

How to Select a Computerized Guidance System

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Selecting a computerized career guidance system requires a careful analysis of the tasks it will perform, hardware requirements, and the per client cost. Sites can construct a checklist for evaluating software by adapting the checklist provided here. Hardware can then be found to run the software selected.

About once a week someone calls me and says, "I just bought a Brand X computer. What guidance software can I get for it?" I sigh because this person has already eliminated about four-fifths of the options. It's not that the selection is limited. There are at least six major career guidance systems and about twice as many less ambitious programs, and the offerings seem to double each year. But guidance software is costly to write and the market of interested buyers is very small. Therefore, many guidance programs are available only on one or two types of computers. Large, comprehensive systems require far more hardware than does a simple microcomputer. For these reasons, counselors who are serious about evaluating and selecting the best system for their own setting need to select software first and then purchase the necessary hardware.

How can a counselor with little experience in using a computer evaluate computerized guidance systems? It is, indeed, a difficult task. It takes a great deal of sophistication to understand the medium and to begin to distinguish among the exciting array of guidance tools. Perhaps it is reassuring to know that most of the guidance programs currently available have been tested in guidance settings and have been found useful. So it is difficult to make a bad choice.

One thing that complicates the choice process is that each of the programs has some strong points, but may not combine the strengths that you value most highly. Another problem in evaluating computerized guidance programs is that the impact of the program on clients is difficult to assess until you have used the program several times with clients. The most stunning programs may fall short of their goals if the instructions are difficult to follow or the results are too complex for clients to understand.

The antidote to evaluation problems is planning. As with any decision, knowing what you want makes the choice much easier. The first step is to evaluate the needs of your institution, then gather literature on the available software and determine which programs seem to be appropriate. Based on your needs and the software available, you should be able to construct a checklist for evaluating software. Equipped with your checklist and a clear understanding of what you are looking for, you can take a close look at each of the programs you are seriously considering and the cost of procuring the necessary hardware.

STEPS IN THE SELECTION PROCESS

The search begins by gathering input from your own staff. You can either use the list of issues in this chapter to spark discussion or use a brainstorming process to identify the needs your staff

wants a computerized system to fill. In which areas are your services currently weak? What services can a computer provide more efficiently or more inexpensively? Once these items have been identified, your list can be prioritized. Often there will be disagreement on which services are most important for the computer to provide. Working through these disagreements in advance will make the selection of a system much easier.

The next step is to gather literature about each program. The literature should reveal which topics are covered in the software, approximate cost and hardware requirements, and the populations that the program is intended to serve. Using this information, you may be able to narrow your options, and you will have a more realistic picture of the costs involved in acquiring the kind of software you want to have.

Next, you will want to see each of the programs you are seriously considering. The best way to evaluate a computerized guidance system is to use it with a representative sample of your clients. When this is not possible, most evaluators use themselves as the client. Unfortunately, your personal learning style, combined with the skill of the salesperson in guiding you through the system, will greatly influence your evaluation of the system. In this new medium, few evaluators are accurate in their initial judgment of a program. If you note your criticisms at this point and hold your judgment of the software until you have previewed all the programs you are considering, your final evaluation will be more accurate.

In this step you will also want to obtain samples of the system's output. For information items you can gather sample printouts in each category contained in the system. For example, if you value accurate occupational information, carefully select two to five occupations and request descriptions of each. Using different types of occupations will allow you to objectively evaluate the overall accuracy of the system rather than basing your evaluation on a single example. Requesting the same title from each system you are considering will allow a side-by-side comparison. By collecting sample printouts for each of the major areas on your checklist, you will be able to make a quality comparison after you have previewed all of the systems.

Cost is usually an important factor in selecting software. To calculate the cost of the system, consider both the software and hardware. First, estimate the number of years you will continue to use the system before reevaluating (3 years is a reasonable estimate).

At this point, calculate the "cost per user." Because it is impossible to predict the exact number of clients who will benefit from the system, it is best to calculate both a maximum and minimum estimate. The minimum cost occurs if the maximum number of clients use the system. The maximum number that can use the system may be limited by the amount of time it takes each client to use the system. If the system is in continuous use all day, every minute the facility is open, how many clients

could use it? How many clients do you hope to serve in a year? Select the lesser of these two numbers as your maximum number of clients. In most settings the minimum number of clients is about one-fifth of the maximum.

Next, decide which items will be one-time charges and which will be on-going. Microcomputers, terminals, and printers generally will be purchased once. Telephone lines, timesharing computer service, ribbons, paper, and maintenance contracts generally are ongoing costs. To determine which hardware is needed and approximate cost, simply ask a software salesperson, who will be happy to find you the lowest hardware prices. The formula looks like this:

$$\frac{\text{Equipment purchase} + \text{Annual lease fee}}{\text{Maximum number of clients}} + \text{Estimated related costs per users} = \text{Minimum per client cost}$$

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After completing these steps, you will have a clear picture of your options. For most sites, each program will have some advantages and some disadvantages. Your site's priorities will be essential in making the decision. How important is cost in determining your choice? Are you willing to accept less accuracy in information files for more options in self-assessment? Is it important to choose one system that meets most of your needs, or would you prefer several less expensive pieces of software? These are hard choices that must be based on the needs and priorities at your site. Your decision will be unique to your setting.

COMPONENTS OF A GUIDANCE SYSTEM

Computerized guidance programs come in all shapes and sizes. Some address individual steps in the guidance process, whereas others, called "systems," combine several steps in coordinated packages. Areas in which computers have been found useful include:

Didactic Components. Computers are widely used in instructional areas for teaching concepts. Many smaller programs currently available address a single topic and attempt to teach concepts to the user. Other comprehensive systems intersperse the teaching of critical concepts with other activities. Possible topics for didactic modules include: the career planning process, decision making, the structure of the world of work, obtaining financial aid, writing a resume, and interviewing.

Self-Assessment Components. Computers offer an effective medium for administering and scoring evaluative instruments. Assessment instruments containing up to a hundred items can be administered by the computer and scored instantaneously, and the results can be explained to the client without further delays. Subjective exercises can also be administered by the computer, with prompts and extra assistance for those who have difficulty understanding the instructions. Clients' responses can then be compiled and printed out by the computer in a format that facilitates self-understanding. Any self-assessment topic can be computerized, including aptitude, abilities, skills, interests, work preferences, values, and personality types.

Occupational Selection. Computers are excellent tools for sorting

occupational titles and selecting appropriate vocational categories to offer to a client. In general, computers are more accurate than counselors, as they can retain hundreds of titles and accurate details about each occupation simultaneously in their memories. They also sort objectively, by applying only the screening criteria programmed into them for the sorting process, without regard to sex, race, or socioeconomic status. Of course, the final sorting process is up to the client, and any list of occupations will include some titles that the client finds objectionable. Nevertheless, for opening up career options and presenting a wide selection of relevant titles, computers are valuable tools.

The topics for occupational selection components are similar to those of assessment components. In fact, many assessment components offer occupational titles as part of their results. These two components can be separate, as when an instrument produces personality types or goal statements that are later translated into occupations, or they can be combined as they are in many computerized interest inventories.

Informational Components. Computerized information systems can include information about occupations, educational programs, industries, employers, educational institutions, financial aid, job openings, and bibliographic materials. Computers are excellent information retrieval devices. Once information has been properly cataloged, a computer can store the information, retrieve parts of the information instantaneously, and provide a printed copy for the client. Cost of storage devices seems to be the only problem with using computers for information retrieval. For example, microcomputers often use 5 1/4 floppy discs for data storage, with each disc containing approximately 2,000 characters. A comprehensive information system may contain from 50 to 100 times as much data as one floppy disc can hold. Some information systems compact the data so that it fits on floppy discs; others require a more costly data storage device. If you value accurate information, a large data storage device may be a worthwhile investment.

CHECKLIST FOR SYSTEM EVALUATION

After determining which components a computerized guidance system contains, the quality of each component can be evaluated. You may wish to use the following list of "shoulds" as a starting point in constructing your own evaluation checklist. Be sure to move the issues that are most important to you to the top of the list, and remove any items that are not important to you.

- I. System Goals
 - A. The structure of each system is determined by its philosophical assumptions.
 1. According to the system's literature, what are the essential elements in the career planning process?
 2. What role is the system intended to play in this process? How much of this process does it attempt to computerize?
 - B. The objectives of the system should be similar to those defined by your institution.
 1. What are the outcomes it intends to achieve?
 2. What population is it intended to serve?
 - C. After noting the limitations of the system, are these services your site is willing to provide in another way or to do without?
- II. System Components
 - A. How effective are the didactic components in teaching the concepts they attempt to teach?
 1. Are the topics presented in an interesting and lively manner?

2. Are these modules fully interactive?
3. Is this information relevant to your client population?
4. Is the material written at an appropriate reading level?
- B. Are the assessment and job matching components effective in selecting relevant occupations or educational programs?
 1. Does the access strategy enhance the career planning program used by your institution?
 2. Are there aids to self-assessment that help the client answer questions accurately?
 3. Is there a carefully researched database that relates the occupations or educational programs to the self-assessment topics?
 4. Is the logic of these components easy to understand and realistic?
 5. Are the topics relevant to your clients?
 6. Do these modules make full use of the interactive capabilities of the computer?
 7. Is the reading level appropriate for your clients?
- C. How well is the information covered?
 1. How detailed are each of the descriptions and how comprehensive is the list of titles?
 2. Is the reading level appropriate for your clients?
 3. Are the files updated frequently and is the information accurate?
 4. Is it possible for individual sites to add local data?
 5. Is the information localized to your region or state?
 6. What philosophy is used in interpreting the data?

III. Internal Structure

- A. How easy is it for an unsophisticated client to use the system?
 1. Are all parts of the system cross-referenced to other parts to facilitate movement between components?
 2. Are the instructions easy to understand?
 3. Does the system allow the client flexibility in deciding in which order to use the components?
 4. Is the system adaptable to the complex needs of your clients?
- B. How was the system intended to be used?
 1. How much time does the average user need?
 2. How many sessions do most users need?
 3. Does the system store a record of the client's progress?

IV. System Management

- A. There should be support materials that explain clearly the structure of the system for counselors and supplement the computerized materials for special situations.
 1. Does the counselor's manual explain the objectives and logical structure for each component?
 2. Are user materials easy for your client population to understand and available in sufficient quantities?
 3. Are there audiovisual aids to supplement verbal instructions for poor readers?
 4. Are there exercises and activities recommended for special populations?
 5. Is there a manual sorting process that can be used when the computer is not available?
 6. Are the information files available in books or microfiche when the computer is not available?
- B. The system should provide technical support and should be responsive and prompt in fulfilling commitments.
 1. Is inservice training available from professionals who understand the counseling process?
 2. Is the system responsive to suggestions from users?

3. Does the system actually keep the data as up-to-date as it claims and are the updates produced on a dependable schedule?
- C. The system should have evidence of careful evaluation during its formation and continuing evaluation annually.
 1. Has the system been carefully evaluated to determine its effect on users?
 2. Is there a process for collecting data about usage at each site?
 3. Is there an ongoing evaluation process for the system as a whole?

HARDWARE SELECTION

After selecting software, you probably will have narrowed your hardware choices considerably and you will have learned a great deal about both computer terminology and important characteristics in the hardware you need. If selecting hardware still seems a bit confusing, it is reassuring to know that most of the hardware available will give you years of trouble-free service. In most cases your final choice will be based more on the preferences of your staff than on any concrete, objective differences.

There are a few legitimate reasons to choose one set of hardware over another:

1. Familiarity with the hardware smooths away the difficulties in installing any new system. You may have dedicated data processing staff, a local hard-working computer salesperson, or a computer hobbyist on your counseling staff. If these people are willing to invest the time needed to get you started and keep things running smoothly, select the hardware they know best.
2. If the hardware will be used less than full-time for the guidance system, you may wish to purchase hardware that will serve other purposes as well. Be realistic about this issue. Many sites have purchased expensive multipurpose hardware only to realize that purchasing two less expensive, single-purpose computers would have allowed both staff and clients simultaneous computer access.
3. When all of the necessary hardware is added together, there may be significant cost differences among the options available, and these cost differences will be unique to your site. The preferences and resources available at your facility, when combined with the software you have selected, can make a unique package of needs. Thus, one type of computer may offer a package that meets your needs at a substantially lower cost than others.

Many counseling facilities are currently leaning toward microcomputers because they are very reliable and can be contained within the counseling center. Thus, they provide years of trouble free service without dependence on outside resources.

Microcomputers may also be a less expensive alternative. Sites that must make long distance calls to a distant computer find that the telephone charges add up fast. Some counseling agencies pay as much as \$200 per month for these charges. Other sites pay high computer usage charges. Although educational computer service centers may provide computer access for as little as \$50 per month, commercial computer centers may charge up to \$1,000 per month. Microcomputer hardware for use with any other large guidance system will cost about \$6,000. Although this may sound expensive, a site that spent \$200 per month for computer service, \$100 per month for telephone service, and \$1,400 for a terminal would have spent \$6,000 in 14 months, and would continue to pay because they would own only the terminal.

Reliability should also be tossed into the balance. Long distance phone lines can be a source of frustration. Microcomputers

have a reputation for reliability that makes them truly valuable in a counseling setting.

The opposite example is provided by a site with its own mini or mainframe computer. If the software of your choice runs on your local computer, your costs will be limited to buying and installing a terminal. For a site of this type, a microcomputer would *not* be an attractive option.

Whatever choice you make, be prepared to reevaluate in 2 or 3 years. Software and hardware are improving rapidly, and it is impossible to predict the shape of future guidance systems. Once you have chosen a system, you become part of the change process. As you offer complaints and suggestions, you are shaping the tools that will make your work easier.

SUGGESTED READINGS

Bellotto, B. (1984). *Guidance and counseling directory of microcomputer software*. San Jose, CA: Santa Clara County Office of Education.

Chapman, W., & Katz, M.R. (1981). *Survey of career information in secondary schools, final report of Study 1*. Princeton, NJ: Educational Testing Service.

Johnson, C. (1983). *Microcomputers and the school counselor*. Falls Church, VA: American School Counselor Association.

Katz, M.R., & Shatkin, L. (1980). *Computer-assisted guidance: Concepts and practices*. Princeton, NJ: Educational Testing Service.

Maze, M., & Cummings, R. (1982). *How to select a computer-assisted career guidance system*. Richmond, CA: EUREKA.

Sharp, W. (1984). *Micro CIDS summary: February 84 revision*. Phoenix, AZ: Arizona CIS.

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