

Networking: The Linking of People, Resources and Ideas

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About the Network

Computer Use in Social Services Network (CUSSN) is a nonprofit association of professionals interested in exchanging information and experiences on using computers in the human services. Members participate in the Network by:

- Sending materials for the CUSSN Newsletter, such as: member needs, interests, hardware/software use, activities, resources, ideas, experiences, computer applications, and events.
- Participating in the electronic network, skills bank, software clearinghouse and subgroups.
- Distributing Newsletters at workshops and conferences. (I will send newsletters to distribute or place on a resource table.) * Referring vendors to advertise their services and products through the CUSSN.
- Holding local CUSSN meetings. Local meetings in California, Chicago, Baltimore and Australia have been successful.

Network Dues: \$15 individuals, \$25 institutions (payable in U.S. Funds). Contact Dick Schoech, Associate Professor, School of Social Work, The University of Texas at Arlington, Box 19129, Arlington, TX 76019.

The Newsletter is published approximately 4 times a year and is sent free to all network members. Back issues \$5 each. Materials for the newsletter are welcomed. Send either in printed or MSDOS format.

The Electronic Network (CUSSnet) establishes local bulletin boards, national and local mail and file transfer, downloading of public domain software, and access to numerous repositories of electronically available information on human service computing. CUSSnet builds on FIDONET, approximately 3000 microcomputer-based local bulletin boards across the U.S. and in 9 continents. Contact your local computer store for a list of local FIDO/OPUS

nodes. Communications are at 300-2400 baud, 8 data bits, 1 stop bit and no parity. Almost any computer or terminal and modem will work.

The Skills Bank allows members to locate or share specific knowledge, skills and experiences for providing information about yourself. Contact Gunther R. Geiss, Adelphi U., School of Social Work, Garden City, NY 11530.

The Software Clearinghouse offers a computerized inventory of commercial and public domain available human service software, a software review file, and a software exchange. Contact Walter LaMendola, Professor, School of Social Work, U. of Denver, Denver, CO 80208.

Special Interest Group (SIGs) are subgroups where significant networking is occurring on a special topic.

Educators SIG, write Wallace Gingerich, School of Social Welfare, U of Wisconsin-Milwaukee, Milwaukee, WI 53201.

Hospital Social Services SIG, write Mike King, Director of Social Work and Discharge Planning, Saint Francis Hospital, 100 Port Washington Blvd, Roslyn, NY 11576.

Area Groups:

Baltimore, MD, contact Bob Elkin Professor, U of Maryland, School of Social Work and Community Planning, 525 W. Redwood Street, Baltimore, MD 21201

California, James M. Gardner, Department of Developmental Services, Fairview State Hospital, 2501 Harbor Boulevard, Costa Mesa, CA 92626

Australia, Floyd Bolitho, La Trobe U., School of Social Work, Bundoora Victoria, Australia, 3083.

Services Available

Vendor/Consultant	Contact Person	Services
California Planet Press P.O. Box 3477 Newport Beach, CA 92663-3418	Anne Breuer (714) 650 5135	Consultants and developers for schools, group homes, residential facilities, and human service providers. Specialist software for Quality Assurance, Case Management, Behavior Management and Human Rights Documentation, Consent Decree Litigation Review, Adaptive Behavior assessments, School Psychologist Report Writing.
Florida Community Service Council of Broward County, Inc. 1300 South Andrews Avenue P.O. Box 22877 Fort Lauderdale, FL 33335	Carole L. Dowds, CIE Programmer/Coordinator (305) 524-8371	A full range of consulting and technical support in the automation of Social and Human Services. Systems include Agency Inventory/Directory Production, Information & Referral, Client Case Management, Mental Health Client Tracking. Personal computer and minicomputer versions available.
Illinois OUTF ST, Inc. Drawer CNC6 119 Wilson St., Park Forest, IL 60466	F. Dean Luse, Ph.D., CSW, President (312) 748-3854	Consultation on feasibility and information system planning. Provides help with accountability, forms & report design, decision support systems, database development, software selection & evaluation, training your staff to use computer systems. Extensive micro and mainframe computer experience.
Indiana Master Software Corp. 8604 Allisonville Rd., Suite 309, Indianapolis, IN 46250	Joan K. Boyer, (317) 842-7020	Fund-Master development software features donor/prospect tracking, online inquiry to demographic and pledge/gift records, account selection capability, word processing interface, labels, campaign analysis, pledge processing, and more. Fund-Master runs on IBM PC's & compatibles, Data General Desktop and MV series. Single-and multi-user versions are available.
Maryland KBL Group Inc. 'Knowledge Based Living' 808 Pershing Drive #100 Silver Springs, MD 20910	Karen Levitan, Ph.D., President, (301) 588-4633	Services to help you use information, technology, and systems as professional resources. We work for you; we work with you; we help you do it yourself.
Michigan ON-SITE 2955 Jackson Blvd. Highland, MI 48031	Larry J. Renaud (313) 887-2119 after 6:00 (313) 846-7020	ON-SITE offers consultation; information system planning; training; workshops; hardware and software evaluation.
New Hampshire ECHO Software Products Main Street, Center Conway, NH 03813	Loren Davis, Director or Marketing (603) 447-5453	Complete Human Service Software Systems including client information and tracking, accounting, and fund raising.
New York King Associates, LTD. 215 Shoreward Drive Great Neck, NY 11021	Michael A. King, D.S.W. (516) 487-5995	Producers of AMIS - flexible off-the-shelf software for hospital social work and discharge planning departments. Customized programming are also available.
North Carolina National Collegiate Software Clearinghouse, School of Humanities & Social Sciences Box 8101, N. Carolina State U. Raleigh, NC 27695	G. David Garson Director (919) 737-3067 (919) 737-2468	A non-profit, educational, software service of North Carolina State University, the clearinghouse develops and distributes low-cost programs for IBM and Apple formats. Offerings include A-Stat, a full featured statistical package and Community Mental Health Simulation. Write or call for a free catalog.
Rhode Island Applied Innovations, Inc. South Kingstown Office Park Wakefield, RI 02879	(800) 272-2250 (401) 789-5081	A developer and manufacturer of numerous software programs designed to operate on popular microcomputers. The programs are fully supported, documented, and operational in hundreds of locations. Programs assist with Psychological Testing (e.g., MMPI), Office Management (e.g., billing/insurance forms), or Utilities (e.g., pop-up DSM-III-R info.)

Service Listing Announcements: Interested vendors/consultants should send payment along with their description. Rates are as follows:

Description length	Rate per issue	Rate per year (4 issues)
Under 15 words	\$5	\$18
Under 30 words	\$8	\$28
Under 45 words	\$10	\$34
Under 60 words	\$12	\$40

Space Advertisements: Advertising space is available in the CUSS Newsletter at the following rates:

one eighth page in one issue = \$15	one half page in one issue = \$45	one full page in one issue = \$75
one fourth page in one issue = \$25	three fourths page in one issue = \$60	two full pages in one issue = \$120

Advertisers must furnish a copy ready ad. If the ad will be run for four issues, a 25% reduction in cost is granted.

Mailing labels: Mailing labels are available at the cost of 7 cents per label.

CUSSN Public Domain Disk Copy Service

Definitions of public domain software codes:

[D] = Demo — Software that highlights a product and/or gives you the feeling of how the actual product operates.

[F] = Freeware — Full working version; no restrictions on use.

[L] = Limited Use Version — Lets you examine the product, but limitations prevent continued use.

[U] = User Supported Shareware — Full working copy; you pay only if you use it.

IBM-PC = Will run on the IBM personal computer and compatibles.

{HD} = Indicates a hard disk is required.

Note: All vendors have granted CUSSN software distribution permission.

Developmental Disabilities

AUGMENT (1 disk) — Information on augmentative communication readiness [F] IBM-PC

Provides teachers, parents and caseworkers with information about a client's unique situation regarding augmentative communications technologies and provides skill building exercise and resources. Distributed free by the Texas Planning Council for Developmental Disabilities.

McDSC (1 disk) from Shawn Boles, Micro Decision Support Center [D] IBM-PC

This demo introduces a software package to manage community residential services for citizens with severe handicaps.

DD Connection (1 disk) — Illustrates a local DD bulletin board [D] IBM-PC

This demo illustrates the DD Connection, a local bulletin board and database for persons with Developmental Disabilities which is operated by the Nat. Assn. for Retarded Citizens of the U.S. Distributed free by the Texas Planning Council for Developmental Disabilities.

Education/training

AMS (1 disk) — Academic Merit System from WALMYR Publishing Co. [U] IBM-PC

AMS is an automated merit review system for use by faculty and Personnel Committee for evaluating faculty performance.

BASIC Professor (1 disk) from Eagle Software [U] IBM-PC

An interactive tutorial for the computer language BASIC.

SCREE (1 disk) — Sequential Criterion Referenced Educational Evaluation System from WALMYR Publishing Co. [L] IBM-PC

SCREE helps you create, print, score, analyze and graph test scores for one or more courses.

TAS (1 disk) — Teacher Assessment System from WALMYR Publishing Co. [L] IBM-PC

TAS produces individual faculty reports and overall summaries based on student responses to the Arizona State U. designed "Teaching Evaluation Form."

Health

AMIS (1 disk) — Hospital Social Work/Discharge Planning System from King Associates Ltd. [D] IBM-PC

AMIS contains patient registry, discharge planning, and resource management modules which provide for the timely completion of necessary tasks and the renewal of applications to continue service and entitlements and to control length of patient stay, quality of patient care and hospital cost.

Medical Rehabilitation Manager (2 disks) from Easter Seal Society [D] IBM-PC {HD}

Allows the rehabilitation professional to collect, store, evaluate and use patient data drawn at every stage in the rehabilitation process.

Vocational Rehabilitation Manager (1 disk) from Easter Seal Society [D] IBM-PC

Manages client payroll and maintains detailed client records.

Mental Health

CAS (3 disks) — Clinical Assessment System from Walmyr Publishing [L] IBM-PC

CAS helps assess client problems and monitor treatment progress over time. Useful for counselors who must produce outcome measures for accreditation and insurance reimbursement.

MMPI (1 disk) scoring program from Applied Innovations [D] IBM-PC

Produces MMPI data quickly, accurately, and inexpensively.

Management

Bernie Cares (2 disks) from Central Referral Service, Inc. [D] IBM-PC {HD}

Demo illustrates the Bernie Cares information and referral system designed for an I&R agency

Fund Accounting (1 disk) from Executive Data Systems [D] IBM-PC

Presents the highlights and data entry screens from different module of two versions.

Fund Accounting Manager (2 disks) from Easter Seal Society [D] IBM-PC

Designed to handle the complete accounting requirements of health and human service organizations.

In-Site Billing (1 disk) from Applied Innovations [D] IBM-PC

Addresses the billing and accounts receivable needs of individual practitioners.

MPB (1 disk) — Multi-Provider Billing System from Applied Innovations [D] IBM-PC
Meets the billing, accounts receivable, and financial data base needs of group practices or clinics.

HSS (1 disk) — General Ledger from Great Lakes Behavioral Research Institute [D]
The Human Services Software General Ledger is one part of a fund accounting package.

Statistics

CRUNCH (1 disk) from Crunch Software Corp., [D] IBM-PC
Crunch is a general purpose statistical package for the social sciences.

SPPC (4 disks) — Statistical Package for the Personal Computer (student edition) from WALMYR Publishing Co. [F] IBM PC
SPPC student edition is a free "student" version of the complete SPPC statistical analysis software package.

Welfare

Child Abuse (1 disk) Intake Prioritization Expert System from Dick Schoech [F] IBM-PC
A BASIC expert system shell along with rule sets for guessing animals, diagnosing a TV, and for prioritizing child abuse intake. Used to illustrate how an expert system works, see Computers in Human Services Vol. 1 No.1.

Miscellaneous Packages and Utilities

Book Maker (1 disk) from WALMYR Publishing Co. [L] IBM-PC
Book Maker enables you to print small to huge manuals, monographs, or books by collecting and printing any number of ASCII text files as a single integrated volume.

Disk Protector (1 disk) from WALMYR Publishing Co. [L] IBM-PC
With Disk Protector, your PC will require a password upon bootup, thus preventing unauthorized access.

EXSYS (2 disks) Expert System Shell from EXSYS, Inc. [D] IBM-PC
The EXSYS demo includes the shell for creating a 25 rule system, a tutorial, and a manual.

Pen Pal (1 disk) from WALMYR Publishing Co. [L] IBM-PC
Pen Pal correspondence and encryption system helps keep private interviews, letters, questionnaires, etc., very confidential.

Help build the list. If you have found a human service oriented demo/freeware/shareware disk to be useful, please send it along. For every demo/freeware/shareware disk you send me, I will send you any one of the above disks free.

Demo/shareware/freeware disk order form

To order, circle the disks requested. Enclose \$5 per disk (\$7 for non-members) to cover mailing and handling. Disks may be accompanied by up to 10 pages of vendor advertisements, order forms, etc. Proceeds from disk sales go towards furthering the CUSSN activities. Order from D. Schoech, CUSSN, UTA GSSW, POB 19129, Arlington, TX 76019-0129.

Number of software products = _____ ; Number of computer disks = _____

I enclose: (pay in U.S. dollars only) (Number of disks X \$5 per disk =) _____

Name: _____

Mailing Address: _____

City: _____ State: _____ Postal Code: _____ Country: _____

Computers in Psychiatry/Psychology

The essential quarterly for clinicians using computers

Featuring articles and software reviews on diagnosis, testing, research, office management, and therapy.

Includes bibliography, calendar of events, and reader activities. Volume 10 (quarterly commencing January 1988) \$45

Computers in Psychiatry/Psychology

26 Trumbull Street

New Haven, CT 06511

Please send me Vols _____ of CPP. (add \$10 for postage outside the U.S.)

My check for \$ _____ is enclosed

Name: _____

Address: _____

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CUSSN ELECTRONIC NETWORK

Overview

The electronic component of the Computer Use in Social Services Network (CUSSnet) establishes local bulletin boards, local and international mail and file transfer, conferencing, and repositories of electronically available information. CUSSnet builds on a network of 3000+ local bulletin boards (FIDO, OPUS, etc.) around the world which automatically exchange information.

To Use CUSSnet

If a CUSSnet node is in your city, you're in luck. Simply dial it up using your computer and a modem and follow the directions. If no CUSSnet node exists in your city, call long distance to any CUSSnet node listed below (you may want to learn to use a BBS by calling a free local node.) To locate a local node, ask your local microcomputer dealer. You can use a local node to send mail and pick up whatever CUSSnet information your local BBS operator will get for you. You may have to pay a small deposit to your local node for long distance mail. Communications are at 300-2400 baud, 8 data bits, 1 stop bit and no parity. Almost any computer or terminal and modem will work. Paula Galloway (below) can provide assistance.

Examples of Message and File Areas on CUSSnet Nodes

- **Message Areas:** Local mail (public and private); international mail; conferences on human services, psychiatry, addictions, disabilities, Vietnam veterans issues, AIDS, violence, etc.
- **File Areas:** Files related to mental health, developmental disabilities, welfare, health, training, games, and utilities.

CUSSnet Nodes:

Code: i = has International CUSSnet conference

CODE: f = carries human service files for uploading and downloading

City & State	Net/Node	Phone Number	Operator	Specialty Focus	Code
Tempe AZ	114/23	602 965 1588	W Hudson	Research papers	i f
Phoenix AZ	114/15	602 235 9653	D Dodall	Disabilities	i
Chico, CA	119/13	916 343 4422	T Baughman	Disabilities	i
Denver CO	104/52	303 270 4936	C Mastrini	Nurse Practitioner	i f
Denver CO	104/51	303 329 3337	C Warren	Psychiatric Information	i f
Washington DC	109/672	202 775 1940	B Straugham	Community agencies	f
Indianapolis IN	11/207	317 842 7728	D Appel	Funding Acct. software	i f
Murray KY	11/301	502 762-3140	B Allbritten	Handicap Information	i f
St. Louis MO	100/999	314 889-4696	B Butterfield	Biblio. Information	i f
Raleigh, NC	151/101	919 851-6806	M Bowen	Handicap Information	i f
New Hampshire	132/111	603 225 7161	D Hall	General	i f
Las Cruces NM	381/402	505 646 2868	M Connealy	NASW NM State information	i f
Garden City NY	107/240	516 228-7938	G Geiss	Skills Bank	i f
Pittsburgh PA	129/65	412 487 3701	B Hughes	General	i
Arlington TX	130/10	817 640 7880	Brown/Schoech	Disabilities Information	i f
Houston, TX		713-749-1744	P Raffoul	Health (5pm- 8am)	f
Seattle WA	343/35	206 543 3719	P Galloway	Federal Infor 12am +	i f
Cardiff, Wales	511/43	+ 44222490722	W Davidson	General	i
Wigan, U.K	510/64	0942 722984	D McKendrick	Health Information	i f
Oxford, U.K	503/46	865 882872	N Middleton	General	i
Netherlands	508/14	+ 31837615363	M Mazeland	General	i
Israel	to be added		Monnickendam	General	

Due to rapid changes, this nodelist will always be outdated.

Send revisions to Dick Schoech at Node 130/10

To start a Node, call Paula Galloway in Seattle, Wa. Voice Phone 206-543-0566

Articles, Reviews, and Reports

Interview with Walter F. LaMendola,

Professor and Director, Information Technology Center, School of Social Work, University of Denver, Denver, CO 80208 (May 88).

CUSSN: Walter, lets begin with how you got started in the field of human service computing and what it was like back when you started out.

W.L.: I actually started out with human service computing when I went into my Ph.D. program at the University of Minnesota in 1973. Before that I had developed an interest in computing, but really hadn't had much experience with computers.

When I was in Sweden in 1969 and 70, I was involved with a project that was called "Arkiv Samtal" or in English that would be "Library of Conversations," in which people were using the library as a way to help different neighborhood groups who were having problems around issues of children and minorities organize themselves. The way the Arkiv Samtal would work is when people expressed their problems they would record them on paper, store them in the library, and then as similar kinds of problems were recorded, they would ship copies of other people's discussions about them. Involved in that project were a number of people from Scandia Insurance firm who were beginning to try to develop data base techniques and data base methods for Scandia, and that was my first real long term working relationship with people who had a different way of thinking about the use of data and information. It was valuable because it demonstrated that some of the decision making and flow charting that I'd studied in my master's program wasn't really completely insensible, that you could apply it to neighborhood development projects. That was important. In '73 when I went to Minnesota the University had just started a Department of Information Systems, and it was one of three, I think, in the country at that point.

CUSSN: In what department?

W.L.: It was in the School of Business, and it was a sub-department of the Department of Accounting. When I arrived I designed a program of study in which I took all of the courses that they offered in information systems in that department at that time. They had a series of four courses that led to a certificate. I was the only social worker, of course, that they had ever had. Anyway, that's where I got started.

CUSSN: So, what did you do when you graduated?

W.L.: Well, as you know, my dissertation was on information system development in human service organizations, and I had at the University of Minnesota all my experiences with main frames, primarily large CDC machines. When I graduated I got the idea that I could actually develop an information system using these new machines, microcomputers. At that time there were a group of now unknown companies, such as Polymorphic and Cromemco. Cromemco was known as the "Cadillac" of

microcomputers at that time. So, what I did, basically, was try to do program evaluation and consulting work to support the development of an integrated information system that

When I graduated I got the idea that I could actually develop an information system using these new machines, microcomputers.

would run on a microcomputer and be useful to a small human service organization.

Well, at that point there were lots of limitations that you don't have to work with today. For example, my first Cromemco had a form of CPM, called CDOS and it also had what was supposed to be the best BASIC compiler. First, it was a 4 K compiler and then a 16 K extended BASIC. Then, of course, as you know the BASICs grew and and grew and grew. But the problems that we had in developing and marketing it were, of course, first of all, not that the machinery was unreliable, although, it got more reliable as time went on. And there would be times when nothing worked on a machine, and there was nothing you could do about it. The software was completely unreliable, so that most of the programming moved by fits and starts.

Now, designing for that kind of information system took, I think I estimated about eight man years before it was done. What I ended up with were primarily three modules: one that was a client tracking and identification module, one which was a set of accounting modules so that you could do basic accounting with them, like billing, and one was an SPSS look alike that did basically the descriptive statistics on the case load. Then I set about trying to market that. There wasn't much market. There was no market. In fact, in the



offices where I worked which were in downtown St. Paul, I couldn't even interest human service people to look at it. They didn't even want to see what it could do.

I think I've told this story a lot too. In 1979 when the system was ready, I got an award from the International Federation of Information Processing Societies (IFIPS) and went to the National Computer Conference to receive it. Cromemco had their vendor display on the floor beneath me. It was in New York. My machinery was delivered. The union refused to bring it into the hotel. I had to carry it up the stairs. Luckily, I had a friend with me, and he helped me carry it up. I thought, "Nothing can go wrong." Cromemco is downstairs: If the worst happens, and this doesn't work, then they will give me support, through their engineers, or whatever. Well, of course, when I got the whole thing set up in the awards room, it wouldn't work. So what I had to do was toy with it and I'd run down to Cromemco, and they would send someone up, and they would say, "Yep, I don't

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know what's wrong," and then they'd leave! So about two in the morning, I guess it was, I discovered that if I removed the face plate that had the minifloppies on it, and hung it at an angle supported by a couple of books in front of the machine it actually would boot up the system and run. So as a result, here I was trying to show this software to all the people who attended—there were about 50,000 people that year—they would come in and see the front piece hanging down so they'd look inside the box rather than at the video display. They thought I got an award for something I did inside the box! (laughter) They never looked at what the hell I was doing. So people were not familiar—even professionals—with microcomputers.

I would have to say there wasn't any market at all. I did eventually get a contract from the State of Tennessee. The State of Tennessee asked me to deliver four systems, three to local agencies that were involved with developmental disabilities across the state and one to the Kennedy Center. The idea was that as they became sophisticated in the use of not only the human service system software that I had written, but Wordstar, the word processor, we would actually put in more and more machines.

Well, Cromemco at that time then contracted with a new firm for its floppies and had just built some new boards, so when I went to Kennedy Center, we had a big meeting, with the executives and a lot of academics. I put up the system and opened the floppy door to (it was a Tandem, by the way, one of the first small disks) put in the floppy, and the hub fell off in my lap. It was not a good beginning. Then the 64 K board that they had delivered with the machinery, none of this with any documentation, by the way, wouldn't work, and I later took it out and had it looked at, and they found 32

sources of intermittent errors. I think that I should have named that "The 32 Error Board," rather than the "32K Board."

I put up the system and opened the floppy door to put in the floppy, and the hub fell off in my lap. It was not a good beginning.

But eventually that system did get up and running and the governor changed and they never did follow through with training money. So I had people in Frogjump, Tennessee with absolutely no support and that project was abandoned. To my knowledge that was the only real Beta test site for my software that ever would occur. About that time Apple computers were introduced and I went back into academic life.

CUSSN: You mentioned client tracking as one of your modules. Where do you see client tracking today? Has it progressed substantially since you were looking at it?

W.L.: Well, I think that all of the software, particularly in the large public systems, has developed to a point where it's in some cases state of the art software. I think that problems are still the same, though, in different terms than those that are software related. I think one of the major problems that we face today as more data gets collected we seem to have less control over the sharing of that. I think privacy is going to be an issue that has to be confronted within the next two to three years before it really gets out of hand. The large

large public systems have demonstrated regularly that they are poor guardians of personal data

public systems have demonstrated regularly that they are poor guardians of personal data, and the clients who are being tracked or managed or whatever seem to have very little rights in terms of what it is that is being collected datawise and stored.

In the large public systems I see software that's been developed that does a good job, and in some cases it's state of the art, whereas in what George Hoshino calls the garden variety human service organizations, I see them doing a relatively poor job of client tracking, with very little agreement about what kind of software could or should be used. Many times developing specialized applications that just don't work to do whatever the agency needs to do with client tracking. So for example, if in Denver we have an Indian population of about 50,000, the director of the Indian Service Agency (there's a specialized agency here that provides some health services), won't let the social workers use the computer system. He uses it primarily for word processing and billing. They have no way of keeping track of who's involved with which support groups, where Indian families are, or what kind of circumstances they find themselves in. So, it

seems to be really difficult to get people to think about how they can actually keep track of people in a way that it's equitable and yet tells them what kind of service needs they have.

CUSSN: So it's not really hardware/software, it's really a people or training problem. This brings us back to the University of Denver, Graduate School of Social Work, Information Technology Center. Why don't you say what you are trying to do, and how it's working.

W.L.: Well, when I came I originally envisioned it in a very ambitious way. One of the things I had some experience with that people generally had not had experience with was in implementing a curriculum, in trying to teach social workers about information technology and information technology applications. So one of the goals of the center initially was to continue to develop curriculum that would explore how best to train people in human services on how to develop information technology applications. Second thing that we tried to do was begin to develop some ability to conduct exploration into the impact of information technology in the human services.

Primarily what we tried to do was use students in agencies and try to document their experiences with how you introduce the information technology into agency life, what seemed to be important applications, and to have some interchange between what we were teaching educationally and what we felt might be the needs of the organizations. I guess another thing that we tried to do was to move in the area of electronic networks. That's where you and I began when I was in North Carolina, when we started to look into the use of Fido and then eventually we had some beginning experiences with Fido and decided that was something we could really build on. Fido is a good example I think of what the Center tries to do because the reasoning behind our choice of Fido was very important. It was significant because what we respected were some values that I think later become important when you think about how you develop curriculum or get involved with human service organizations. I think that probably there is a set of principles about how you use information technology that's different than what technicians have developed as a set of principles that are what I call value directed. They include things like Fido (that's non-subscription based), it encourages what we think is democratic participation. It's open to anyone who has the least equipment required.

...there is a set of principles about how you use information technology that's different than what technicians have developed,,that are what I call value directed.

So I think part of what I tried to do at the Information Technology Center was try to uncover what those principles might be because I had an intuitive feeling that they were there, and that they should be the basis for whatever training should take place rather than training people on the basis of what they had to know about hardware or software. So

the CUSSN effort became an important part of that, and I brought with me what was a manageable software exchange. At that time, I think we had just a hundred or so pieces of human service software. Since then it's demonstrated over the years that that's just impossible to keep track of. There's a large set of vendors, the vendors change regularly, there's no dominant force in human service vending that has a specific set of applications that they do all over time and with a large share of the market. On the other hand, the pieces of software tended to be fugitive and so on. So we used students in the beginning and the Information Technology Center tried to organize that. But that's become a less and less manageable task to organize. So that's some of the major areas that we tried to move in in the Center.

CUSSN: Why don't you explain your curriculum in terms of what students are exposed to during the different stages of their training.

W.L.: Well, in the first level, the introductory level, that all students are required to take, has two components. One is a hands-on component where they learn some fundamentals of all the major areas of applications, but the emphasis is on helping them acquire beginning skill in word processing if they don't have that when they come in. So at the end of the course they would have used a data base management system, they would have looked at a telecommunications example and used that, looked at graphics, looked at a spreadsheet, but, the major area we would have developed is how you handle text on the machine. That component is fairly well developed with written instructions and computer based exercises and so on.

In the other component, which is more substantial, is the component where we attempt to demonstrate the relationship between information technology and social work. What we do is, we introduce the student to readings in areas, for example, like readings around the information poor. We have readings from the Equals projects which shows how women and women's issues have been affected and influenced by information technologies. We look at the impact on populations at risk, like the disabled. We use as kind of a core some of the work that has been done with social work records like Jill Kagel's work, to demonstrate how effective information technologies will influence the documentation, the hypothesizing, and the conduct of every day practice because by using Kagel's framework you can introduce almost every known type of application of information technology and show how it could influence your practice. So the computer literacy, if you want to call it that, effort at that level has nothing to do with teaching a student about hardware, and software programming, even though they learn some of that. It has to do with really pouring those applications into a cup of what would be important to know in terms of social work practice.

At the second level we teach students beginning skills as data base design. The second level course focuses on the abstract thinking required to actually do data modeling. In other words, to go in and look at their work regardless of which kind of work they do, whether it be case work, or whatever their focus is. To look at their work and try to analyze it in terms of the model of reality they're going to

work on or work with. We show how data base principles might allow them to represent that reality in a way that's useful to them to answer questions that they have. Again there, the focus is on abstract thinking and the ability to apply these principles and do data modeling as opposed to a specific

...the focus is on abstract thinking and the ability to apply these principles and do data modelling as opposed to a specific data base management language.

data base management language. We use SQL as the example, and then we've happened to use dBase III plus. Basically we translate the SQL commands for them into Dbase III plus trying again to focus on the fact that using relational data bases that they all must do certain things and therefore identifying a set of commands that do that regardless of the language you use is more important than gaining skill in a particular language at this point.

At the third level of course work we focus on resource building. How do you go into an organization or into a practice and conceptualize it in a way that allows you to build your information resources. How are you involved in any attempts to do that?

Then finally we have the fourth level of course work where we do independent tutoring. That's basically field applications where students who have interests or have particular problems get some individual attention on how they might carry out whatever kind of computer application it is in the field.

CUSSN: You also have a Ph.D. program which I assume builds on the foundation of the Masters program.

W.L.: Well, I mean it's an understatement. We haven't had many people who go through the Masters program go through the Ph.D. program yet. I mean I've only been here four years and at the Ph.D. level what we've been able to do, I think primarily, is interest people in doing some dissertation work around information technology issues- at least in using information technology as a part of what they're doing in their dissertation. Some of the first attempts with working with doctoral students who are geographically distant is having them learn to use electronic networking so that they could send me drafts of their chapters, questions, issues, etc.

One piece of work that I'm particularly proud of at this point is we have a dissertation being produced by a woman who is in her 50s and had been a clinician all her life, and she came into the doctoral program with no real interest in computing at all. She became interested in the topic of "The Displaced Worker," and what changes in information technology contribute or not contribute to displacement of workers in American society. She is now doing her dissertation using a Delphic technique. The panel she's assembled include probably the best thinkers in the United States around displaced workers. And they are all participating

using BITNET so she's not only mastered the use of PC communications software and BITNET, but has been able to deal with directors of computing centers and with people in other disciplines who had not known how to use electronic networking, yet they're going to carry out the iterations and discussions using electronic media. To me this is something that just could never have been possible before. At best her doctoral dissertation would have assembled some local experts, a small panel, and she would not have had the ability to do the kind of work she can now do without using information technology.

I have another prospective dissertation that will be done in the area of electronic networks and this time looking at a theory of relative deprivation in terms of its applicability to analyzing uses that the disabled have made of electronic networks. So I guess in the doctoral level right now we haven't had a lot of transference from masters to doctor work in our program, but we have an openness to actually using information technology in supporting these and even exploring topics that directly involve information technology at the doctoral level.

CUSSN: It seems like the doctoral level, with the dissertation, is one of the few places that needed research could get done.

W.L.: I think it's critical. I know a couple of dissertations in social work in particular that have been done around issues that are involved directly with information technology applications, but I think unless we begin to do doctoral level research in this area, we will fall steadily behind. I guess it was you that warned that other people will pick this up and we won't need social workers to get into it. I think the field itself will lose control of its ability to actually be a viable profession without doing that kind of work.

CUSSN: Let's move forward about ten years. How do you see computing and information technology in a social work curriculum?

W.L.: I think one of the initial developments probably in the next five years or so will be in the area of strengthening practice applications that depend upon applications using artificial intelligence techniques and strategies. I think what we should see is that in course work that depends upon training what people who might call themselves case workers or clinicians, that we'll see from the very beginning the use of different information technology applications to demonstrate how, in fact, you would deal with people in a one-to-one situation. I think that the curriculum will accommodate that, which it hasn't up until now. That's been one area where the curriculum has been relatively free of any kind of information technology applications. And largely somewhat by philosophy and choice, but I think it's just undeniable that's where we'll begin to move.

I think we'll see changes in the curriculum as more and more decision support systems software gets available because I think as you move away from the "individual to individual" social work there is another growing set of software strategies and techniques to assist people in decision making. That will be richer and richer over the next ten years and that will be incorporated into the curriculum.

That's things that people will teach "from" maybe even teach "to."

I think some of the major changes in the curriculum have to do with another area and that is how the curriculum is actually delivered. I think for example, the interviewing software that's being developed to train people in interviewing. That kind of software will grow as will applications where you actually have a knowledge base available to you. So, a student might be able to explore a particular area in course work using an information technology application that really liberates them to do individually paced learning and discovery, but changes completely the task of the educator in terms of how they need to conceptualize what human process needs to go on and what kind of material can actually be required and maintained using machine assistance.

I think the other major change will be in electronic distance learning in America, particularly with the land grant universities. We have amassed an experience that's unparalleled, I think, anywhere in the world. With attempting to train and educate people who are geographically distant, I think almost all educational institutions will somehow have to change the way they conceptualize delivering their curriculum. For example, if I'm going to teach people in Colorado, right now they'd have to come to me. Now as a private university course, we don't have as much leeway or, for example, the University of Colorado or even Colorado State University in terms of resources and developing strategies to deliver a curriculum with a variety of devices. Nevertheless, I think that the School of Social Work may well use distance or electronic distance learning to deliver the curriculum to places across the mountains, to people in their homes, to people at an individual level. This will mean a completely different thinking out of how the curriculum has to be mobilized and delivered to incorporate both human interactive skills and process skills that are part of our professional as well as the technological content.

In part that's why I was interested in the audiographic distance learning techniques and why I started to experiment with that. Because I think it's a key, not only to training what

I think almost all educational institutions will somehow have to change the way they conceptualize delivering their curriculum

I would call maybe traditional students, but also to working with populations at risk. Because I think that many of these techniques can actually be used two ways: as devices to empower populations at risk. For example, and this is speculation, but, one of the things that I had tried to think about here was how you would train the Mountain Ute tribe, or some of the Indian tribes that are part of our region. Well, if you use audiographic techniques it's appropriate in the sense that you have interactivity, that you have a demonstrably viable educational approach.

On the other hand, it's also an easy kind of technology to transfer. It doesn't require a lot of technical expertise, you

can train people in remote sites to actually run those sites pretty well, and develop their own course work, so it's possible to conceive of those as ways not only to transfer the technology and deliver social work course work, but to enable Indians to deliver course work about themselves, to others, to bring in other kinds of course work maybe from math certification or public health or whatever.

So it's kind of a way to think about this device in a way that other people haven't thought about because mostly the universities are thinking, "How can I get this message out?" not "How can I use this to help them achieve secondary roles and get the message back to us." That's what we need to do. I think that eventually that will become pretty commonplace, actually, and used widely, and will influence every curriculum. It means that, for example, you could teach a course at The University of Denver, from Arlington—that's absolutely no problem—and we could see educationally that we could demonstrate that that course work was achieving its educational goals as well as you actually being physically here.

CUSSN: When ability exists for someone from their home to teach a group of people in another state, does the role of the university change? Are we looking at changing the university system which has existed for hundreds of years in its present form?

W.L.: I don't think there's any question about it. I think the universities need to change. In fact there may be some universities where what they're going to offer that's different is that students actually come and live together for awhile. But I think those universities will be very expensive, perhaps even limited to specialized kinds of interest. I think largely the universities will find that without finding a way to keep intellectual property rights, without reorganizing the way the curriculum is being delivered today, that they will probably go out of business. I don't see, for example, the University of Denver surviving without taking more active steps to get into this kind of an educational process, unless they continue to be a private school that specializes in trying to bring people together geographically for some peculiar reason.

CUSSN: reason.

W.L.: Right! There just doesn't seem to be any reason why that would exist. Now that's not to say that people will not get together geographically. I mean, if we look at the telehouse experiment in Scandinavia what we see there are social workers who are being used as part of the staff of a facility that essentially is a facility that contains a number of devices of information technology where the social worker's role is not only to identify local population needs and bring people together and accomplish what has been tradition in group work needs, but also to train people on how to use these devices. So the social worker is actually seen as the person who's an expert not only in the processes we have traditionally emphasized, but in helping linking people up to the rest of society by training them how to use electronic networks, training them to deal with applications in a number of other common areas.

Those telehouses have been extraordinarily popular in all areas. That's the kind of thing I expect might happen here

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then, just as in San Jose and other places where they've had computertown experiments. People will gather and will talk, but it's not necessarily that they're going to come to a university campus to do that. There would be no need to do that.

So the social worker is actually seen as the person who's an expert not only in the processes we have traditionally emphasized, but in helping linking people up to the rest of society by training them how to use electronic networks, training them to deal with applications in a number of other common areas.

But still they would have places where they would gather.

I'm not saying that gathering is unimportant; it is even more important than it was before. I'm also wanting to experiment with this because I think that there's a need to look at the kinds of qualities that get emphasized in distance education, among the students, I mean. Do we encourage the kind of learning that we don't want to encourage? Are we going to be able to teach them enough human process skills? Do we always require facilitation, do we need to have someone on site who takes the material afterwards, and basically achieves what we achieve in the course work now by having people talk together?

CUSSN: Especially, since successful practice is based upon more than one-to-one interaction.

W.L.: That's exactly right, and I think our profession is based upon one-to-one interaction that is largely up to this point interpreted as face-to-face. The one-to-one interaction at this point in time already includes many different one-to-one situations that are not all face-to-face. So a social worker who is trying to deal with disabled people who are employed at home and use VDUs all the time may find in fact what they have to know about is what kind of feelings do people have when they work in front of a tube. How do they get to know these other people who they're interacting with but never see, really.

Or with the elderly, I mean the sense of isolation that elderly people now have largely will be changed as they get to interact with kinds of devices of information technology that in a sense overcome their frailties, their isolation, their inhibitions and so on. In the public systems many of the experiments as you know have again shown that people particularly in its initial stages of developing a relationship do well with machines. There's a different kind of face-to-face relationship but it certainly is something that occurs every day in the United States.§

Postscript Due to administrative changes in the U. of Denver, School of Social Work, Walter LaMendola has

resigned from the University and is now a full time consultant in the Denver area.

Interview with Thomas Neudecker,

Assistant Vice President for Academic Affairs, Carnegie Mellon University, 500 Forbes Avenue, Pittsburg, PA 15213 (9 January 1988).

CUSSN: Tom, what is your position at Carnegie Mellon and what advantages, in terms of looking at hardware and software, do you have in that position?

T.N.: It's a somewhat unusual position for a social worker. I serve the faculty as Assistant Vice President for Academic Affairs. In that role I help staff the Senior Vice Presidents, and perform other administrative tasks on a number of projects in the various academic units of the University. I'm also responsible for external computer training—one of the services that the University provides to industry, education, and individuals. Occasionally I am involved in vendor relationships, dealing with a number of hardware and software companies as they look to the future for their Research and Development investments. Because Carnegie Mellon is very active in the research areas of computer science, artificial intelligence, and robotics, I am fortunate to be able to observe some of tomorrow's technology in today's research labs.

CUSSN: Give us some idea of what kinds of things are happening with computer hardware. We'll also go into software and education, but let's start off with hardware. What kinds of things are occurring at major research universities?

T.N.: The key to your question right there is "research university." My particular University identified computing as a emerging technology back in the late 1950's and began to devote a large percentage of its resources to that area. In 1965 we awarded the world's first Ph.D. in Computer Science. Yet, even today, as we speak in 1988, Carnegie Mellon does not have an undergraduate computer science degree program. We have not yet agreed that computer science as a discipline has enough breadth and depth to support a full undergraduate degree. In fact there's a debate going on now that computer science will split into two different disciplines: one in hardware engineering and one in software engineering. And that may lead itself into two new disciplines which may evolve into undergraduate degree areas. With this background we are somewhat of an unusual institution. We have four thousand undergraduates and about two thousand graduate students. At the same time, because of our resource allocation process and our attempt to strategically place resources in areas that we think are important, we now have on our campus more than 4,000 computers of 102 different manufacturers ranging from IBM PC, Macintoshes, Suns, RTs, Micro Vaxes all the way up to a Cray XMP. By comparison our entire campus is served by 3,500 telephones. With this kind of investment in technology we have had an opportunity to observe a lot of new trends developing and a lot of the events that are going to shape the future.

The most relevant to your question about hardware was a report by Allen Newell, a faculty member, who wrote a

position paper in 1979 that essentially said that centralized main frame computing environments were doomed. He said that within the next eight years the power of main frame computers would be on your desk top. You would no longer have to share the resources with all the other users in a time-sharing environment where your speed of return is dependent upon the complexity of jobs that other people were running and competing with you for the same computational resources. Newell's proposal suggested that the future really held forth for a new kind of environment that provided communication links between these powerful desk top workstations. These workstations were very much different from anything present at that time. In 1979, when Newell wrote this report, you have to remember that the Apple I and Apple II computer were in their infancy. IBM hadn't even entered into the market yet. There were probably two dozen other computer companies then. Four bit and eight bit CPU's were still the main technology available. Yet Newell

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was predicting that by the end of 1985-86, we would see machines that would have what the press dubbed the 3M's: the first M being one megabyte of ram, the 2nd M being one million pixels of display resolution on a very large screen, probably 19 inches, and the 3rd M being a machine processor capable of doing one million instructions per second. In 1979 it was revolutionary. What made it revolutionary was the prediction that this would be available on volume educational prices at about \$3,000. Newell's report shook up a lot of people, and it caused a lot of thinking. That report was shown to most major vendors and one, IBM, decided that it was a notion worth pursuing. And that pursuit began with the development of a research project to create an environment, a user interface, and a networking system for such machines. At the same time another division of IBM began to develop a new powerful work station that would use a new central processing unit based upon the architecture known as "RISC": Reduce Instruction Set Computer. This

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complete phaseout of centralized computing
in the near future*

development between the software and the hardware systems came together about a year and a half ago, but it didn't reach the price expectations that had been projected. Today, we are seeing 3-M engines that meet this price expectation, in fact today's machines are being dubbed 6-M or 10-M machines, but the price per unit is now \$5-6,000. These prices should continue to drop. We are going to see a major

but not complete phaseout of centralized computing in the near future, transferring that task to desk top workstations and at the same time we are going to see a momentum—building to force the development of a communications infrastructure between machine to machine and from campus to campus or organization to organization. A massive electronic network that will allow the passage of information and data from one user to another at will, and at very inexpensive rates.

CUSSN: Going from the hardware to software what kinds of things are coming out for the end user, especially the end user in the human services?

T.N.: The project described by Newell also considered the world of software. Newell suggested that a common user interface would exist that would allow users of one type of hardware to be able to use another vendor's product without major retraining. More importantly, this new standard would allow software to be executed on several brands of computers without modification. A few research projects have accomplished this, the CT authoring language allows programs developed on workstations such as RT's, MicroVax, Sun, Mac II to run unedited on each other. Additionally the IBM-PC and Mac +, Mac SE, can run the programs without the full program editing features. My

*I predict that a user interface, licensed to all
vendors, will be the next level of standards*

particular guess on the future machine independent software is that data exchange will be the next phase. Files from a word processor on one brand of hardware will be able to be translated into a format readable by a program on another computer system. The next step after the data translators will be application compatibility. Microsoft is doing this now between Lotus 1-2-3 and Excel and between Word and several other MS-DOS and Macintosh programs. Program portability, the next step, means that the same software can run several platforms without modification. This level of compatibility requires a lot of overhead and therefore a lot of computing power. Thus the need for workstations like those predicted by Newell. I predict that this notion of program portability will be built upon a foundation of standards. A common operating system—my guess is that it will be UNIX. Next a screen management system available to all of the market, X—Windows 11 is the most frequently mentioned but I am betting on "Display Postscript". Then I predict that a user interface, licensed to all vendors, will be the next level of standards. I don't have any idea which interface it will be but it will be a WIMP type (windows, icons, mouse, and pictures). Sun, IBM, DEC, NeXT, Apple all have a stake to play in this battle and they each have a reason not to participate. We will see which vendors are willing to license their technology in order to gain market share. Obviously the future of user applications is directed toward programs utilizing artificial intelligence. It's clear to me that we haven't yet begun to touch the power

of the computer hardware that we currently have. The CPU's, the technology, and AI technology is much more rich than we now use in the human services. Our problem has been that there are far too few people who know how to manipulate that power. In today's world we choose to develop solutions to problems where the greatest financial rewards lie. The petroleum industry, for example, is able to pour enormous resources to harness the power of artificial intelligence to help locate oil, coal, and other minerals. There are very few groups that are able to put the same amounts of dollars to chase after solutions to predict the success of a foster care child placement, to be able to predict the success of a marriage, or to be able to predict the success of any number of the human problems that have been with society for years. The social services must first determine that it is going to divert some of the funds from direct services into technology. And that's a very difficult decision to make.

The social services must first determine that it is going to divert some of the funds from direct services into technology

I would hate to say that I would rather take away \$5,000 from a food bank to provide \$5,000 more for programming time to develop a computerized placement service for adoptions. It's a lose/lose situation. We have too few resources to do too many jobs. The development of expert systems has been hampered by not only the lack of funding but, also, by the doubt of the profession. A large number of people scoff at such suggestions. They look at these ideas as science fiction. But if you look at other disciplines, they went through the same process; medicine, geology, all of these fields, said, "Can't be done, my field is too specialized. It's based on too much of my own knowledge and learn-from-experience, there's no way to simulate that, there's no way that you can do knowledge engineering to develop an expert system to make the decisions that I can." Expert systems exist in each of these fields. Well, social workers and human service workers can say that now without any repudiation, because nobody has done it yet because of those resource problems that I talked about.

*medicine, geology, all of these fields, said,
"Can't be done, my field is too specialized"*

If you look at medicine there's a program called "Caduceus" at the University of Pittsburgh which has passed the written exam for "board certification" in internal medicine. The U.S. Geological Survey has certified that "Prospector", a program by Slumberjay, has the ability to find oil deposits exceeding the capabilities of their own geologists. DEC Computer has a knowledge base system for ordering equipment, where non-technical users can type in natural language questions such as, "I need a hard disk under 40,000 that will do this or that," and it is able to interpret that

"under 40,000" means under \$40,000 as opposed to under 40,000 megabytes or kilobytes and is able to help configure the system for the production line. DEC reported two years ago that expert systems saved them 10 times more money than their entire research and development budget. We haven't yet begun to apply this kind of technology in the human services.

CUSSN: This brings us to another area, training. What should social work programs be training people about the computer, and about using the computer? Where are we in terms of training? What kind of training goes on in areas such as computer science for these things you're talking about?

T.N.: I don't think social work education has done a very good job integrating computer technology into the curricula yet. A few years ago, when the economy began changing and people began to realize that we were moving into an information society, there was a big push by educators to bring computers into education. They brought in computers, and they set up very nice computer labs. You can walk through any school in your local area and find rooms with 15 or 20 computers, wired together, often networked, and kids sitting there learning to program: Pascal, LOGO, BASIC, depending upon their grade level. This is my complaint. I believe that computer literacy should really be the ability to use the computer to solve your day-to-day problems. You don't need to be a programmer to be computer literate. The day-to-day problems of today's students are solved by such tools as word processing, databases, telecommunications, presentation graphics, and

Knowledge of the technology and its basic applications should not be the responsibility of either BSW or MSW programs. I think it should be taught in our high schools or grade schools.

spread sheets. Second, if you don't have access to the tool when you meet the problem, the tool is no longer a tool nor is it a solution. There is a TV commercial about a hammer being the most common screw driver in the world. Most people drive screws with a hammer, because they don't have a screw driver nearby. Well, I think of the computer being that screw driver now; it is just not around in sufficient numbers. Most people still solve problems with other tools that aren't appropriate, because they don't have the computer ready to access. Now to extrapolate that into higher education. I still think we have a long way to go before we have enough access to computing technology where it becomes routine. When I was an undergraduate the library at my college had a room full of typewriters, and you could go in and put a quarter into a slot and get 30 minutes of time on that typewriter to type your term paper, and, depending upon your speed, that could be very efficient or very poor. It soon led to the fact that more and more students in my

dormitory were buying their own typewriters. And a typewriter in a dorm room became very common. Well, today campuses are getting more and more computers on campus, but even so, students are standing in line. Not too long ago, on a campus I won't name, I know of a confrontation between the campus police and a student who, because his lab paper was not yet finished, refused to let go of his computer at 3:30 am when the officials were trying to close the lab for the night. Ready access to the technology is the next goal for the human services. Knowledge of the technology and its basic applications should not be the responsibility of either BSW or MSW programs. I think it should be taught in our high schools or grade schools. But today the reality is that whenever you can catch the students, you need to expose them to the technology. I think it would be a shame for a student to graduate with a masters degree in any discipline who is not familiar with word processing, who is not familiar with spread sheets, who is not familiar with databases, who is not familiar with telecommunications, and to some extent, presentation graphics. I don't expect them to be able to sit down at any vendor's machine or with any software package and be able to use it, but I do expect them to know the capabilities of the technology and to be able to ask the appropriate questions to support staff or to be able to use an index of a manual to find the solution on how to perform basic tasks. This is what the human services need to do immediately. The next thing that we need to do is to provide the incentives for faculty to pursue the technology. I have yet to read a promotion or tenure policy statement that grants equal credit to a software program as it does to a book, an article, or a chapter of a book.

CUSSN: That's regardless of discipline?

T.N.: Other than in applied mathematics or computer sciences. There are a number of issues surrounding that. Traditionally, textbooks are copyrighted and the copyright belongs to the faculty member. Software is also copyrighted. By tradition, it should probably belong to the faculty member. However, unlike books whose royalties and interest for the most part are very, very limited, software has potential, upon occasion, to have tremendous revenues.

*it is an incongruent position for a university
to attempt to claim rights to software
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for software developed by the faculty member*

Thus there are competing interests from the university and the faculty member. Intellectual copyrights still haven't been clearly established. I think that it is an incongruent position for a university to attempt to claim rights to software developed by a faculty member but yet not grant credit towards promotion and tenure for software developed by the faculty member.

CUSSN:

If promotion tenure was based upon knowledge of the basic software plus intellectual development in one's specialty area, wouldn't that turn professors into much more entrepreneurial people since big money can be made?

T.N.: Let me back up a couple of steps here to help clarify some of this. I'm not suggesting that we add a new standard to promotion and tenure, or that before one can be promoted, he/she also has to develop software. That's not my intent at all, but I am stating that a well thought out and strongly supported algorithm for a software package that perhaps rates the potential for success of placement in children in foster care, should be just as valuable to one's career as sitting down and writing a journal article, particularly considering that there are still a number of journals that require the faculty member to pay the cost of publication. I am not opposed to the faculty members being entrepreneurs. If they want to be entrepreneurs, fine. I have to now assume my administrator's cap and also say that their entrepreneurial activities shouldn't interfere with their university and classroom activities. If they want to start up companies, fine, take a leave of absence, then do so. If they want to do it on their research time, fine. Publish the results and distribute it widely. But, I don't want faculty members to be encouraged that their university is a stepping stone to something else. I don't think that is my intent. My intent is to say that if a faculty member develops a package that has great commercial value, I applaud that. And I think that he/she should reap the benefits. At the same time, under existing policies, if he/she uses material resources of the university he/she should negotiate a fair repayment for the use of those resources; but I'm far more concerned with the university's goal of disseminating information and this technology. I wouldn't want to impose a burden in terms of a royalty payment to the university that would impede this objective nor do I desire to provide an opportunity to researchers to utilize university resources for only their personal gain.

CUSSN: Now that we have covered hardware and software in education, what other areas would be of interest to the readers of the CUSS network? You've been involved with CUSSN since the very beginning. What kinds of things do you see that are important for CUSSN members to understand?

T.N.: A lot of promises were made back in the late '70's or early '80's and are still being reiterated today. They said that the world would become a electronic cottage. One would have access from their home to the wealth of the world's information and services. This hasn't happened yet. Hardware is not the problem. There are many very low cost computers that could serve as terminals to such services. What is missing is the infra-structure that links or the gateways between these services. What's really needed is a way to facilitate communication from one person to another around the globe, around the universe, around what we probably should say is "the network"—a world-wide network that allows a transfer, not just of voice as we currently have with the telephone system, but also of data and graphics, and the ability to do so at a very inexpensive rate. Fortunately, for the university research market these services are in

existence. DRPA's Internet (ARPANet) and Bitnet and some of the other international networks provide a way that you can send files around the world very inexpensively, in some cases completely absorbed by your home university and institution. These things haven't permeated yet to social agencies, or the general public and even for those who have the capability, the technology is not easy to use. Electronic mail addresses sometimes are more than 40 characters and the protocols are completely different in the United States than in Europe. While we are still in the infancy of world-wide networking, I find it amazing that I receive so much important information over the existing nets that I generally will take a computer with me on business trips of more than five days and that I daily read my mail from five different networks.

CUSSN: One of the assumptions behind what you're saying is agencies and human services professionals have a need to network. On the project which I'm involved with we find that the need to network is actually much greater among clients than among agencies. Is it going to take time, or is our service delivery system fragmented in a way that makes it difficult to network?

T.N.: Well, we're caught in one of those chicken and egg situations. What comes first: the technology, the network, the infrastructure, or the benefits? First of all, very few of the clients served by social service agencies have access to the technology. Maybe this is just confirmation of Ted Nelson's "Computer Lib" ideas from the 60's. Nelson proposed the establishment of storefront computer centers where the general public could access the world's information base. Second, there is no need to participate in a network unless you get some benefit. I regularly read mail and general BBoard posts from about four or five different electronic network sources, but there are more than 1400 international and local BBoards available upon my campus network. I only have the time to capture the contents from sources from which I have a high probability of finding something important. My point here is that until useful information becomes available on the nets few people will spend the time and costs to use them and, if the necessary equipment is not present, this point is moot. As a side note

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I would like to point out that considerable research is being done to have the computer read the messages on the various nets and to find those messages that are important or of interest to the individual user. Computational linguistics and AI have made substantial advances in this area during the last five years. Some day we will have AI agents that read all of the traffic over the world's networks and compose personal newspapers for each user to read the next morning.

CUSSN: Will that mean practitioners spend much more time looking at a terminal?

T.N.: Your contact with clients should continue to exist. Direct contact with clients produces information. You feed that information into the system, that is the next step. When I first started out in case work, there was competition within the agency to see who got to use the Dictaphone, because there wasn't a Dictaphone for everyone, and you had to get your case notes transcribed in order to complete your clients' requirement, but we still had to be with the clients. Nobody said that talking to the Dictaphone replaced that. Meeting your clients and inputting the information into the database, into the computer system, into the expert system, isn't going to change that, but, instead of having to go to case conferences or meeting with supervisors, you will be able to find resources and solutions that otherwise wouldn't be available to you. I remember in the '70s, I worked at a public agency . . . there was a senior worker, 22 years' service in. This woman knew every foster family in the county and if you had kids that came in at 4:45 in the afternoon and you needed a foster family, she was the only person you could go to for help; but she would only share the information with you if she liked you, if you approached her in the correct way, if you bowed and scraped the number of times required. With this technology information becomes public and available to everybody who needs it, and it's not controlled by those people who own it. This woman who was causing a great many problems 15-20 years ago, now would no longer be able to do that. I would be able to tap into my database and find foster parents interested in sheltering a child under age 5, who would accept a disabled child, or for whatever other special condition that might exist. I would rather watch the screen than bow and scrape.

CUSSN: What other areas did you say you wanted to get into? Research?

T.N.: Sure. In the past graduate social work education programs have required a course on research/statistics. We have expected our students to be exposed to research methodology, to understand some of the statistical tools; but there's been very limited expectation that when students leave the university and go into practice they will do research and a lot of that has been based upon the fact that most agencies don't have the resources to support this activity. One of these missing resources is the computational services necessary to perform research. The personal computer, the microcomputer, the work station as you have it, provides those services now to the agency, and I think that it's time that the profession begin to start placing some expectations that we do research, for example to research the outcomes of our interventions. We must begin to look more closely at what works and what doesn't work; at who works and who doesn't work effectively. I don't want to see this become a management tool in terms of who is promoted and who is fired and so forth, but I want it to develop a body of knowledge that would help further the development of professional education. SPSS (I don't know how many thousands of graduate students used it to complete their theses) now has a PC version available. It's not cheap, but its

price is justified by the power it provides the agency. I hope that more agencies would be interested in creating new job positions for research directors.

CUSSN: Would you like to add a closing remark?

In summary, my feeling is that the human services should first focus upon automation, what I call applications literacy. All professionals should be familiar with the basic applications set of word processing, spreadsheets, databases, telecommunications, and presentation graphics. To accomplish this will require that hardware be present in sufficient numbers in all places of practice and education. Regarding expert systems: I do believe that the great promise is real but, unless there are major shifts in national priorities, I doubt if human service applications will receive

the funding necessary to develop systems consistent with current state of the technology. If my assumption is true I would advocate that the profession direct its resources to the applications literacy task and use the funds to encourage growth in the area of institutional or "caseload research." These are exciting times. A time of rapid changes. A time where decisions must be made in conditions of uncertainty. A time in which the decision makers have had little background in the areas that they must now chart for a new future. It is a time of high risk. Even so it is a time of opportunity. Those able to redirect resources appropriately; those able to chart the correct path, will realize great success. Time will ultimately judge whether you are a pioneer or a refugee of this technology revolution. §

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Guest Editors Wanted

Edit an issue of the CUSSN Newsletter on your favorite topic. As an editor, you can increase your contacts with those working in your specialty area and become more familiar with their work.

For more details, contact:

Dick Schoech, UTA GSSW, POB 19129, Arlington, TX 76019-0129

Member Comments and Activities

Software Development & Tenure from Walter Hudson, School of Social Work, Arizona State U., Tempe, AZ 85287.

I need your help. I am a member of our Personnel Committee and for the very first time we are struggling with the chore of deciding how we can go about the business of considering software development as evidence of scholarly productivity for purposes of promotion, tenure, and even merit pay consideration. To my knowledge, few universities have dealt with this and I am hoping that you have already done so. If you have, I would like very much to know how you've dealt with this new and thorny issue.

In the absence of any such material, I volunteered to take a crack at working out a system. In the hope that it might be useful to you or that you and your faculty will tell me its flaws, I've attached a copy of what I am now sending to our Personnel Committee for consideration.

I think this is an issue that badly needs attention if we are to encourage and support faculty willingness to make increased use of computer facilities. I know that you have a busy schedule, but I hope you or your colleagues can be helpful or that you might direct me to resources where I could get some help.

I look forward to hearing from you. Very truly yours, Walter W. Hudson, Ph.D. Professor

TO: Personnel Committee

FROM: Walter Hudson

RE: Merit Credits

New Scholarly Categories:

During our last meeting, I volunteered to provide some recommendations for dealing with software development as a scholarly activity. To my knowledge, that has never been done so this is new territory. For lack of better insight into this new territory, I would recommend that we use three categories for descriptive purposes only. These would be:

- Professionally Related Software System
- Educationally Related Software System
- General Purpose Utility Program

Software Development Credits:

Although I am recommending the above three categories, again for description only, the means of granting credit for such works is a different matter altogether. It is almost impossible to make rational judgments based on the quality of the work. I would therefore recommend a system based on quantity. That is, a system based on the number of pages of source code for any software system. If that seems reasonable, some form of equivalency is needed.

Here's my thinking based on my experience with developing several large systems, and I'll use the "Clinical Assessment System" as a benchmark. The source code for this program is now approximately 400 pages in length. However, a page of source code is a grueling task of writing, testing, revising, re-testing, and polishing; and that's rarely the end of it.

What I'm getting at is that I think a page of source code in a large system (double spaced when printed) is equivalent to about three manuscript pages of a textbook. That equivalency would put the CAS program at the equivalence of a text manuscript of about 1,200 double spaced pages.

Now let's consider the estimate that such a text manuscript would typically have approximately 20 chapters. If that's reasonable, we get a chapter length on average of about 60 pages and a third of that is equivalent to about 20 pages of source code.

After all that machination, I come to the recommendation that software development be given credit such that each 20 double spaced pages of source code be made equal to the credit given to one published peer review journal article. In the CAS example, this would amount to $400/20 = 20$ articles. Frankly, that's a little on the skinny side but it strikes me as a fair start until we obtain a better experience history with software development.

Having gotten this far, I would recommend that the above standard be applied to all three categories of software development; professional and educational systems as well as utilities. In short, we do a strict page count of source code for any piece of software and use the formula:

$$\text{Points} = \text{Aweight} * \text{Pages} / 20 / \text{Authors}$$

where Aweight is the weight value assigned for one single-authored peer review journal article.

The nice thing about this strategy is that it can be applied to a very wide variety of software development efforts. It therefore affords credit to those who write systems based on spreadsheet programs, database managers, C language, Fortran, Cobol, BASIC, and so on. No one is excluded by virtue of the language system they use.

There is one problem here that should be respected. Software authors have a more difficult task of protecting copyrights than do authors of books. Developers will therefore be very reluctant to provide distribution copies of source code. I would urge that the committee respect that. However, the committee can respect it's own requirements by asking the software developer to meet with the committee and bring a printed copy of source code for verification of page length. The author can then take the source code when he or she leaves the meeting. That way, the committee can verify production claims and the author can retain protection of the source code.

Child Welfare BBS? from Rob MacFadden, School of Social Work, U. of Toronto, 246 Bloor St. West, Toronto, M5S 1A1

As chair of a computer subcommittee for the Institute for the Prevention of Child Abuse, we have been working on the idea of developing a night duty access system for child protection workers using computer technology. We have put together the hardware for remote access via cellular telephone and are leaning towards a bulletin board model for agencies. Conceivably, each agency would have a computer set up with the bulletin board software receiving inquiries from night duty protection workers and recording information that the workers wished to input. The workers would receive up-dated alerts, scan lists of receiving homes, leave messages for supervisors and colleagues, and check databases for previous contacts with these families, as examples. The need arose from a recognition that night duty workers are isolated, frequently poorly trained, and have ac-

cess to limited resources at night. As our ideas have progressed we are also considering elaborating the system for more than just night duty workers. However, phase one will focus on the night duty context.

Question: Does anyone know of any child protective service who has a similar system in place or in development? Is anything of this nature happening in Texas or beyond? Obviously we don't want to reinvent the wheel and could benefit from a dialogue with others who may be proceeding in this direction. The Institute is serious about this development and is funding the initial development, set-up and testing. It will also be applying for a sizable grant to provide hardware, software and training to agencies interested in adopting and perhaps adapting the system. Any comments and/or leads would be appreciated. We are also looking at the research possibilities of this system. Looking forward any comments from readers.

Upcoming Events

Urban and Regional Information Systems Assn. (URISA) 26th Annual Conference, August 7-11, Los Angeles Hilton, LA, CA. Contact URISA, 319 C. St. S.E., Washington, D.C., 20003.

Directions and Implications of Advanced Computing (DIAC-88), August 21, 1988, St. Paul, Minnesota. Contact Nancy Leveson (714-856-5517) or Doug Schuler (206-865-3226), Computer Professionals for Social Responsibility, P.O. Box 717, Palo Alto, CA 94301.

Expert Systems and Decision Support in Medicine, September 25- 28, 1988, Institute for Medical Informatics, Medical School Hannover, West Germany. Contact: Conference Secretariat, Medical School Hannover, Institute for Medical Informatics, P.O.B.61 01 80, D-3000 Hannover 61, Federal Republic of Germany, Tel.:(0511) 532-2540, Telex:921217 medho d EARN/BITNET: SECRETAR@DHVMHH1

Second National Conference on the use of Computers in Healthcare Education and Training, 5-7 October 1988, Keele University, England, Contact Sue Kavanagh at: Open Software Library, 164 Windsor Road, Ashton-in-Makerfield, WIGAN WN4 9ES, Tel: 0942-712385 (see advertisement this issue).

Southeast Augmentative Communication Conference, October 14-15, 1988 at the Hilton Hotel in Birmingham, Alabama. Contact PAMELA S. ELDER, Co-ordinator SEACC, 2430 11th Avenue North, Birmingham, Alabama 35234

Closing The Gap Conference: Microcomputer technology in special education and rehabilitation, October 20-22, 1988, Radisson South Hotel, Minneapolis, Contact: Closing The Gap, P.O. Box 68, Henderson, MN 56044, (612) 248-3294

Fourth Annual Computer Technology/Special Education/Rehabilitation Conference, November 2-4, 1988. Contact person: Dr. Harry J. Murphy, State University, Northridge, 18111 Nordhoff Street, Northridge, CA 91330, 818-885-2578.

Twelfth Annual Symposium on Computer Applications in Medical Care, November 6-9, 1988, Sheraton Washington Hotel, Washington, DC. Contact Robert A. Greenes, MD, SCAMC -- Office of CME, The George Washington University Medical Center, 2300 K Street, NW, Washington, DC 20037, (202) 994- 8928.

Society for Computers in Psychology 18th Annual Meeting, Chicago, Illinois, November 9, 1988. Will contain papers, symposia and tutorials in the area of computers in psychology, including modeling and human-computer interaction, along with software demonstrations and non-proprietary software copy service. Contact N. John Castellan, Jr., Department of Psychology, Indiana University, Bloomington, Indiana 47405, (812) 335-4261, EMAIL: castellan@IUBACS or castella@IUBACS or castellan@GOLD.BACS.INDIANA.EDU

National Conference on Special Education and Technology, December 11-13, 1988 in Reno, Nevada. Sponsor = Technology and Media Division, The Council for Exceptional Children. Contact Ted Hasselbring, c/o Dept. of Professional Development, The Council for Exceptional Children, 1920 Association Drive, Reston, VA 22091-1589. (703) 620-3660

CEC National Conference on Special Education and Technology, December 10-13, 1988, Reno, Nevada. Contact Dr. Ted Hasselbring, c/o Department of Professional Development, The Council for Exceptional Children, 1920 Association Drive, Reston, VA 22091

Medical Informatics & Education International Symposium, May 15- 19, 1989, The University of Victoria, Victoria, B.C. Canada. Contact Tom Lietaer, Conference Office, University of Victoria, P.O. Box 1700, Victoria, B.C., Canada V8W 2Y2, Phone: (604) 721-8475, E-mail:MIEDU89@UVVM.BITNET

Technology and Special Education, December 11-13, 1988, Bally's Reno, Nevada. Sponsored by the Council for Exceptional Children in conjunction with the Technology and Media Division. Contact CEC, Department of Professional Development, 1920 Association Drive, Reston, VA 22091.

The Third Annual WHRO-WVIZ Interactive Technology Teleconference, November 18, 1988, Norfolk, VA, Contact, Dianne Lawrence, WHRO CII, 5200 Hampton Boulevard, Norfolk, VA 23508 (804) 489-9476

I wish to join/renew membership in the CUSS Network. Send to:
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- In West Germany, send to Berndt Kirchlechner, Fachhochschule Fachbereich Sozialpadagogik, 6000 Frankfurt, Limescorso 9, Frankfurt A.M., West Germany.

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