The Internet and Career Development

Frances K. Bailie, Ph.D.
Iona College
715 North Avenue
New Rochelle, NY 10801
Phone: (914)633-2335
Fax: (914)633-2144
Email: fbailie@iona.edu

Overview
The desire to create effective Internet applications and the importance of renewed career development programs to meet curriculum needs are two prominent issues in education today. This paper demonstrates how Internet facilities can effectively meet many of the currently perceived goals of career development. It summarizes federal and state grants aimed at integrating technology into career development and describes various methodologies and assignments that teachers have employed to realize curriculum objectives. While Internet access and career development are important for all students, these issues bear particular significance for students who are at risk of failure in school – often those from minority and low-income groups. As such, this paper makes special note of applications specifically directed at this population.

The Internet in Education
The entrance of the Internet onto the educational stage has been both a blessing and a curse to educators. A blessing because a click of the mouse can provide an unprecedented amount of current information; a curse because harnessing the power of this information to support educational goals can be an intimidating challenge. Supported by local funds as well as federal money obtained from programs such as E-Rate, many schools have provided (or are in the process of providing) the infrastructure as well as the hardware, software, and access needed for Internet use. Teachers who are fortunate enough to have Internet access are now faced with the task of integrating it into the curriculum.

The Internet is not merely a "must have" fad that schools can boast about to demonstrate their leadership in technology. To the contrary, the Internet is a serious educational tool that fosters several learning models, including the cognitive information processing and problem solving models (Oliver, 1997). Processing and research skills learned through searching the Internet support the tenets of the cognitive processing model. Moreover, the variety of information that students must interpret for validity can enhance their metacognitive abilities. Many Internet projects involve the problem solving activities of finding information to support hypotheses and then organizing, analyzing, and evaluating the results. In addition to cognitive advantages, teachers have noted many affective gains from Internet use. Students' enthusiasm and motivation are high when they are able to access and use current information. Furthermore, taking pride in their work often prompts students to continue working on Internet projects after school or, when possible, at home (Oliver, 1997). These advantages make the Internet a powerful opportunity that many teachers are anxious to exploit to foster academic achievement.
Career Development Programs

The early 1970's saw the emergence of career development theories that address the needs of all students. Educators suggested that to be armed to meet life's challenges, each student must (1) formulate a positive self-image; (2) recognize his or her abilities and interests; (3) understand the value of work; and (4) be exposed to accurate and timely information on potential careers (Schwartz, 1996). Career development and exploration is now viewed not as a single event but rather as a lifelong activity. To accomplish these goals, educators must expand career development opportunities for youths so that awareness begins early in the educational process and continues as the student matures and prepares to embark upon a career. Several career development theories rest on the importance of self-awareness as the crucial first step in the career exploration process. Theorists such as Super, Gottfreds, and Holland suggest that the clearer an understanding a person has of his or her abilities, talents, interests and work values, the more focused the search for a career becomes. The correlation between a personal profile and a vocational profile has a direct effect on the level of career satisfaction. Following this theory, educators must offer students a variety of opportunities to examine themselves and their potentials to find a successful career match (Love, Larrick, & Cobb, 1997).

It is not surprising that the most effective guidance programs have proven to be those that work closely with each individual student to aid in self-awareness, to create a realistic inventory of his or her skills and interests, and, above all, to create a framework where an understanding of work and careers can encourage academic achievement (Gysbers, 1995). To optimize its effect, this process must involve not only students, teachers, and guidance counselors but also parents and the community (Maddy-Bernstein, 1997).

In response to this shift in career development theory, today more and more guidance offices are busy centers of activity that advise students and disseminate information, often from computerized information systems. Since 1995 the National Center for Research in Vocational Education and the U.S. Department of Education have recognized schools and districts with Exemplary Career Guidance Program awards. Some of the schools to receive these awards have used Internet-connected labs in the career development process. Many teachers have designed career components into their disciplines to demonstrate the skills and knowledge required to pursue the kinds of careers students desire. While formal statistical information is lacking, abundant anecdotal evidence suggests that schools with well-developed career programs have a positive influence on teens both academically and socially (Ries, 1999).

Many states have taken the initiative to promote comprehensive career development programs and to promulgate policies that embrace these theories. New York State has recently released revised learning standards that address all educational areas, including career development and occupational studies. Among these learning standards are: (1) learning about the workplace as an arena where students will fulfill their personal goals and (2) understanding how the skills they learn in the classroom are essential to future careers (Learning Standards for Career Development and Occupational Studies, 1996). For each standard the New York State Education Department has published performance indicators and sample tasks that demonstrate progress toward the standard. For example, at the elementary level performance indicators of goal number (1) cited above include (a) beginning a career plan to assist in transition from school to career entry and (b) demonstrating an awareness of their interests, aptitudes, and abilities. Sample tasks for this standard include (a) identifying long-range personal goals and relating their attainment to successful employment and (b) identifying favorite school subjects and special talents and relating them to specific occupations (Learning Standards for Career Development
Career plan developments in many of New York's districts include specific use of Internet resources to support these standards.

The "At Risk" Population

Minority students and those from low-income families are often considered disadvantaged or "at risk" students. While we must be cautious in generalizing about any population, the evidence that many such students encounter significant problems in schools cannot be ignored: (1) students in low-income neighborhoods traditionally have more limited access to technologies such as the Internet than their counterparts in higher income districts; (2) their teachers are less likely to know how to effectively integrate computers into the curriculum; (3) computers are more likely to be used for activities such as remediation and drill and practice rather than for problem solving activities that promote higher order thinking skills; (4) fewer students have computers at home; (5) their parents are likely to be afraid of technology (Rockman, 1995) (George, Malcolm, & Jeffers, 1993). Having a positive attitude toward computer technology and acquiring basic computer competencies are vital skills that these students will need to be prepared to meet the demands of the twenty-first century economy.

Reports from the United States Department of Labor Bureau of Labor Statistics indicate that the size and composition of the workforce will change dramatically as we enter the next century (http://stats.bls.gov/news.release/ecopro.nws.htm). Computer services is predicted to show the largest increase of any industry and one third of all jobs will be held by minorities (George, Malcolm, & Jeffers, 1993). If these students do not have adequate access to computer technologies and proper career guidance, what will be their job outlook as they enter adulthood? In an attempt to better this situation, many state and federal grant programs are aimed at improving career development through the use of technology.

Grants

The Learning Technology Grant program in New York State offers funding for schools to use technology to implement standards and assessment tools across the curriculum. One such recently-awarded grant brought Internet access to public and private schools with a high percentage of low-income families. The grant focused on the staff development of six middle school teachers who used technology to enhance career awareness and academic achievement among their students. The project provided laptop computers to six middle school teachers to allow them to become familiar with the technology and to prepare career development lessons. They received technical training in using their computers and in gaining Internet access. In addition, the teachers were provided with a list of suggested sites appropriate for middle school career exploration. The participating teachers were carefully selected to act as leaders in their respective schools. In that way, the knowledge and skills gained through this project would be shared with their peers and ultimately benefit a large population of students.

A key component of the lessons was to demonstrate to students the skills needed to pursue various careers. For example, a mathematics teacher of Haitian and Dominican students was most interested in directing her students to careers that matched their innate skills and abilities. The project enabled her students to explore how their interests could be related to meaningful careers. Students enthusiastically embraced the program and several of them used email to contact professionals directly about specific careers. Because very few of these students have access to computers at home, this initiative was particularly beneficial for them. Another teacher used a Computer Club to generate interest in career development. After taking some
skills inventories, students accessed several sites gathering information on careers. They kept a journal of their research that was put into booklet form at the end of the year. Many of the students will continue the project into the following school year, encouraging them to research a variety of careers. Video conferencing equipment will allow the students to share their work with students from other schools.

The Carl D. Perkins Vocational and Applied Technology and Education Act of 1990 was established to foster the development of academic and career skills of students. Through this act, states receive federal funds to award grants (commonly known as VATEA grants) to schools for developing programs that improve the quality of career education. The grant stipulates a number of mandated activities, among which are the requirements to use technology in the career development process and to provide technology training for career education personnel.

One such VATEA grant was targeted at New York State teachers of students who are not from the traditional academically successful, college-bound populations: e.g., teachers of special education, English as a second language (esl)/bilingual, and technology/vocational students. Teachers participated in a series of lectures and workshops on careers and technology and then were asked to prepare a PowerPoint presentation for students and parents on the importance of academic performance and career opportunities. They also created a web site that students and parents may visit to gain access to Internet resources on career exploration.

Another VATEA grant was awarded to three Wisconsin school districts to participate in a pilot program of lifework planning. The purpose of lifework planning is to encourage students to establish their goals based on what they enjoy and what they are good at and then to help them reach their goals. For example, going to college should not be considered a goal, but rather a means to a goal. The underlying premise of the project is that career planning is not a single event in a student's life but rather a process that begins in elementary school and continues throughout life. There are various stages in the process that are applicable to a specific age. The program urges students to investigate connections between their academic work and career opportunities. Lifework planning is a collaborative process that requires the active involvement of the community, teachers, school staff and parents as well as the student. Grant participants have created a comprehensive web site that chronicles the work of the grant, containing activities for each of these groups (community, teachers, school staff, parents, and students). The grant web site contains a repository of many useful Internet resources for career exploration that will be described in further detail below.

**Internet Career Development Assignments**

We now turn our attention to specific methodologies and assignments involving the Internet that teachers have employed to realize the goals of career development. For example, (1) students can complete inventories found on the Internet, yielding an indication of their abilities and preferences with regard to careers; (2) students can access Internet sites describing the qualifications, skills, and educational requirements of various careers; and (3) students can engage in email conversations with professionals to gain insights into the day-to-day activities of specific careers. It is important to note that these assignments are not restricted to guidance classes but have been used successfully in other disciplines such as English, mathematics, and social studies. A typical lesson begins with an introduction to one or more skills inventories to present students with a list of careers for investigation. Better inventories provide students with an opportunity to identify what they like and enjoy doing. Well-constructed tests of this nature force students to confront not only their assets but also their liabilities, facilitating the
development of a realistic self-image. These inventories should be administered at various developmental stages and should only be used as a guide to possible career paths. Students enjoy taking these on-line inventories, particularly because most of them provide immediate feedback. Once students have identified a list of possible careers, they may search the many available Internet sites to gather information on specific careers. Here students find answers to such research questions as: (1) What do workers in this profession do? (2) What is the job like on a typical day? (3) How do you prepare for the job? (4) What kinds of courses are helpful? (5) What is the salary? (6) What is the job outlook for the future? (7) What are related jobs? (8) Where would you find additional information? Once students have compiled the data, subsequent assignments focus on the evaluation and analysis phase where students must match the career information with personal abilities, desires, and values. Because the Internet exposes students to such a wealth and diversity of information, they gain valuable practice in synthesizing this information to formulate a viable career plan.

A good place to start for elementary school students (grades 1-5) is with the United States Department of Labor Bureau of Labor Statistics career site (http://stats.bls.gov/k12/html/edu_over.htm). Based on preferred school subjects, this site directs students to a list of careers. Clicking on a career reveals information to answer the typical research questions as described above. The advice is honest and tries to paint a realistic picture of each career. For example, those students who want to become rock stars (considered by young people to be a very glamorous and high paying profession) learn that rock musicians must have a natural talent for music, should play two or three instruments, are more marketable if they can sing and dance as well play, practice long hours, are subject to hearing loss, travel from town to town, and often earn a meager salary. They discover that the competition for these jobs is keen and that talent is not the only prerequisite. Information of this type can clarify many misconceptions students have about popular careers. Another good site for elementary students is Ask Jeeves for Kids (http://www.ajkids.com) By entering "careers" in the question box, students are given a list of potential careers for inquiry. Each career is linked to the Princeton Review database. This methodology can be preferable for younger students because they have a list to choose from instead of thinking of careers to research on their own.

The Lifework Planning Project (developed through a VATEA grant described earlier) offers valuable information on their web site (http://www.careernet.org/plan/index.htm). Student activities are divided by age. Under the student tab for elementary school, students are taken to the Bureau of Labor Statistics site mentioned above. However, exercising the middle school or high school option brings the older student to the College Board site (http://www.collegeboard.org/career/bin/career.pl?runlevel=all#all) where they can find career descriptions of a large variety of careers that answer many of the same questions as the Department of Labor career site noted above. The list of careers and the career descriptions at this site, however, are more comprehensive and better suited to middle and high school students. From this site students may take a variety of skills inventory tests followed by a search of potential careers. A sample listing of these tests are as follows:

- ExPAN Career Search from the College Board On-line site (http://www.collegeboard.org/career/html/searchQues.html) queries the student on likes and dislikes, job criteria, and work values.
- School Finder Quiz (http://www.schoolfinder.com/career/carquiz.htm) gives a test of likes and dislikes. The results place students into one of five categories: methodical,
innovative, directive, objective, social. Each category is related to a list of careers that can be researched individually.

- Several sites employ various types of questions to place a student into one of John Holland's personality types: realistic, artistic, investigative, social, enterprising, conventional. Each type has an associated list of careers that can be investigated further. Some examples of these sites are:
  - The Career Key (http://www2.ncsu.edu/unity/lockers/users/l/lkj/)
  - Cornell Career Zone (http://www.explore.cornell.edu/careerzone/usetest.asp)

Valencia Community College in Orlando, Florida maintains an excellent site called Career Connection Network (http://careers.valencia.cc.fl.us/plan.htm). It provides a concise plan for career investigation and a worksheet with pertinent questions to answer about each career under investigation. The site also contains a link to Princeton Review's career database (http://www.review.com/career/templates/tem1.cfm?body=index.cfm), perhaps one of the most complete career databases on the Internet. The database is searchable by keyword and returns such interesting and pertinent information as: (1) "a day in the life of" the career; (2) predictions on what a typical person in the career might be doing in 2, 5, and 10 years; (3) statistics on salaries at the start of the career, after 5 years and, after 10-15 years; and (4) a list of companies that are major employers of the profession.

One of the best designed career development sites is Career Paths Online (http://www.careerpathsonline.com) which originates in Canada. It offers students a ten-step plan for career exploration. The first five steps relate to a self evaluation: values, personalities, learning styles, skills and interests. The second five steps relate to the outside world around you: options, research, connections, goals, actions. The steps can be done in order or at random. An attractive feature of this site is that it keeps track of which steps a particular student has completed, so that same student can stop work and pick up where he or she left off at another time. This site is quite comprehensive and is highly recommended for a long-term project. The first five steps allow students to focus on themselves to get a clear picture of their natural abilities and inclinations. The second five steps facilitate research by pointing students to a full list of sites on career information and counseling. The methodology employed in the ten-step plan encourages students to consider both short term and long term goals together with a list of concrete steps required to realize them. In addition to the ten-step plan, young students can read timely articles on such topics as: (1) how to turn your negative characteristics into positive ones and (2) how others have started with their dreams and turned them reality.

The Career Zone site (http://ny.jobsearch.org/careerzone) was developed by the New York State Department of Labor and by the eXploring Careers web group at Cornell University with a grant from the United States Department of Labor Employment and Training Administration. This site has been used for a project by a group of home and career teachers at a middle school with a large population of disadvantaged students. It is a well-developed site with numerous options for student exploration. For example, one of the options obtained by pressing the student resources button is a list of skills inventories and personality tests (found at http://www.explore.cornell.edu/careers/assessment.htm). Many of these same instruments are also available through the Careernet site mentioned above. Students can also receive information on education, colleges, financial aid, and other relevant topics such as job resumes, interviewing, and job hunting. The site is well designed for students: graphics and animation
portray a friendly and non-threatening environment that invites participation and research. Jobs are divided into categories, such as arts and humanities. Clicking on a category provides students with a comprehensive list of jobs in that area. Selecting a specific job yields information such as: job description, interests, work activities, tasks, skills, abilities, knowledge, education, school programs, wages, job outlook, similar jobs. Selected jobs even have associated videos. Teacher and counselor resources (found at http://www.explore.cornell.edu/careerzone/wsheet2.htm) include sample worksheets, exercises and a complete lesson plan on career development. Students who participated in this project displayed a high degree of interest and motivation. Teachers were extremely pleased with the results of teaching careers through the Internet and plan to expand the time devoted to this unit in the future.

The United States Department of Labor Bureau of Labor Statistics Occupational Outlook Handbook (http://www.bls.gov/ocohome.htm) provides a career index. For each career selected a student can learn about: the nature of the work, typical working conditions, employment opportunities, educational and training qualifications, the job outlook, prospective earnings, related occupations, and additional sources of information. Through this site students can research an occupational cluster as well as a specific career.

America's Career Infonet (http://www.acinet.org/acinet/default.htm) links to America's Job Bank network that matches jobs and prospective employees. A learner's resource provides lists of training and educational programs for various jobs. This site is better suited for secondary school students who are actively looking for jobs rather than for younger students who are still struggling with identifying potential career paths.

In addition to online skills inventories and career research sites discussed above, another method of utilizing the Internet in career development is through the Internet's email facility. For example, Houghton Mifflin Company maintains a site (http://hmco.com/hmco/school/links/ask.html) entitled "Ask the Expert." From this site, students can contact experts such as geologists, volcanologists, dentists, librarians, paleontologists, and others to inquire about their careers. Because the Internet removes distance as a barrier to communication, students can correspond with experts anywhere in the world. Email can also be used within the community by establishing a group of local businesses, professionals, and merchants who would be willing to make themselves available as mentors and information resources for students.

Conclusion

One of the primary goals of education is to help students discover their talents and to explore ways that those talents can be nurtured and channeled to support meaningful careers so that they can become productive and satisfied citizens of the community. A crucial component in pursuing this goal is to establish a clear connection between the content of the core curriculum and the skills students will require when they leave school. Academic pursuits are important not only in their own right but also because the knowledge and proficiency students acquire writing essays, reading poetry, solving quadratic equations, dissecting a frog, and analyzing the causes of the Civil War are the same skills they will employ as marketing executives, insurance salesmen, lawyers, pharmacists, computer programmers, musicians, sales managers, teachers, counselors, and parents. Career development has assumed a prominent place in schools today because educators have recognized that it is highly likely that today's students will pursue several careers
in their lifetime. Therefore, they must identify their personal competencies and talents that can then be translated into a variety of career paths.

The Internet may be the most exciting tool that teachers have had since the advent of chalk. The power and resources of the Internet can be of particular value in the area of career development. Teachers can select from a wide classification of online inventories and personality tests as appropriate springboards to career research. In addition to the sites listed above, the Internet contains many other career development sites that students may visit to learn about careers. Students can also use email to contact experts and professionals around the world to explore more personal aspects of a specific career. Because students are drawn to the multimedia technology of the World Wide Web, they bring a high degree of enthusiasm and motivation to these assignments. Bringing the excitement of the Internet to the "at risk" population is of special concern to educators, since they are traditionally underserved when it comes to technology access. It is vital to pursue programs that target this population so these students do not get lost in a world where technological competencies are a requirement of the majority of jobs. Educators must continue to exploit the power and resources of the Internet to foster career development through academic excellence.

### Career Web Site Summary

<table>
<thead>
<tr>
<th>Web Site</th>
<th>URL*</th>
</tr>
</thead>
<tbody>
<tr>
<td>America's Career Infonet</td>
<td><a href="http://www.acinet.org/acinet/default.htm">http://www.acinet.org/acinet/default.htm</a></td>
</tr>
<tr>
<td>Ask Jeeves for Kids</td>
<td><a href="http://www.a1kids.com">http://www.a1kids.com</a></td>
</tr>
<tr>
<td>Career Paths Online</td>
<td><a href="http://www.careerpathsonline.com">http://www.careerpathsonline.com</a></td>
</tr>
<tr>
<td>Career Zone</td>
<td>http://ny_jobsearch.org/careerzone</td>
</tr>
<tr>
<td>College Board</td>
<td><a href="http://www.collegeboard.org/career/bin/career_pl?runlevel=all#all">http://www.collegeboard.org/career/bin/career_pl?runlevel=all#all</a></td>
</tr>
<tr>
<td>Cornell Career Zone</td>
<td><a href="http://explore.cornell.edu/careerzone/usetest.asp">http://explore.cornell.edu/careerzone/usetest.asp</a></td>
</tr>
<tr>
<td>ExPAN Career Search</td>
<td><a href="http://www.collegeboard.org/career/html/searchQues.html">http://www.collegeboard.org/career/html/searchQues.html</a></td>
</tr>
<tr>
<td>Lifework Planning Project</td>
<td><a href="http://www.careernet.org/plan/index.htm">http://www.careernet.org/plan/index.htm</a></td>
</tr>
<tr>
<td>School Finder Quiz</td>
<td><a href="http://www.schoolfinder.com/career/carquiz.htm">http://www.schoolfinder.com/career/carquiz.htm</a></td>
</tr>
<tr>
<td>The Career Key</td>
<td><a href="http://www2.ncsu.edu/unity/lockers/users/l/1kj/">http://www2.ncsu.edu/unity/lockers/users/l/1kj/</a></td>
</tr>
</tbody>
</table>

*Please note that these URL's are subject to change.

### References


