Responding to CSWE Technology Guidelines: A Literature Review and Four Approaches to Computerization

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SUMMARY. In spite of the dramatic increase in the volume of information on computer technology in social work, very little has been written about how this technology might be incorporated into existing curricula. What is needed is an overview of how computers have been used in social work practice and in educational settings that can serve as a starting point for social work faculty who are in the process of computerizing aspects classes and curricula. An extensive survey of the literature explored and classified literature on computing in social work by teaching style and curriculum content area. The authors discuss these approaches
and consider how computer applications developed for practice settings might be adapted and incorporated into social work educational settings. [Article copies available for a fee from The Haworth Document Delivery Service: 1-800-HAWORTH. E-mail address: <docdelivery@haworthpress.com> Website: <http://www.HaworthPress.com> © 2005 by The Haworth Press, Inc. All rights reserved.]

**KEYWORDS.** Computers, CSWE, accreditation, social work education, curriculum development

Recent CSWE accreditation standards call for the integration of relevant computer technology content into bachelor and master-level social work curricula. The current guidelines allow social work programs considerable flexibility in the integration of new technologies (Commission on Accreditation, 1994). However, there are no clear standards for integration of these technologies (Beaulaurier and Taylor, 1998; Beaulaurier, in this volume).

**INITIAL CONSIDERATIONS**

A great deal has been written about the use of computer applications in social services. Most social work educators are probably aware of the journal *Computers in Human Services* (which has changed its name recently to the *Journal of Technology in Human Services*) that has been devoted since its inception to the development of computer hardware and software for use by social work practitioners. Moreover, journals such as *Journal of Teaching in Social Work* and the *Journal of Social Work Education* have had an increasing number of articles, special sections and editions devoted to computer technology in the social work classroom. For the past several years the University of South Carolina has held a highly successful conference on this topic. Listservs, World Wide Web sites and the easy access to e-mail by social work educators have also helped to forge opportunities for social work faculty to stay abreast of the most recent computer applications and their uses in social work practice and education.

In spite of the dramatic increase in the volume of information on computer technology in social work, very little has been written about how this technology might be incorporated into existing social work curricula. Most of the social work literature related to computing is de-
voted to the use of individual computer applications, with little or no explicit reference to more global considerations of how to incorporate computer technology into the curriculum. In an environment where there is already limited space for existing course content, questions about the value computers add to the curriculum as a whole have remained largely unanswered. Faculty may even be tempted to resist computerization if it is seen to take time and resources away from other substantive areas of the curriculum. What is needed is an overview of how computers have been used in social work practice and in educational settings that can serve as a starting point for programs that are in the process of computerizing aspects of their curricula.

The authors used a matrix approach suggested by Beaulaurier and Taylor (1998) in the development of this literature review. Articles were classified in the matrix based on the best fit with respect to educational style and curriculum area. To the extent possible the authors have avoided cross-listing literature in more than one cell, although this was not always possible (see Appendix). The result was a visual representation of the way computer applications might be used (or have been used) in the major curriculum areas mandated by the Council on Social Work Education (Commission on Accreditation, 1994).

The authors reviewed and classified computer applications appearing in the human services literature. Each article was read and discussed by both authors until they could agree about how to categorize the citation. Relevance and applicability to curriculum followed CSWE Commission on Accreditation standards. Many articles that were relevant in some way to social work practice were rejected after an initial review as not relevant enough for social work education; in the end, 104 citations were classified in the matrix. Content areas included human behavior and the social environment, social welfare policy, direct social work practice, macro social work practice, research, field practicum, as well as a “miscellaneous” category that included special populations, social work values and ethics, computer literacy, and curriculum development.

Developing this matrix proved very useful to the authors in determining where particular applications fit in the social work curriculum, particularly in relation to how the various applications can or do contribute to teaching and student learning. The literature suggests that social work educators have used computer applications in at least four ways: (1) as audio-visual aids, (2) as autodidactic learning devices, (3) as topics in-and-of themselves, and as (4) ancillary materials.
The use of computer technology in distance education is also receiving increasing attention in the social work literature, especially in social work conference presentations that have an educational focus. However, issues related to distance education are complex, as are the highly specialized hardware and software packages used in this application of computer technology. The authors believed that this topic would be better addressed in a separate article devoted fully to the use of computer technology in distance education, and therefore do not address such applications in this article.

**COMPUTERS USED AS AUDIO-VISUAL AIDS**

Audio-visual approaches generally use the output of a single computer, projected in some way so that it is visible and audible by an entire class. The use of computers and computer applications in this way may be considerably more widespread than its discussion in the social work literature suggests. No articles were found that reviewed the use of applications commonly found in popular “office suites.” Journal articles tend to focus on technologies that are highly specialized and at least close to the “cutting edge.” These applications may be considered too mundane to appear frequently in journal articles, however such applications may be quite useful in teaching social work students. The authors are aware of instructors, for example, who use graphical presentation programs such as Powerpoint to do what in an earlier time they would have done with overhead projector slides. This approach to audio-visual aids has the advantage that it can incorporate sound, color, motion and professional graphics, yet can be customized easily. Spreadsheets, word processors, Web-browsers and other applications can be used similarly, and all such presentations can be saved, printed and distributed in a variety of ways. Some instructors have taken this to quite sophisticated levels using videodisk technology to create multi-media productions which combine video, audio, slide, and text presentation, that can be customized for each classroom use (Maple, 1994). One indication that instructors are using this technology is that it is beginning to appear on the World Wide Web (e.g., http://www2.uta.edu/cussn/courses/default.htm; http://www.bc.edu/bc_org/avp/gssw/sw851s.html; http://www.fiu.edu/~renzbeau/fff/ffffinfo.htm).

The use of rather simple computer technology as an audio-visual aid is arguably the cheapest and easiest computer technology to add to unaltered classrooms. It requires little more than a laptop computer and por-
table projection device. Moreover, the examples given cut across cur-
riculum areas. Thus, use of computers as audio-visual aids may be an-
tractive first step in computerizing aspects of social work curricula.

This is not to say that all software that has audio-visual applications is
unsophisticated. To the contrary, in recent years there has been a virtual
explosion of applications with a social work focus that have excellent
graphics and sound. Although not necessarily developed for social
work classrooms, these applications can often be adapted for classroom
use, particularly in direct services courses. Specialized interactive
vodisc, video game, multimedia, and hypertext applications can give
students an interesting alternative to traditional teaching methods by us-
ing graphical displays and sound recordings to convey content (Engen
et al., 1994; Maple, 1994; Olevitch and Hagan, 1994; Patterson et al.,
1997; Satterwhite and Schoech, 1995; Seabury, 1993; Bosworth, 1994;
Cahill, 1994; Seidner, Burling, and Marshall, 1996; Sherer, 1994;
Kokish, 1994, #29). Since most of these applications will allow the in-
structor or other “user” to interact with the substantive content being
presented, this form of audio-visual aid can be considerably more en-
gaging for students than traditional video or slide presentations. More-
over, many of these applications are designed to allow students to use
them autodidactically, and have therefore been cross-listed in the matrix
(Appendix).

AUTODIDACTIC LEARNING DEVICES

Autodidactic learning devices (ALD) provide students with self-
paced, self-directed learning experiences. In most cases they are designed
for one student or “user” at a time and therefore require that all students
who utilize the software have access to a computer. Most often ALD de-
signs that appeared in the social work literature simulated direct practice
situations where students engaged virtual clients. This approach has sev-
eral advantages over traditional role-playing. For example, either the stu-
dent or the instructor can interrupt the simulation when more time is
needed to adequately discuss aspects or dynamics of the case, when the
student has a question, or when the instructor wants to make a point. Such
an approach has been applied to crisis counseling (Seabury, 1993), be-
havioral counseling (Engen et al., 1994) and family interventions (Maple,
1994). Similar approaches have been developed for training profession-
als in field settings (Leung, Cheung, and Stevenson, 1994; Patterson et
al., 1997; Satterwhite and Schoech, 1995), as well as for educating clients
These approaches and programs could probably be adapted fairly easily for classroom use.

While less common than their micro-practice counterparts, a few ALDs were particularly appropriate for macro-practice courses, especially in the area of executive decision-making. Such programs place students in situations where they face dilemmas and make decisions related to providing cost-effective services. Students are required to confront real issues, in a simulated environment, related to how much service and service quality they can provide to clients given the parameters imposed by budget and regulatory restrictions (McClintock, 1990).

Several exemplars were also found which addressed course content typically found in social policy. Many used hypermedia and hypertext (Flynn, 1990; Gray, 1994; Patterson and Yaffe, 1994; Thomas, 1994), the same technology that creates the “links” on the World Wide Web. Patterson and Yaffe (1994) noted that hypermedia allows users to interact with and explore information in a non-linear, non-sequential manner, thus allowing them to learn and explore material in a way that reflects their own interests and preferred pace.

Like the practice-oriented ALDs, the policy-oriented applications create an environment where the user’s actions lead to practical consequences. In general, these programs put the learner into situations where decisions they make have real-world consequences. For example, in the Poverty Game the user assumes the role of President of the United States, and is charged with the task of reducing poverty without increasing inflation. Bar graphs indicate levels of poverty, inflation, and time left in the President’s term. The user is required to make policy choices, and receives feedback as to the consequences his/her actions have had on poverty and the economy (Gray, 1994).

Only one article reviewed software that seemed particularly relevant to human behavior and the social environment (HB & SE) coursework. A simulation game called Life Choices allows users to adopt roles where they are forced to confront life choice scenarios that correspond with developmental stages throughout the life span (Thomas, 1994).

One caution in the use of these approaches is that they can be quite time consuming. It is probably not as efficient to use games and simulations when compared to traditional text and lecture approaches. However, such applications may make up for this by impressing on the student a connection between actions and consequences that would be difficult to achieve using more traditional methods (Flynn, 1990, p. 205).
COMPUTER APPLICATIONS AS COURSE CONTENT

Autodidactic and audio-visual aids use computer technology to teach students about substantive social work content. In some cases, however, the computer technology is the content. It is becoming increasingly necessary to achieve a level of mastery with certain kinds of computer applications in order to accomplish the tasks inherent in some areas of social work. While many of the innovations in computer technology have made computers easier to use, these applications still take considerable time and effort to use. Applications reviewed in this section have in common that they are (a) relevant to one of the major social work curriculum areas, and (b) they require several weeks of classroom time to learn.

The best known of these applications are research-oriented programs. Social work researchers use a variety of computer software packages in their work, statistical and data management programs in particular. Consequently, research is one of the curriculum areas to which CSWE accreditation standards pay special attention (Commission on Accreditation, 1994, 2003). Most of the programs that are used for this purpose take considerable effort to learn, although computer technology is often considered essential to teaching in this area since it enhances the student’s ability to process and manage data, and achieve meaningful results (Ezell, Nurius, and Balassone, 1991). Although there are exceptions (Forte, Healey, and Campbell, 1994), it is interesting to note that few research-related programs have been extensively discussed in the social work literature. This may in part be because “standards of the industry” such as SPSS, SAS, and BMDP have been familiar to researchers since the early days of computers. Today these programs have become more graphically oriented and easier to use. Common research texts used in master and bachelor-level social work research classes increasingly include assignments, examples and units that require the use of such software (Bloom, Fischer, and Orme, 1998; Cournoyer and Klein, 2000; Fortune and Reid, 1999; Frankfort-Nachmias and Leon-Guerrero, 2000; Healey et al., 1999; Ruben and Babbie, 1997; Schutt, 1999).

Increasingly, social work authors have begun to discuss the use of computerized applications for analyzing text as well as numerical data. Drisko (1998), for example, described the relative merits of ATLAS/td, The Ethnograph, HyperRESEARCH, and NUD*IST for use in qualitative studies. However, like their quantitative counterparts, such programs tend to require considerable time and effort for students to learn
and use them. One approach to incorporating computer technology that is easier to master in research coursework, is to utilize software that comes bundled with most modern personal computers. Johnson, Williams, and Kotarba (1991) suggest that in some cases word processing programs can also be used to do reasonably sophisticated qualitative analyses, especially when they are combined with other software to help manage the resulting word processing files, such as the Microsoft Binder program. Thus, word processing programs that are already familiar to most students may bridge the gap somewhat between applications which are themselves a substantial topic of the course and software that is more purely a supplement. Similarly, some social work authors have suggested the use of spreadsheets for simple quantitative analyses (Cournoyer and Klein, 2000). Spreadsheets have a similar advantage in that they are relatively common, and often simpler to use than sophisticated “stand alone” statistical applications. Moreover, social work graduates are more likely to encounter spreadsheets and word processors in their workplaces post-graduation, than sophisticated stand alone data analysis programs like SPSS or the Ethnograph. Educators should be aware, however, that while this software may be relatively familiar to students, the functions necessary to use it in research may not be, and may therefore still require the instructor to cover its use in class. Drawing from an earlier example, spreadsheet users may not be familiar with their capability for determining measures of central tendency, or performing tests of statistical significance.

In addition to coursework related to research, CSWE accreditation standards emphasize integration into the practice curriculum. Database programs are powerful aids to managing, synthesizing and presenting information and may be of particular interest to macro-practice-oriented social workers learning about management information systems. While these programs take considerable time and effort to set up and use, there are a substantial number of exemplars in the literature suggesting that knowledge of such systems may be quite useful to the practice community. Literature in this area examines problems and processes of creating such systems for a range of settings such as foster care-adoptions (Oyserman and Benbenishty, 1997), hospitals (Kolodner, 1992), substance abuse programs (Branche et al., 1998), child welfare (Fanchett and Hughes, 1996), and other social service settings (Becnel et al., 1998; Branche et al., 1998; Hile et al., 1998; Kaye et al., 1998; Krepcho et al., 1998; Thompson, Tucker, and Zold-Kilbourn, 1998).

It is common for organizations to hire consultants to develop database systems (Beaulaurier and Taylor, in this volume), and for this rea-
son many faculty may decide that the benefits of learning about setting up and programming database systems are not worth the curriculum space they would require. Kettelhut (1991), however, suggests that it is desirable for social workers to be knowledgeable about the development of such systems since non-social workers generally do not understand the information needs of direct service practitioners.

Geographical information systems (GIS) have also recently emerged in the social work literature and may be of particular interest to instructors in the areas of community practice and social policy. These programs allow information stored in a database to be “plotted” on a map in such a way that students and others can see how social phenomena are distributed in an actual community. One such program, The Violence Information Network, has been described as a community data-base of statistics on violence, poverty, housing, morbidity, and mortality as they are distributed in a large metropolitan area. The authors indicated that the visual representation of such data had a greater impact on policymakers than the statistical information alone. Such technology holds considerable promise for making the implications of policy decisions concrete and visual. In practice, community social workers are also using GIS as a tool for highlighting and communicating community strengths and weaknesses, as well as to assist local agencies in grant-writing efforts by providing them with information on community characteristics and needs. An example of such a usage can be found at: http://www.usc.edu/dept/CCR/nbrhd1.html

**ANCILLARY MATERIALS**

Many articles on computers in social work do not fit neatly into courses that are likely to show up in social work curricula. In many cases computer applications have been developed for uses in agencies to automate or streamline internal processes, train staff, or distribute information. Articles in this section are primarily helpful to social work educators in providing ancillary information or to supplement regular course content, in much the same way that “recommended” reading lists do. This section also presents literature that focuses on the curriculum as a whole and issues of computerization that may be of interest to all faculty.

A number of applications have been developed to assist in the training or continuing education of post-graduate social workers. These approaches are often quite similar to autodidactic, multimedia, and hyper-
text applications that have already been discussed, however the applications in this section are specialized for use by professionals in the field rather than for social work students. Vafeas (1991), for example, discusses a relatively comprehensive program that assists direct practitioners in organizing, tracking and reporting on case management activities. Other approaches help practitioners to assess, diagnose and evaluate their progress with clients (Bischoff, 1992; Nurius and Hudson, 1993; Vatterott, Callier, and Hile, 1992). A common use of computers by clinical practitioners is to streamline non-clinical aspects of their jobs, for example to construct and organize libraries of social histories (Ferriter, 1995; Zawacky et al., 1992). Indeed this is one of the earliest uses of computers by direct services professionals as noted by Clark (1988) in one of the few very early articles that still retains relevance.

There are also applications that have been appearing in the literature, particularly with regard to Web-technologies. A recent study suggests that human service practitioners use the Web to gather information on (a) service areas, (b) funding opportunities, (c) relevant laws and pending legislation, and (d) to get technical assistance and (e) to find out in what activities other organizations in their area are engaged (Stoecker and Stuber, 1997, p. 44). Moreover, electronic communication in the form of e-mail, access to databases, electronic bulletin board services, etc., can be very useful in teaching students about community organizing. Electronic data archives and communications are used by organizers to “get the word out” to a wide audience (Cordero, 1991). Such technologies are being used to help local communities stay apprised of legislative and regulatory decisions that affect their communities, as well as help them stay in closer contact with each other, and have been a tool of organizers at least through the 1990s. At a more conceptual and policy level, Imbrogno (1995) suggests that computers can be used to model social policies, in order to view the ramifications, supports and possible opposition to policies before they are implemented.

Periodically, there are reviews of websites in social work journals (Holden, Rosenberg, and Weissman, 1996) that may be helpful particularly to faculty who teach policy courses. However, many ancillary materials of interest can be found on the World Wide Web itself. There are websites devoted to keeping track of resources of interest to social workers, the best known of which is the Social Work Access Network (SWAN: http://www.sc.edu/swan/index.html). Many websites are of particular interest to policy-oriented faculty. Most policy-related organizations as well as most legislators, legislative bodies and large gov-
erntment agencies also have a presence on the Web. Such resources can supplement information provided in class and act as a source of up-to-the-minute information on policies in progress. Interest groups are also good sources of Internet-based information, since they often follow legislative development at their websites (see for example: www.cwla.org/cwla/publicpolicy/alerts.html; www.madnation.org/action.htm; and www.ncoa.org/). Social policy faculty may be interested in a new web resource that is devoted to state policy matters. This could be valuable as social work programs seek to meet new accreditation standards in social policy that encourage attention to the devolution of policy-making from federal to state legislative bodies (http://www.statepolicy.org/).

One caution about Web-based resources is that although they are quick and easy to access, they are not always accurate sources of information. While it is sometimes possible to get full-text versions of articles that appear in peer reviewed journals on the Web, even these are often incomplete or abridged. Most Web-based information, however, is not even subjected to journalistic standards of accuracy, let alone a peer review process.

OTHER CURRICULUM AREAS

The matrix used to classify literature that appears in the Appendix has some limitations, particularly for classifying literature on content that CSWE standards indicate should pervade the curriculum. Another problem is when the article discusses content that crosses curriculum content areas. For this reason, citations in this column of the matrix were given a code to indicate when they were related to special populations (sp), social work values (sv), computer literacy (cl), or curriculum development (cd).

Special Populations and Social Work Values

A few computer applications were identified that address the problems of special populations referred to in CSWE accreditation standards. Menon (1998) describes a fascinating example of the use of Internet chat-rooms as virtual locations that provide a safe and spontaneous forum in which people can explore personal issues that would be embarrassing or socially unacceptable in other settings. Chat rooms, by virtue of the fact that no one can directly see the user’s age, gender, race,
etc., make it possible to allow students to explore, and even exchange gender, ethnic, racial, and other identities.

Computers have also been used to help some special populations such as people with disabilities become integrated into mainstream society. The use of voice synthesizers, text enlargers, talking computers, etc., allows many people with disabilities to lead more independent lives and function in a wider variety of settings (Weber, Zimmermann, and Zink, 1995). Computers, however, can also create opportunities for discrimination. This can be overt, as when particular minorities are targeted or screened using computerized databases (Bhatti-Sinclair, 1995). Bias can also be subtle. Eastman (1991) notes that historically men have been more likely to have exposure, interest and training in computer technology than women. As knowledge of technology becomes the basis for hire and promotion, women, minorities, and poor people may be at something of a disadvantage in the work force, even in traditionally non-high technology fields such as social work. Moreover, she warns that new hierarchies may form in organizations based on knowledge of technology that disadvantage some workers by gender, race, or class. Mastery and control of computer technology by an elite has the potential to make historically disenfranchised members of society even more disempowered (Phillips, 1993). This is not merely an issue of “haves” and “have nots.” As an increasing amount of data on clients (and others) is maintained in computer archives, difficulties are created for protecting client rights and their privacy (Rocheleau, 1991; Van Hove, 1995).

**Computer Literacy**

Articles on computer literacy tend to concentrate on what social work students should know for their professional development as social workers (Finn, 1990ab; Finn, 1995; Lamb, 1990). It is interesting to note that the applications Finn (1990a) suggested that students learn in order to become literate over a decade ago are essentially the same as the ones they would need today: word processing, spreadsheet, database and e-mail. Most of what remains for achieving computer literacy today is related to the Internet and covered in Gifford’s (1998) recent article.

In general, when computer literacy has been explored explicitly in the literature, it relates to courses on computers being added to the curriculum. Finn (1990a) articulated the four criteria to guide the formulation of computer literacy courses. These included (1) the assumption of no previous computer experience or knowledge, (2) a direct relation to social work practice, (3) the promotion of mutual support among stu-
dents, and (4) hands-on usage of the technologies. Finn also noted a gradual shift in student attitudes from anxiety and frustration to excitement about the power and versatility of computers. E-mail, for example, is now seen as an indispensable form of communication in agency settings, as well as between faculty and students (Finn, 1995). In contrast to social work authors who define “literacy” as facility with common software packages and operating systems that are found on most personal computers, Schwab and Wilson (1990) articulate a rather traditional view that computer literacy is incomplete without an introduction to the process of computer programming. They contend that this is necessary to ensure clear communication with software development professionals attempting to meet the needs of human services agencies. Most users today, however, will not encounter “programming” and “programming languages” except in some database applications, and it is becoming more rare even in this area. It may now be sufficient for students to have an understanding of what the various genres of software are capable of doing rather than direct knowledge of programming.

**Curriculum Development**

Most of the articles that have been categorized as related to curriculum development either explore the use of a particular type of computer application that can be used across the curriculum, or discuss theoretical issues that will be of interest to faculty and administrators who are implementing curriculum changes. The former include articles on the use of flexible technologies such as the World Wide Web to various aspects of the curriculum (Finn and Smith, 1997; Holden, Rosenberg, and Weissman, 1996), as well as other technologies such as computer-based testing (Sieppert and Krysik, 1996), the use of interactive video disks (Falk et al., 1992), facilitation of off-campus courses via satellite and microwave video technology (Kelley, 1993), course objectives and content in a macro-practice curriculum (Kaye, 1991), preparation and guidance for social work educators (Flynn, 1994), integrating micro and macro-practice considerations in developing information technology curricula (Monnickendam and Cnaan, 1990), and global guidelines for the use of computer technology as a learning tool (Chaiklin, 1991). These theoretical articles touch on the sort of technologies and considerations that should be factors in the computerization across social work curricula. Flynn’s (1994) article is an especially good starting place for faculty interested in learning about computer uses in education that go beyond the standard office
suite. Interestingly, models of computerization that have been developed by Chaiklin (1991), Hernandez and Leung (1990), and MacFadden (1994) were all written before the latest CSWE Handbook on Accreditation. More recently, these computerization approaches have been updated by a model of computerization that meets current accreditation standards (Beaulaurier, 2005).

In a few cases, there are articles such as Sieppert’s (1996) on computer-based testing that fell short of being models of computerization, but which are likely to be of interest to faculty in all areas of the social work curriculum. These articles have also been classified under the subcategory of “curriculum development.”

**CONCLUSION**

CSWE accreditation standards call for the inclusion of content on technology primarily in the areas of social work practice and research. It is somewhat heartening to observe, as indicated in the Appendix, that these are precisely the areas where there has been most development in the literature. Even so, considerable work needs to be done to bring computer innovations and technologies into line with the specific objectives of courses and topic areas in the curriculum.

There has been little attention to the use of more common out-of-the-box computer technologies in the literature. Such applications may have less appeal to journal editors since they do not represent the cutting edge of current computer technology. Social work educators may want to take note that field educators—who are also employers of social work graduates—have traditionally been most interested in students having a basic understanding of computers, their operating systems and commercially available programs (Hooyman, Nurius, and Nicoll, 1990; Nurius, Hooyman, and Nicoll, 1988; Nurius, Richey, and Nicoll, 1988). It seems reasonable that emphasis should be placed on these technologies, even when they are somewhat behind the leading edge of computer development (Beaulaurier and Taylor, 1998; Finn, 1990a).

Social work educators and authors may also want to place more emphasis on Web-based technologies. Since the World Wide Web and Internet technologies have really only been well-known to the general public for about the last half-decade, it is not surprising that more has not been written about them. Still, given the rapid proliferation of such technology, it is likely that social work students will need to be increasingly well-versed in the use of Web-based technologies such as e-mail,
search engines, databases, internet relay chat, browsing, telephony, video conferencing, and Web-authoring. Students will need to know about both the opportunities and the limitations of these technologies as they use and develop the potential of this technology for scientific knowledge, news distribution and gathering, grantsmanship, commerce, and so forth.

Finally, there is considerable room for empirical study of computer technology in the social work classroom and agency. Studies in this area become dated quickly, which only increases the need for up-to-date information on which technologies and pedagogical approaches are most appropriate for preparing social work students for this new millennium.

NOTE

1. From citations appearing in Social Work Abstracts and prominent social work textbooks.

REFERENCES

Numbers in the left margin of the References refer to the location of the citation in the matrix in the Appendix.


APPENDIX. Software Matrix: Software Type by Curriculum Area

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<tr>
<th>TABLE 1. TEACHING APPROACH BY CURRICULUM AREA</th>
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<tbody>
<tr>
<td>Direct Practice</td>
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<tr>
<td>Audio-Visual Aids</td>
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<td>Autodidactic</td>
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<tr>
<td>Computer Applications As Course Content</td>
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<td>Ancillary Materials</td>
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*Macro practice refers to “professionally guided intervention designed to bring about planned change in organizations and communities” (Netting, Kettner, and McMurtry, 1998, p. 6).

**In the “Other Curriculum” category, the two letters behind each citation stand for: cd—Curriculum Development; cl—Computer Literacy; sp—Special Populations; sv—Social Work Values.

(Numbers refer to References.)