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ABSTRACT

To assist career education and career development practitioners in helping students use occupational information, this Practitioner File begins by discussing the role of occupational information in career decision making. The next section addresses considerations and concerns in using online information such as user proficiency, quality of information, equity of access, user readiness, and appropriateness of instruments. The following article describes programs supported by the United States Department of Labor under the umbrella of America's Workforce Network. Focus is on two national online occupational and career information tools available to a variety of users for a variety of purposes. First is America's Career Kit, a career development resource, that consists of four interrelated Web sites: America's Career InfoNet America's Learning eXchange, America's Service Locator, and America's Job Bank. Second is O*NET OnLine. A table describes some add-on uses of O*NET and O*NET OnLine. Other sections discuss some state career information sites and describe 17 additional Web sources of career information. A 39-item bibliography is appended. (YLB)

Using Online Occupational Information
for Career Development
Practitioner File

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USING ONLINE OCCUPATIONAL INFORMATION FOR CAREER DEVELOPMENT

Current, accurate occupational information is a crucial component of successful career decision making, and more and more career information is now available online. To assist career education and career development practitioners in helping students use this information, this *Practitioner File* discusses the role of occupational information in career decision making, addresses some concerns about online information, and takes an in-depth look at some national online information tools provided by America's Workforce Network. Additional website resources for occupational/career information are described.

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The Role of

Occupational Information

Career development involves the acquisition of self-knowledge about interests, abilities, and attributes; educational and occupational exploration; and planning that combines self-knowledge and occupational knowledge in making career choices. "Ready access to usable career information is a crucial component of successful career decision making" (Patton and McCrindle 2001, p. 32). In the National Career Development Guidelines, skills for understanding and using career information are one of 12 competencies integral to career development (CareerTEC 2000).

The terms "career information," "occupational information," "labor market information," and "work force information" overlap. Broadly defined, these terms encompass the full range of information about labor market conditions and trends, including employment and unemployment, industry and occupational employment and wages, labor market projections, individual workers or job seekers, and providers of education and training (Sommers 2000). Also included is information about specific industries, occupations, and careers, such as qualifications, job duties, educational requirements, working conditions and work settings, compensation, employers, and current job vacancies (O'Reilly 2001; Sommers 2000).

Individual needs for and uses of this information vary: elementary school students need it to develop an understanding of the world of work and the relationship between personal attributes and interests and career choice; through secondary and post-secondary education, students need it to make informed choices about education, career paths, and specific jobs. The need for this information is lifelong, as the workplace changes and adults make career choices recurrently throughout life:

Workers and prospective workers need not only ask the age-old question "What should I do?" they must also ask, "How should I do it?" and "What should I do after that?" and "How can I prepare for my next work as I do my current work?" This is a far more complex set of questions than "What will I be when I grow up?" (*Blueprint for Life* 2001)

In addition, administrators, teachers, and policymakers use occupational information to make decisions about program offerings, curriculum, and resource allocation and about improving linkages with employers (Sommers 2000).

Recent trends underscore the importance of career information for career

development (O'Reilly 2001; Sommers 2000). Certificate programs for career practitioner training now include occupational information courses. Labor market information is being written in simpler language for people other than economists to use. Career information for youth is being produced on the Internet and in youth magazines, such as *The Edge* <<http://www.theedgemag.org>>. Federal initiatives by the U.S. Departments of Education and Labor, such as America's Career Resource Network and O*NET, are making information resources increasingly accessible.

Research findings highlight the need for accessible, accurate, well-organized information sources and the critical role of practitioners in guiding individuals in the interpretation and use of this information. Studies of elementary school students (Johnson 2000; Toepfer 1999) have shown that many—

- have only a shallow understanding of how school relates to the real world and limited awareness of the skills and knowledge needed for career success,
- are heavily influenced by the belief that schoolwork must be specifically career related to be relevant, and

continued on p. 10

Considerations and Concerns

in Using Online Information

“For many, the Internet has become the vehicle of choice for...accessing various career services” (Kirk 2000, p. 146). A number of factors have contributed to the widespread use of online career information, including (ibid.)—

- the increase in the number of computer-assisted career guidance systems;
- the widespread availability and use of the Internet; and
- a growing number of adults interested in further education and career information.

The array of websites featuring online career information is burgeoning. The sites can be classified into two general categories: career planning and career information. *Career planning sites* feature such services as self-assessment, occupational information, career exploration, and career decision making. *Career information sites*, on the other hand, focus on providing information related to employment trends, educational opportunities, employers, and job search (ibid.).

The availability of online career information is paradoxical. Many benefits are associated with greater accessibility to career information, but there are also limitations. Chief among the benefits is greater availability of additional resources to more audiences. Individuals with disabilities, for example, can frequently access online resources more easily than traditional sources. Online resources can also be used to supplement face-to-face contact with career development professionals. Furthermore, they can complement existing print and computer-based assessment resources, and resources that may have been cost-prohibitive to purchase can now be accessed online (Offer 2000; Sampson and Lumsden 2000).

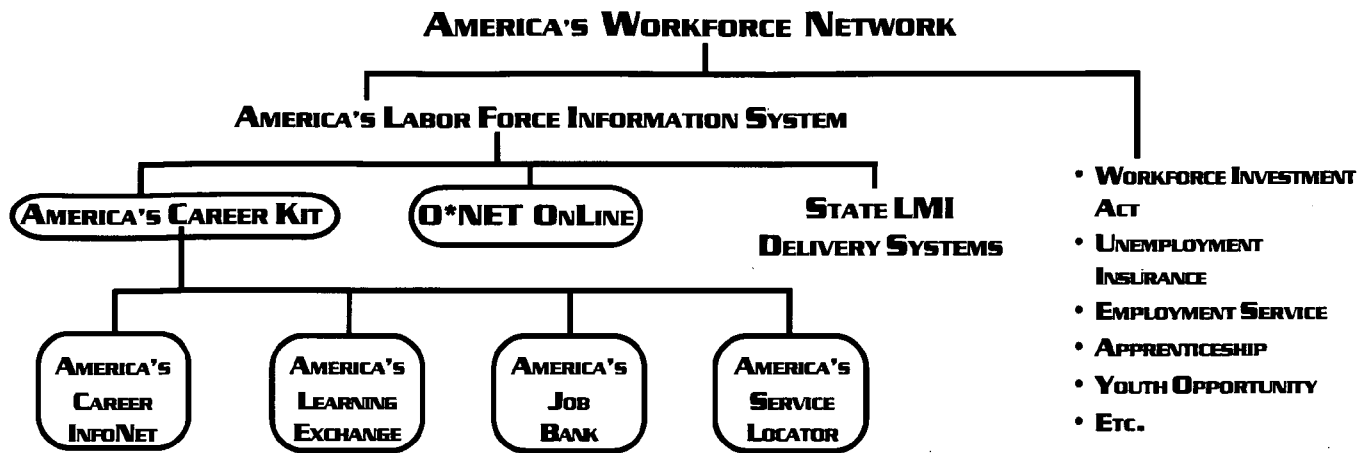
Despite these advantages, however, some limitations and problems are associated with the availability and use of online career information resources. Issues surrounding online career information can be grouped into several categories (Chapman and DiBianco 1998; Davidson 2001; Offer 2000; Offer and Sampson 1999; Peterson 2000; Sampson and Lumsden 2000):

- **User proficiency.** In order to make effective use of career information available online, users must be proficient in using technology and navigating the Web. Even when the user knows what he or she is looking for, resources on the Internet are organized differently “from those on an orderly free-standing database. The initial experience of the Internet is often expressed as serendipity, or more negatively, trial and error” (Offer 2000, p. 34). Individual users may need guidance in locating appropriate information.
- **Quality of information.** Quality of information is an area closely related to the quantity of information. The Web is an open system with no quality control. Anyone can

mount a site containing career information. Users must become savvy in assessing websites by asking themselves questions about the developer, the content, the layout, and so forth. Another element of quality relates to the availability of computer-assisted career guidance systems through the Web. Is information on the reliability and validity of the assessment available? In many cases, little or no data are provided on an assessment’s reliability and validity, making it difficult to judge whether an instrument is measuring what it is supposed to (Sampson and Lumsden 2000).

- **Equity of access.** Although the Internet makes career information more widely available, concern exists that some groups may not have access to it. Individuals with limited financial resources, for example, may have difficulty gaining access. Will inequitable access to online career information mean that some groups and individuals will continue to suffer inequality in employment and career opportunities?
- **User readiness.** Individuals vary greatly in their readiness for career decision making. Those with a high degree of readiness will benefit more from online career information. Individuals with low readiness may experience some difficulties because they need more personalized assistance, and a site may not provide access to help for clarifying directions, asking questions, or interpreting results. Also, individuals using online career assessments may erroneously believe that the instruments will provide a quick and appropriate solution to their career dilemma. If an individual cannot benefit from the type of self-help assistance that is available through online career sites, it would be beneficial for sites to have information about accessing personalized assistance (Sampson and Lumsden 2000).
- **Appropriateness of instruments.** Some career assessments available online were developed for use in stand-alone computer systems and data resulting from their use as online systems may not be valid or reliable. In addition, some online assessments that are used in the self-help mode were developed for use with a professional career development specialist.

Two sets of standards developed by NCDA address many of the issues raised here and provide helpful guidance to consumers using online career information. The first, “Guidelines for the Preparation and Evaluation of Career and Occupational Information Literature” (NCDA 1991), addresses a number of areas such as accuracy of information, bias and stereotyping, and use of information. These guidelines are useful in assessing both print and online resources. The second, “NDCA Guidelines for the Use of the Internet for Provision of Career Information and Planning Services” (NDCA 1997), is designed for career counselors but is helpful to consumers of online career information. The guidelines can be used to assume a critical stance when accessing online career information.



This chart depicts the some of the activities and services supported by the U.S. Department of Labor under the umbrella of *America's Workforce Network*. The following article describes the programs that are circled.

*America's Career Kit and O*NET Online*

Two national online occupational and career information tools are available to a variety of users for a variety of purposes. *America's Career Kit* (2001), a career development resource developed and managed by a federal/state partnership led by the U.S. Department of Labor (USDOL), consists of four interrelated websites:

- *America's Career InfoNet* helps users explore different occupations.
- *America's Learning eXchange* helps users investigate education and training opportunities.
- *America's Service Locator* helps users search for local services.
- *America's Job Bank* helps users look for jobs and employers find skilled workers.

*O*NET OnLine* (*What Is O*NET?* 2001) provides interactive Internet access to USDOL's Occupational Information Network (O*NET), a comprehensive database of worker attributes and job characteristics that can be used for career exploration and counseling, education, employment, and training activities.

Both *America's Career Kit* and *O*NET OnLine* are part of "America's Workforce Network" (2000), USDOL's nationwide system of work force development organizations providing information and services for individuals managing their careers and employers seeking skilled workers. Another important part of America's Workforce Network is "America's Labor Market Information System" (2000), whose standardized federal, state, and local labor market information and tools are used by both *America's Career Kit* and *O*NET OnLine*. This article examines how *America's Career Kit* and *O*NET OnLine* can be used for career education.

America's Career Kit

America's Career Kit (Morman 2000) seamlessly integrates job listings, resumes, career information, and learning resources in four websites:

- *America's Career InfoNet* accesses national, state, and local labor market data, occupational information, and career planning information.
- *America's Learning eXchange* is a clearinghouse of training and education offerings posted by registered providers.
- *America's Job Bank* is a nationwide, searchable databank of job openings and resumes.
- *America's Service Locator* provides maps and directions to service providers.

America's Career InfoNet

America's Career InfoNet (ACINet) <<http://www.acinet.org>> is designed to help users make informed career decisions using local, state, and national occupational, demographic, and labor market information and a variety of career information resources ("About Us" n.d.; "Frequently Asked Questions: General Information" n.d.). ACINet shares a set of Career Tools (described later) with *America's Learning eXchange*. In addition, four tabs on ACINet's home page allow users to perform quick searches for specific career information:

- **General Outlook**—Users can generate lists of the top 25 occupations nationwide in 5 different categories (fastest growing, most openings, largest employment, declining employment, and highest paying) by education levels.

Users can then select an occupation and a state to generate an Occupation Report with summary state and national wage and trend information and links and a description of the occupation; links in the Occupation Report are available for detailed wages, detailed trends, and industry trends.

- **Wages & Trends**—Users can also directly generate an Occupation Report with wage and outlook information either by selecting one of 22 job families, or groups of occupations, and selecting from a list of occupations in that job family or by doing a keyword search.
- **What It Takes**—Users can select an occupation and generate a report of knowledge, skills, and abilities the occupation requires, as well as tasks and activities typically performed (taken from O*NET information); typical education and training for the occupation and links to education institutions in a selected state; and websites with information on the occupation.
- **State Information**—Users can obtain demographic and economic information by generating a State Profile. From the State Profile, users can generate a General Outlook for the state; links can provide additional information about state employers, resources (career/labor market information, education, cultural recreation), and occupational licensing requirements. Users can also link to America's Service Locator to search for local service providers.

The **Career Resource Library** <<http://www.acinet.org/acinet/library.htm>> links users to a wide range of information and resources both at America's Career InfoNet and on the Internet—job and resume banks, job search aids, occupational information, relocation information, and state resources. Users can either browse the library by categories or search by keywords. Of particular interest for career exploration is the set of nearly 300 downloadable Career Videos, which provide a brief overview of selected occupations.

◁ America's Learning eXchange ▷

America's Learning eXchange (ALX) <<http://www.alx.org>> helps users locate career development, training and education, and employment resources they need to be competitive in the work force (*About ALX 2000*). ALX provides a searchable database of profiles on 350,000 offerings—courses, seminars, workshops, degree- or certificate-granting courses, and training materials—available face to face, online, in conferences, via self-study, on TV and video, and by other methods. ALX shares a set of Career Tools (described later) with ACINet.

Users can access **Courses, Programs, and Seminars** tabs at ACINet's home page to locate offerings. All three tabs use the same form and procedure for searching; users must do a separate search for each type of offering. Users can

search either by entering a keyword or by selecting from a list of subjects (e.g., Basic Skills, Conservation and Environment, Legal and Compliance, Therapy and Counseling). Next, users select a state and a delivery method (e.g., classroom, web-based/asynchronous training network, computer-based/CD-ROM, or all methods). Results are displayed in a list with links to a description of the offering, linked to more information on the provider. Users can also narrow the list by entering additional search criteria (e.g., subtopics, type of provider, date of offering, difficulty level, credit/continuing education unit, and certification.)

Three other tabs allow more specialized searches. The **Providers** tab allows users to search for offerings by keyword, state, and delivery method. The **Accreditation** tab allows keyword searches either by name of accrediting agency or by program; it also allows subject area searches (e.g., Allied Health, Engineering and Architecture). The result is a list of agencies that accredit providers and programs. From that list, users can generate a list of all providers and/or programs accredited by the agency. The **Certification** tab allows searches by keyword or by subject matter. Results are displayed by credentialing institution and certificate name with links to descriptions of certificates; descriptions provide links to ALX courses and programs leading to the certification and to all certifications offered by the credentialing institution.

◁ Shared Career Tools ▷ at ACINet and ALX

The **Employability Checkup** <http://www.acinet.org/acinet/emp_ask.htm> helps users determine if they can find a similar job at similar pay. Users select a state and a local area, educational level, and wage level; a job title or job family that represents their occupation; and an industry. The resulting Employability Profile indicates current employment and expected growth in the selected occupation and industry; local, state, and national unemployment rates; and educational attainment and current wages typical for the occupation. A summary rates occupational growth, industry growth, local unemployment, state unemployment, level of training, and user's current wage. Links are provided to America's Job Bank, America's Service Locator, other state career resources, and general job search information.

The **Licensed Occupations** tool <http://www.acinet.org/acinet/lois_start.htm> helps users search for state and federal licensing requirements for a selected occupation. Information is searchable by occupation, state, or agency. Users exploring careers should begin by selecting the occupation they are considering; next, they should select the state in which they plan to practice the occupation, as well as all federal agencies. Search results list the occupation selected, the state and federal licenses required (with

links to further descriptive information), and the licensing board (with address and telephone number).

The **Employer Locator** <http://www.acinet.org/acinet/emp_start.htm> allows users to identify potential employers (*not* job openings) from a database of nearly 12 million U.S. employers; reports provide contact and other general information on employers. Users can search by industry, by occupation, or by employer name. Searching either by industry or by occupation involves a gradual process of simultaneously refining three parameters—occupation, industry, and geographic region.

The **Financial Aid Advisor** <<http://www.alx.org/finadvintro.asp?usertype=>>> helps users identify financial assistance programs for which they might be eligible. Users first answer questions to determine their status as an independent or dependent student; then they provide income, tax, and other information to identify possible program eligibility. Links are provided as appropriate to the online Free Application for Federal Student Aid for grants, loans, and work study; to information on the user's state financial aid programs; and to information on other financial resources such as veteran's assistance, Temporary Assistance for Needy Families, or the Workforce Investment Act. Finally, users are linked to the Scholarship Search Page where they can search by type of award, level of study, vocational goal, and gender, affiliation, and geographic restrictions.

The **Career Exploration** tool <<http://www.acinet.org/acinet/explore.htm>> helps users identify their individual needs and use the elements of America's Career Kit, as well as other resources, to meet those needs:

- **Explore work and learning options** <http://www.acinet.org/acinet/exp_opt.htm> helps identify potentially satisfying occupations and the education and training needed and available. They can learn what career information is; how, when, and why they might use it; and where they can find it, including links to state career information systems (CISs). Users can review the general occupational outlook to identify appropriate career options and review occupational requirements for skills, education and training, and credentialing. Users can examine more detailed state and national outlooks for occupations, as well as current job openings. Links are also provided to other information resources—professional and trade associations, labor unions, government agencies, private organizations, and guidance and counseling associations and services.
- **Gain skills to get a job or get a better job** <http://www.acinet.org/acinet/exp_skills.htm> helps users identify specific education and training resources they can use to acquire the skills needed for an occupation. Resources include state CISs and information on a variety of op-

tions (e.g., federal training programs, colleges and universities, employer-based training, internships, and school-to-work). Finally, users can search for specific classroom-based, work-based, and Internet training offerings and training providers.

- **Find financial assistance for education and training** <http://www.acinet.org/acinet/exp_find.htm> identifies state and national sources of financial aid and provides an overview of eligibility requirements and application procedures. A link allows users to access the Financial Aid Advisor (described earlier).
- **Find job search resources and services to help you get a job** <http://www.acinet.org/acinet/exp_res.htm> links users with resources and services they can use at different steps in finding a job. Users can follow links to state CISs and state and national occupational information resources on confirming job targets, writing a resume, preparing for an interview, negotiating job offers, relocating, employment law, and finding career counselors and job search professionals.
- **Find possible jobs and employers** <http://www.acinet.org/acinet/exp_jobs.htm> helps users identify positions and employers in the occupation for which they are preparing. Links to America's Job Bank allow users to search for listed job openings and obtain other job search services. Users can also link to ACINet's Career Resource Library to identify potential employers and to review relevant occupational information.

◁ America's Job Bank ▷

America's Job Bank (AJB) <<http://www.ajb.org>> is designed to help job seekers find jobs and employers find workers. Job seekers can search a database of 1 million jobs; by registering, they can also create and post an online resume and set up an automated job search. Employers can register to search a database of almost 400,000 resumes, post job openings, and set up an automated resume search.

Job seekers can search for jobs using five tabs on AJB's home page:

- **Quick Search** allows users to browse among all job listings in one of 22 job families (nationally, internationally, or within a 50-mile radius) or all jobs within a 50-mile radius.
- **Job Title** allows users to browse a list of the job titles within a job family, select a job title, enter a ZIP code, and select a radius.
- **Keyword** allows users to search by job title or skill; the Job Title, Certificates/Licenses Required, and Type of Education Required fields of all listings will be searched.
- **Military** allows those with a military background to enter a Military Occupational Code, rank, and branch and search for equivalent civilian jobs within a selected radius.

- **Job Number** allows users to recall and review job listings found previously by entering the nine-character Job Number.

Users can refine search results by specifying other location options and other advanced options (new listings only, level of education or experience required, duration, and salary range). Search results include job title, date posted, job location, and listing company, with links to a description for each job title. Job descriptions include links to state profiles and wage and trend information for the type of job. A link on AJB's home page also allows users to search for jobs and employment information in a selected state.

◁ America's Service Locator ▷

America's Service Locator <<http://www.servicelocator.org>> allows users to search for service providers, including One-Stop Centers. Users first enter information on their own location and then choose either Nearest One-Stop or Office Search; Office Search results include not only One-Stop Centers but other centers (e.g., senior centers) or the agencies that sponsor them. Contact details, a map, and driving directions are available for each center listed. A planned Service Search is not yet available.

◁ O*NET OnLine ▷

O*NET OnLine provides access to O*NET occupational information for students; people seeking first jobs, new jobs, or better jobs; and people who are choosing or changing careers. Users can explore these categories of occupational information ("Using O*NET" 2001; "What Is O*NET?" 2001):

- **Skills**—basic skills (e.g., math, reading) and cross-functional skills (e.g., problem identification, resource management)
- **Generalized Work Activities**—general job behaviors occurring on many jobs (e.g., organizing, planning, and prioritizing work)
- **Interests**—broad areas of personal interest (e.g., realistic, investigative)
- **Work Styles**—personal characteristics and values connected to work (e.g., achievement, initiative, recognition)
- **Work Context**—physical and social factors that influence the nature of work (e.g., interpersonal relationships, physical work conditions)
- **Organizational Context**—characteristics of an organization that influence how people do their work (e.g., social processes, personnel resources)
- **Experience and Training**—levels of preparation needed for occupations, including overall work experience, on-the-job training, and education

Users can access occupational information at O*NET OnLine in different ways:

- **Find Occupations** allows users to find occupations to explore by searching for a keyword, occupational title, or occupational code or by browsing in one of 23 job families. The resulting brief description for the occupation includes links to an occupational Snapshot and Details.
- **Skills Search** allows users to search for occupations that require selected skills, including basic skills, complex problem-solving skills, resource management skills, social skills, systems skills, and technical skills. Users can select an occupation from the resulting list to explore.
- **Related Occupations** allows users to select and explore other similar occupations.
- **Snapshot** provides summary information about important aspects of a selected occupation—experience requirements (overall experience, on-the-job training, education), worker requirements (basic and cross-functional skills, general knowledge), worker characteristics (abilities, interests, work values), occupation requirements (generalized work activities), occupation-specific information (tasks), and occupation characteristics (labor market information, occupational outlook, wages).
- **Details** indicate the level of importance for each of eight variables for a selected occupation—knowledge, skills, abilities, interests, work values, work context, tasks, and work activities.

Private organizations and public agencies can build add-on software and other products that use O*NET as a foundation to meet a range of work-related needs ("What Is O*NET?" 2001). For example, O*NET could be used to cluster occupations based on skills, knowledge, or job tasks; improve counseling or assessment products and processes; align curricula to meet current workplace needs; develop job orders and position descriptions; and improve hiring decisions. Table 1 describes some add-on uses of O*NET and O*NET OnLine.

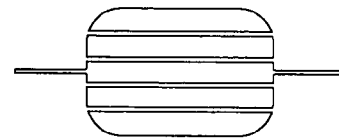


Table 1. ADD-ON USES OF O*NET AND O*NET ONLINE

<u>Program</u>	<u>Users</u>
The web-based Alabama Comprehensive Labor Market Information System Dislocated Worker module used O*NET information to help users analyze their own skills and find new occupations that fit their skills.	Workforce Investment Act system, dislocated workers, students, job seekers, career changers, welfare-to-work clients
The California Employment Development Department project Focus on High Technology and Emerging Occupations in the Entertainment and Multimedia Industries used O*NET components to identify a new O*NET occupational title critical to the state's economy, Computer Artists, 3-D.	One-Stop system, employers, educators, teachers, policymakers, planners
The Connecticut Department of Labor used O*NET occupational skills information to meet Workforce Investment Act requirements and identify skills and other worker qualities and characteristics needed in 25 growth occupations.	One-Stop system, policymakers, planners, educators, counselors, community leaders, employers, program operators, service providers
At Edgewood Terrace in Washington, DC, the Community Preservation and Development Corporation helped unemployed and underemployed adults build career plans. Program staff used O*NET Online to help participants identify potential career goals.	Unemployed adults and young adults (age 18-24), underemployed adults seeking career advancement, persons with disabilities, persons leaving foster care
At a U.S. State Department Career Learning Center in Washington, DC, civil and foreign service employees making a career transition used O*NET resources and O*NET Online to find new career opportunities in the public and private sector.	Federal employees in career transition, human resource personnel, career counselors, program directors
Iowa Workforce Development used O*NET data in its new skills-based Job Match system to help job applicants identify and describe their skills.	Job applicants (entry-level and experienced), employers, Iowa Workforce Development staff
The University of Minnesota-Duluth used a modified O*NET skills taxonomy to develop an online tool for students to find out-of-classroom experiences to gain transferable skills and create a resume summarizing experiences to add to their electronic portfolios.	Students, student advisors, employers
The Boys & Girls Clubs of America used O*NET data in an online career exploration resource for teens in career preparation programs.	Boys & Girls Club members (age 13-18), club staff, program administrators
Nebraska Workforce Development's Labor Market Information Center used O*NET Online to help military personnel relate military skills and experiences to appropriate civilian occupations and careers.	Personnel leaving military service
The New York Department of Labor used O*NET data (job definitions, skills, education, interests, etc.) organized around New York's six school-to-work career clusters to develop CareerZone, an interactive, online career exploration resource for students, youth, and job seekers.	Students, guidance counselors, educators, librarians, program administrators
An Oklahoma City One-Stop Center used O*NET data to help small business develop job descriptions and design an inhouse, certified training program for skilled welders.	One-Stop system, small business owners, employers, human resources department staff
The Texas State Occupational Information Coordinating Committee used O*NET occupation descriptions and definitions of required knowledge, skills, and abilities to identify 54 emerging or evolving occupation in 8 industries.	Job seekers, employers, educators, curriculum developers, professional career and employment counselors, economic developers
The State of Washington's Employment Security Department and State Occupational Information Coordinating Committee developed ORCA, the Occupational Researcher's Computer Assistant, an easy-to-use career exploration software, using O*NET occupational titles and occupational information (knowledge, skills, abilities, educational levels, and work values).	Job seekers, career changers, dislocated workers, students

Source: *O*NET in Action*. Washington, DC: Employment and Training Administration, U.S. Department of Labor, n.d. <<http://www.doleta.gov/programs/onet/oia.asp>>

State Career Information Systems

America's Career InfoNet/State Profiles

<<http://www.acinet.org/acinet/default.htm?tab=stateprofile>>

Each state profile includes a map of the state, demographic information (including incomes), occupational rankings, largest employers, licensing information by occupation or state agency, and links to state websites with job, career, labor market, or economic development information. Detailed information, maps, and driving directions to services such as One-Stops, senior centers, and Job Corps offices are also provided.

Several state sites demonstrate how information about career development, job search, employer support, labor market data, economic development and other state services can be integrated through a comprehensive website, as the following selected examples show.

Arizona Workforce Connection

<<http://www.de.state.az.us/oscc/index.html>>

Arizona One-Stop Career Centers, labor market information, education, training and work force development, job information, and more in one integrated site. Links to educational programs and programs authorized by the Workforce Investment Act are especially useful for career planning.

Louisiana Works!

<<http://www.laworks.net/laworks.asp>>

Integrated site includes information for job seekers, employers, and currently employed workers. Information on local services (including One-Stop centers), welfare-to-work, and the labor market is readily available. Online services are thoughtfully provided, for instance, job seekers may look for jobs by parish, work force investment area, regional labor market area, or statewide.

Michigan Department of Career Development

<<http://www.mdcd.org/index.htm>>

Comprehensive site for employers, career development, and all types of job seekers. The Career Preparation section includes information on career and technical education, apprenticeships, higher education, adult education, GED preparation, services for veterans, people with disabilities, seasonal workers, and other specialized programs.

Other comprehensive state sites with good career-related information for all audiences:

- Missouri <<http://wfd-info.works.state.mo.us/>>
- New Jersey <<http://wnjpin.state.nj.us/index.html>>
- North Carolina <<http://www.joblink.state.nc.us/>>

Good state sites for career information especially for job seekers:

- New Hampshire <<http://www.nhes.state.nh.us/elmi/nhcrn/index.htm>>
- New York <<http://www.nycareerzone.org/>>
- Wisconsin <<http://wiscareers.education.wisc.edu/splash.asp>>

Web Sources of *Career Information*

The **Bureau of Labor Statistics (BLS)** <<http://stats.bls.gov/>> website includes a wealth of information about wages, earnings, and benefits; employment projects; employment and unemployment; job openings and labor turnover; and a variety of publications.

BLS Career Information <http://stats.bls.gov/k12/html/edu_over.htm> has links to information about jobs for youth and a teacher's guide to BLS career information.

Career Exploration on the Internet <<http://www.utc.edu/~careered/catalogindex.htm>> is a collection of career exploration sites for elementary schools, middle schools, high schools and beyond.

The **Creative Job Search** site <http://www.mnworkforcecenter.org/cjs/cjs_site/index.htm>, sponsored by the Minnesota Workforce Center, includes information for job seekers and employers, explanation of labor market information, and articles on resume and cover letter writing, interviewing, and dressing for job success.

The **Elementary Career Awareness Guide** <<http://www.stw.ed.gov/products/download/html/2118.htm>> assists elementary school counselors and teachers in identifying current counseling and classroom activities that already support career development and suggest ways to incorporate additional competencies into their programs. Includes the National Career Development Guidelines and activities for using them.

Get Your Career in Site by Gina Imperato <<http://www.fastcompany.com/online/32/atwork.html>> is a practical guide to using the Web to answer such questions as: What kind of work do you want to do? What kind of a company do you want to work for? What skills must you learn to get the right job?

Headhunter.net <<http://www.Headhunter.net/JobSeeker/Index.htm>>, formerly careermosaic.com, includes information on job fairs and has an extensive list of additional resources such as company research, financial information, resume assistance, interviewing techniques, career assessment, and training opportunities.

The **International Career Development Library** <<http://icdl.uncg.edu/>> is a free, online collection of full-text resources for counselors, educators, work force development personnel, and others providing career development services.

Making Career Sense of Labour Market Information. 2d ed. by Elaine O'Reilly <<http://www.makingcareer.sense.org/>> introduces career practitioners to key socioeconomic and labor market concepts, trends, and issues. It also provides practical examples of researching labor market information (LMI) and using it in the career development process. Topics include labor market trends, work in the new economy, skills for a new economy, LMI for career decision making, and education and training options

The **Monster Career Center** <<http://www.monster.com/>> provides resources to manage careers, track job searches, store resumes and cover letters, and connect to a global career community. Salary data and industry information may be accessed. The Tools Section <<http://content.monster.com/tools/>> includes personality tests, cost-of-living calculators, and quizzes on topics such as your perfect career and time management.

Myjobsearch.com <<http://www.myjobsearch.com>> provides popular career services as well as career exploration tools such as occupational information and salary data.

The Occupational Outlook Handbook <<http://www.bls.gov/oco/>> is a nationally recognized source of career information designed to provide assistance to individuals regarding their work lives. It describes what workers do on the job, working conditions, training and education needed, earnings, and expected job prospects for a wide range of occupations.

Ohio's Career Development Program <<http://www.ohiocareerdev.org>> includes full text of materials for parents to assist them in helping children choosing a career. The site also links to the Ohio Career Information System.

The **Riley Guide** <<http://www.rileyguide.com/>> includes certification and licensing resources, preparing for your job search, writing resumes and cover letters, targeting and researching potential employers, networking, interviewing, negotiating, salary guides, and information for recruiters.

School-to-Work in Elementary Schools <<http://www.stw.ed.gov/factsht/bul0197D.htm>> has sections on creating an environment of career awareness, building essential skills, effective practices, and lists of additional resources and organizations.

Steps to Career/Life Planning Success <<http://www.careerservices.uwaterloo.ca/manual-home.html>> begins with self-assessment and continues with occupational research, decision making, employment contacts, work, and career/life planning.

The Edge <<http://www.theedgemag.org>> gives information on ordering free copies of the Canadian career magazine for and by teens, also available in PDF on the site. Articles and activities on the following topics are provided: self-discovery, learning for your future, occupations, job hunt, and success at work. Includes sections for employers, educators, and parents

Occupational Information

- have a limited sense of how to develop skills and knowledge and the usefulness of career information in this process.

Adolescents also need assistance in using career information. Kennedy, Christian, and Bell (1999) concluded that adolescents have unrealistic expectations and inconsistencies in their views for their future. A study of British students (Foskett and Hemsley-Brown 1999) found that they base their understanding of careers and work on images from personal contact with a job or work, adults, and the media. In a study of Canadian adolescents (Julien 1999), 60% found it difficult to obtain the career information they needed; 40% had to go to too many places; 40% did not know where to go; and 25% did not feel confident asking for information. Many expressed negative attitudes about career choice software, or the availability of school-based print sources and experienced information overload and emotional barriers or time constraints to using career information.

"Research has consistently shown the value placed on family and friends as sources of useful information," according to Patton and McCrindle (2001, p. 32), who noted that noncollege-bound students rely more on social networks than on school-based information services. In particular, parents have an important influence on career choice. However, although parents seem to understand the usefulness of career information sources for their children's career development, many may not know how to take advantage of these resources (Trusty and Watts 1996). Choice of information sources and perception of their usefulness varies depending on such factors as age, gender, socioeconomic status, family circumstances, and cognitive maturity (Jordan and Pope 2001; National Career Development

Association [NCDA] 2000; Patton and McCrindle 2001; Trusty and Watts 1996).

Career information should be made available earlier, according to high school seniors in Patton and McCrindle's (2001) study, a need echoed by 69% of adults in the Fourth National Survey of Working America (NCDA 2000), who said that they would try to get more information if starting over. Almost all of the adults in Lucas' (1999) study felt they needed more information not only about occupations, but also on their own interests and skills, a stage of the career development process that should have taken place in elementary school.

However, simply accessing career information is not enough, as other research points to the need for intermediaries such as information professionals and career development practitioners. British adolescents had the perception that school guidance operates as information on demand: once they expressed an interest, they would be given information on that career area (Foskett and Hemsley-Brown 1999). They were prepared to listen only to information about careers they had already chosen and tended to ignore other information they considered irrelevant to that choice. Roney (1999) discovered that adolescents may overaspire in their career expectations because they reason inaccurately about the ease of attaining high-status jobs. Simply giving students labor market information may be insufficient to foster more realistic ideas about careers.

A great deal of career information is available online, raising issues of access and user support. Offer (2000) found that 80 percent of college students would rather gain career information from a computer than from a book or a person, 85 percent would

rather use a computer program to help them develop a résumé, and 70 percent thought computers could help them find jobs much faster than would traditional job search methods. However, higher percentages recognized the need for personal assistance when those online sources didn't satisfy them. And what of those without online access? NCDA (2000) sees the beginning of a "career information digital divide" that could disadvantage some in the labor market; age, minority group membership, and education level are associated with access to career and job information.

Canada's *Blueprint for Life* (2001) and several U.S. state curricula that use the National Career Development Guidelines (Barbieri 1998a,b; CareerTEC 2000; Ohio Department of Education 2000a,b,c) outline competencies related to career information for elementary, middle school, secondary, and postsecondary/adult levels. The competencies increase in complexity as career development continues throughout life. Examples of what individuals should know and be able to do in regard to career information at each level are as follows:

Elementary Education: Understand and Use Career Information

- Explore the work of family and community members
- Identify occupations by people, data, things
- Discover how interests, knowledge, skills, beliefs, and attitudes relate to work roles
- Learn how parents, friends, and relatives can provide career information
- Explore work roles and settings of interest
- Explore the concept of work information and how parents, relatives, adult friends, and neighbors can provide this information

*Middle School: Locate,
Understand, and Use Career
Information*

- Identify ways occupations are classified
- Identify occupational groups for exploration
- Use school and community resources to identify occupational groups and work roles
- Discover how skills, knowledge, and attitudes can be transferable from one work role to another
- Identify community employment sources.

*Secondary Education: Locate,
Evaluate, and Interpret Career
Information*

- Explore the educational and training requirements of various work roles
- Acquire knowledge of classification systems and career ladders
- Discover how key personnel in selected work roles could become information resources and/or role models
- Explore how trends and work opportunities in various economic/work sectors affect the nature and structure of work roles
- Understand how a variety of factors (e.g., supply and demand for workers, demographic changes, environmental conditions, geographic location) affect work opportunities
- Understand how labor market information (profiles, statistics, etc.) should be used when making life and work decisions
- Explore a variety of work alternatives

*Postsecondary/Adult Education:
Locate, Evaluate, and Interpret
Career Information*

- Identify and use career information resources (computer and Internet-based career information delivery systems, print, media, mentors)

- Identify available work opportunities with respect to one's set of work skills, knowledge, and attitudes
- Understand how to assess the reliability of career information
- Explore opportunities for self-employment
- Assess information and evaluate its impact on one's life/work decisions

In addition to activities that help individuals acquire these competencies, O'Reilly (2001) suggests that career information can be a valuable asset in career decision making only if it is grounded in meaning for the user. She suggests that practitioners guide individuals in "interrogating" the information, using an additional set of questions beyond the in-depth analysis of personal aptitudes, values, and interests and the study of what job or occupation description best matches those personal interests and aptitudes:

- Does the present situation represent the future situation?
- What predictions are reliable?
- Where can I find further information to support or refute these predictions?
- Is a particular article biased to make an argument for a lobby group?
- How will consumer behavior affect opportunities?
- What public policies will impinge on this career?
- How many workers are already in this field?
- How many new workers will be needed?
- How will technology change the industry?
- What are the paths that seem possible from this position?
- Is this occupation mobile across the country?
- From which training programs do employers prefer to hire?

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