Adults

When we think of alcohol or other drug abuse we usually think of adolescents and young adults, a significant percentage of the population aged sixty-five and older suffers from a problem involving alcohol or other drug abuse. Such older substance abusers place even greater burdens on the health care system than do younger abusers, yet less attention is focused on their needs. This course introduces the student to what is known about these problems in older adults. Topics addressed include: epidemiology of substance abuse in the elderly, early onset versus late onset problems, issues in screening and assessment, treatment issues, and approaches and barriers to treating the older substance abuser.

Substance Use Issues in Gay and Lesbian Clients: Considerations for Effective Practice

This course explores the risk factors for the development of problems with substance use involved in the struggle to develop a healthy identity in a society which historically has pathologized this affectional preference. Interventions that are both sensitive to these issues as well as affirmative in working with people at various stages in their lives are presented. Materials are processed through group discussion, written assignments, and group projects. This course is designed for a wide audience and, in general, does not exceed the graduate level in difficulty of material.

Suicide and Chemical Dependency

This course is designed to review clinical and theoretical issues related to suicide which often confronts the chemically dependent patient. It explores the demographic and clinical data associated with the risk factors of suicide. It also associates the bio-psycho-social factors that are correlated with the potential for suicide. Lastly, this course assists the clinician in asking poignant questions to assess for suicide and to utilize the answers to these questions in treatment interventions. This course is designed for a wide audience and, in general, will not exceed the graduate level in difficulty of material.

Systems Approach to Criminal Justice

This course approaches prevention, intervention, and the delivery of treatment services through a comprehensive systems-based examination of services offered to offender populations.

The Core Functions of Addiction Counseling

The central purpose of this course is to address the following questions: What is the scope of practice that is appropriate for an addiction counselor? What are the competencies that are most likely to be associated with positive outcomes? What knowledge, skills, and attitudes should be shared by all members of the addiction counseling profession?

Understanding and Utilizing 12 Step Programs

This is an introductory course to familiarize mental health and addictions professionals to the philosophies and practices of 12 Step programs. Through on-line presentation, additional readings, and attendance at an open 12 Step meeting, participants enhance their knowledge of these programs and increase their effective utilization of them in referral and treatment planning.

Understanding and Working with Violent Men

This introductory counselor education course is designed to help the clinical substance abuse treatment professional recognize the numerous psychological, physical, and emotional warning signs of people who are experiencing abuse. This course discusses theories and research about the relationship between alcohol use and domestic violence. Identification of the difficulties of working with military personnel who are experiencing domestic violence will be made and three models of treatment will be introduced. In addition, information regarding victim profiles and resources for victims of violence is also made available.

Voices of Recovery: Building a Recovery Network

A recovery network is a coalition of members from the recovery community, their family members and other allies working collaboratively to address public policy, awareness, resources and businesses at the local, state and federal level. This course is designed to help the participant develop recovery networks and aid in the establishment of linkages with others involved in the recovery community.

Appendix B Summary of Current Literature Regarding Distance Learning

The overlap and discrepancies between research-driven technologies and clinic-based practices is not well understood. There is a consensus that the on-going generation of new and improved technologies far exceeds the capacity of clinical organizations to implement those advances. The reasons for this lag have variable attribution.

Leshner (1997) offers two aspects of the dissemination of science that are an idiosyncratic problem in addictions. He first cites the stigma attached to drug use and addiction in the broader societal context. Secondly, he implicates substance abuse treatment providers themselves in that they have a strong ideological disposition to engage in the process of treatment that was effective for them personally, generalizing their experiences, rather than adopting more research-based treatments. Leshner's strong opinions on the internal resistance to change within a segment of the substance abuse treatment community is supported, in part, by Sorensen et al. (1998), in their discussion of the characteristics of treatment providers. The authors cite survey data (Mulligan et al., 1989) that indicates the strong relationship between personal participation in recovery (12-step programs) and training through the apprenticeship model (81% in recovery), contrasted with treatment from therapists with PhDs who are less likely to be personally involved in a recovery program (18%). The authors suggest that the relationship or identification of research-driven treatment methodologies and academic training may inhibit those trained through the apprenticeship model from adopting such treatments.

Horgan and Levine (1998), in a large survey of providers and treatment populations conclude that the diversity of providers, treatments, payers and clients will produce differential implementation of treatment technologies. Lamb et al. (1998) summarize the problems with the diffusion of knowledge transfer in substance abuse treatment somewhat less pointedly. They find that the structure of treatment programs, the heterogeneity of providers and clients, the stigma associated with substance abuse and lack of knowledge about technology transfer in addictions form the four greatest impediments to the spread of knowledge in the treatment community.

Brown's (in press) review of technology transfer in drug treatment and prevention supports the arguments put forth by Leshner, stated above. He notes that researchers are academically and hypothesis oriented while the treatment community is predominately paraprofessional and task oriented. Brown offers a useful distinction, between research dissemination (a process that is useful to researchers and very common) and technology transfer (the implementation of research-based innovation and change in practice, a very uncommon event). His conclusions, about moving research into practice, are two: the first is to pursue technology transfer through interpersonal methods and the second, to reorganize the division of labor at the Federal level, bringing the dissemination and funding functions under the same control. Brown is not incorrect in his review. However, his analysis recapitulates the problem itself. Brown concerns himself with the research

and funding side of the equation, rather than the practice side. The real activities of the daily functioning of substance abuse treatment facilities has, and is, dramatically changing under managed-care. Approaching the technology transfer issue as if research is the dynamic aspect to be disseminated to the otherwise static treatment community, is to ensure that such technology transfer, no matter the method, will fail. In particular, Brown's assessment that interpersonal methods of training (based on Sorensen's study, described below) neglect the pragmatics of engaging in such training. Do organizations close for the day? Do fee-for-service clinicians go unreimbursed? Do clients go without treatment? What kinds of improved outcomes would be explicitly linked to new therapies in a behavioral healthcare reimbursement environment that supports limited modalities and lengths of care? The subsequent review of the literature does not answer these questions, because they are not yet answerable. But they do address the conclusions Brown offers.

Sobell (1996) makes some strategic suggestions concerning the dissemination of research-based practices into clinical settings. She adopts the business model, where the research findings become products that are to be offered to prospective customers, in this case substance abuse treatment providers. Sobell stresses the gulf between the scientific research community and the treatment community, in terms of values and methodologies. She suggests that researchers begin to market their findings rather than display them in journals that are only of interest to researchers. She recounts the experience of being able to create a treatment unit with the express design of disseminating outpatient treatment technology, *Guided Self-Change*. This unit was designed to pilot dissemination and served as a training mechanism that focused on assessment and referral centers within the treatment organization. In addition, the unit was mandated to carry this technology to all the provincial assessment and referral sites. The program has been quite successful. The author found in this method of technology transfer, a model of dissemination and change. However, it is important to note that the conditions found in the Canadian health service are quite different from those in the United States. Regional mandates are not possible in the competitive health care environment, and the implementation of these specific methodologies may be problematic in a less centralized health care system.

The study reported by Sorensen et al. (1988) is one of the few projects to examine the dissemination of new technologies into drug treatment. Participants were randomly assigned to one of four dissemination routes: site visits, conferences, printed material, and a control group. The rates of adoption were relatively low at the three-month follow-up. The site-visit group had an adoption rate of 28%, the conference group 19%, the printed material group 4% and the control group 0%. The author concludes that in-person technology transfer yields maximum diffusion rates. However, in a cost-sensitive environment, these are the least likely to take place. Printed materials, such as journals, were often the most cost-effective, until the advent of digital medium such as the Internet.

Backer and Rogers (1998) describe the diffusion process of a Center for Disease Control AIDS education program. It was initiated in the private sector workplace. They find that the success of diffusion is dependent upon an individual who moves the program forward through their individual effort, or as a response to the specific incidence of AIDS in the workplace. The authors, following Rogers' diffusion of innovation model (1995), suggest that the program has yet to reach a sufficient level of penetration within the business community, such that it reaches the level of "critical mass" required to generate rapid adoption of a new technology. The authors further suggest that there are several inherent problems with the program. These include: 1) the CDC-based program is not compatible with the needs of private sector employers, 2) the program is too complex, and 3) the workplace may be a less effective unit of organization at which to disseminate information on risky sexual and drug-related practices. The problems with technology transfer can be within the technology itself (complexity, incongruity with setting) or in the process (insufficient penetration of the technology).

Keller and Galanter (1999) discuss their experience in transferring a new addiction treatment technology in a community counseling setting. The technology, network therapy (NT), was transferred through a labor-intensive transfer program. The process consisted of distributing therapy manuals to the participants, engaging the treatment providers in 10 hours of instruction using lecture, discussion, review of videotaped therapy sessions, and role-playing. Therapists participating in a treatment study implementing NT, were provided with weekly group supervision on network therapy. The study outcomes showed a significant difference between positive urinalyses in the study (n=10) versus the treatment as usual control group (n=20). NT was integrated in the study group as an additional variable. The level of commitment by the authors in providing training and on-going supervision was remarkably high, a function of their primary research goal demonstrating the effectiveness of NT and not the effectiveness of the technology transfer. The effectiveness of the technology transfer cannot be accurately assessed until some time in the future, when external support of the technology is withdrawn. In an interesting observation, the authors describe the initial negative reaction of the therapists to NT. The clinicians, viewed it as a potential source of conflict with their philosophical orientation to a disease-model and a 12-step program of recovery.

Rush et al. (1995) employed focus groups to investigate early intervention in alcohol use by primary practice physicians. Technology transfer is useful only if the technologies are implemented, once transferred. They found that all the physicians recognized the importance of reducing problem alcohol use among their patients and recognized their abilities to engage in this discussion with their patients. However, the physicians voiced multiple reasons for not probing for alcohol use with every patient. These ranged from simple time constraints, to ethical issues of broaching topics that the patient has not discussed as yet. This small qualitative study details the

difficulty in overcoming barriers to technology implementation, even among highly trained physicians.

Additional studies have also identified barriers to implementation. In a study conducted by Mullen et al. (1991), interventions by physicians about smoking cessation were compared to expert evaluations. Although physicians and “experts” agreed upon the interventions utilized, there was considerable discrepancy in the use of follow-ups. The experts highly endorsed follow-up, whereas the physicians did not indicate that this was a priority. The reasons for the differences are similar to those above; the authors indicate that the physicians may see follow-up as inefficient, that they lack definitive knowledge of follow-up or that the expert opinion was biased toward psychological interventions (as many of the experts were psychologists). The findings suggest that the low intensity of physician practices surrounding smoking cessation may account for other reports among physicians of the low efficacy and expectation for such counseling, a tautology that is not driven by the transfer of the technology, but its implementation.

Cockburn et al. (1992) conducted a study using novel mechanisms to deliver a smoking cessation program to family physicians. They randomly assigned their cohort to one of three transfer mechanisms: 1) a personal visit by an educational facilitator with in-person follow-up at six weeks; 2) a “friendly” volunteer who drops off the program at the office and follows-up in six-weeks with a phone call; and 3) the delivery of the program through the mail with six week follow-up by letter. The group of physicians receiving the educational visit had higher rates of usage and reported better ease of use, but the rates for all the modalities were relatively similar. The researchers found that there was a slight advantage to the most intensive transfer, but the costs were much greater. The educational visits were twenty-four times more expensive than the mailed version; the courier delivery was twice the cost of mail and produced no better results. They concluded that the benefits of the in-person technology transfers were not cost effective.

In a longer-term research project, Rohrbach et al. (1993) described the technology transfer and implementation of a curriculum-based substance abuse prevention program (Adolescent Alcohol Prevention Trial, AAPT) in an elementary school. The curriculum consisted of 13 lessons. The researchers used a 2 X 2 factorial design, providing either intensive (day-long) or brief technology transfer for the teachers and dividing the groups depending upon whether the school Principal supported the curriculum. The schools were randomized by school district. The study covered 60 teachers in 25 schools whose school districts had endorsed the curriculum. Rohrbach et al. found that 78% of the teachers implemented at least one of the lessons during the study year. They found no effects for the method of technology transfer. The researchers noted that teachers differed on length of service, 12.23 years (s.d.=9.82) versus 23.77 years (s.d.=11.25). At the end of the following year, the implementation rate fell from 78% to 25% of teachers. The authors point to several problems with the diffusion of innovations in social settings, particularly the need to design the innovations so that they are amenable to local conditions. They suggest that innovations can be

adopted by force, making mandatory requirements by school district on teachers to implement new technologies

ENDNOTES

¹ There is a significant literature on non-linear processes and change, at least including Thom (1975) and the subsequent literature on catastrophe theory and the burgeoning literature from complexity and chaos theory in general and the application of these theories in organizational change, such as Goldstein (1995) and Guastello (1996).

² Rhode Island is implementing a federally funded research program, TOPPS II, that, in addition to standardizing assessment and follow-up of clients in substance abuse treatment facilities, will provide participating agencies state of the art computer hardware and software as well as Internet access. This equipment is being transferred to the agencies who can use it for other purposes outside of the study. This infrastructure will eventually extend to all licensed facilities, providing on-site access to programs like the ATTC-NE Distance Learning program.

³ The percentage is slightly understated. In that all of the respondents are not engaged in addictions therapy; adjusting for the clinical sample reveals that over 60% of the clinicians have changed their practices because of their participation in the ATTC-NE on-line education program.

⁴ Interestingly, the survey that was filled out directly by the respondent, employed in the same Center that houses the ATTC-NE, contained the only non-responses.

⁵ This list differs slightly from the list answered by the on-line respondents.

⁶ Only 12 of 13 responded to this question, the remaining responded answered with a question mark.