SB 170

<TARGET><BILL>SB 170</BILL><SUBJECT>SB 170</SUBJECT><COMM>SFIN27</COMM></TARGET>

SENATE FINANCE COMMITTEE REPORT

DATE: 2/22/12

FURTHER:

DATE TURNED
IN TO OFFICE: _____

Finance Committee considered SENATE BILL NO. 170

SB 170-VOCATIONAL ED. COUNSELING IN SCHOOLS

"An Act requiring vocational education counseling in public schools."

and recommends:

[ ] be **replaced** with **CS** _____ (_____) *[ ] Same Title [ ] New Title*

[ ] adopt **previous CS** _____ (_____) *[ ] Same Title [ ] New Title*

[ ] attached amendment(s)

[ ] adopt _____Letter of Intent

[ ] further referral to _____Committee

Dept Abbr.	
ADM	LEG
CED	LAW
COR	LWF
CRT	MVA
EED	DNR
DEC	DPS
DFG	REV
GOV	DOT
DHS	UA

NEW FISCAL NOTE(S)				
Dept.	Fiscal	Indet.	Zero	FN #

PREVIOUS FISCAL NOTE(S)				
Dept.	Fiscal	Indet.	Zero	FN #
EED			✓	1

[ ] **APPROPRIATION - no fiscal note**

SIGNATURES AND RECOMMENDATIONS:	PRINTED LAST NAME	DO PASS	DO NOT PASS	NO REC	AMEND
	Thomas	✓			
	Egan	✓			
	McGuire	✓			
	Olson			✓	
	Ellis	✓			
CO-CHAIR:	Hoffman	✓			
CO-CHAIR:	Stedman	✓			

ALASKA STATE LEGISLATURE

SENATOR JOE THOMAS

Senate Bill 170

"An Act requiring vocational education counseling in public schools."

One of the major functions of public education is to prepare our future workforce. During their school years young people make critical decisions which will ultimately affect their choice of a career later in life. Some young people have a clear idea of what they want to be doing after graduation, but many do not.

The adolescent years in particular are filled with many changes, making it a one of the critical phases of a person's life. If childhood is like traveling down a busy street, seventh grade is the junction. Recent research has specifically targeted the early adolescent years as a crucial point in development. It is a perfect time to introduce realistic career options.

Senate Bill 170 recognizes this junction in a young person's life, and provides for career counseling for every student in seventh, ninth and eleventh grades. Many schools are already offering this for all secondary students, but it should be available to every student in our state. The Department of Education and Early Development already has resources that can be directed toward this important task.

This bill would not prevent schools or districts from providing a more comprehensive program. It sets the minimum standards for career counseling, starting at seventh grade and continuing in ninth and eleventh grades. Seventh grade is when students start making important life choices. Ninth grade is the beginning of high school, when they are choosing courses which will affect their readiness for the workforce. In eleventh grade they are starting to look ahead to high school graduation, and what will come after commencement.

It is vital that we give our children the tools they need to prepare for their future, and to become a productive part of our workforce. SB 170 provides this for our students.

January – May: State Capitol – Juneau, Alaska 99801 – (907) 465-2327 – 1 (800) 336-7383 – Fax (907) 465-5241
June – December: 1292 Sadler Way Ste 203 – Fairbanks, Alaska 99701 – (907) 456-8161 – Fax (907) 456-8163
Senator.Joe.Thomas@legis.state.ak.us

FISCAL NOTE

STATE OF ALASKA
2012 LEGISLATIVE SESSION

Bill Version: **SB 170**
Fiscal Note Number: 1
(S) Publish Date: 2/22/12

Identifier (file name): SB170-EED-SSA-2-9-12
Title: "An Act requiring vocational education counseling in public schools."
Sponsor: Senator Thomas
Requester: Senate Education Committee

Dept. Affected: Education & Early Development
Appropriation: Teaching and Learning Support
Allocation: Student & School Achievement
OMB Component Number: 2796

Expenditures/Revenues (Thousands of Dollars)

Note: Amounts do not include inflation unless otherwise noted below.

	FY13 Appropriation Requested	Included in Governor's FY13 Request	Out-Year Cost Estimates				
OPERATING EXPENDITURES	**FY13**	**FY13**	**FY14**	**FY15**	**FY16**	**FY17**	**FY18**
Personal Services							
Travel							
Services							
Commodities							
Capital Outlay							
Grants, Benefits							
Miscellaneous							
TOTAL OPERATING	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

FUND SOURCE (Thousands of Dollars)								
1002	Federal Receipts							
1003	GF Match							
1004	GF							
1005	GF/Prgm (DGF)							
1037	GF/MH (UGF)							
1178	temp code (UGF)							
TOTAL		**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**

POSITIONS							
Full-time							
Part-time							
Temporary							

CHANGE IN REVENUES							

Estimated SUPPLEMENTAL (FY12) operating costs _____ *(separate supplemental appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Estimated CAPITAL (FY13) costs _____ *(separate capital appropriation required)*
(discuss reasons and fund source(s) in analysis section)

Why this fiscal note differs from previous version (if initial version, please note as such)

Initial version.

Prepared by: Cynthia Curran, Director — Phone: 465-2857
Division: Teaching and Learning Support — Date/Time: 2/9/12 8:00 AM
Approved by: Mike Hanley, Commissioner — Date: 2/9/2012

(Revised 8/17/2011 OMB)

FISCAL NOTE #1

STATE OF ALASKA **BILL NO.** SB 170
2012 LEGISLATIVE SESSION

Analysis

This is an zero fiscal note. The amendment language in both AS 14.07.020 (a) (19) requires that: "if a school district is unable to provide vocational education and training counseling, the department shall provide additional resources and technical assistance that result in the delivery of the counseling; AS 14.14.090 (11) has similar language that states this training will occur in grades seven, nine, and eleven; if a district is unable to provide this counseling that they shall request the department to provide the resources and technical assistance necessary to deliver the counseling.

Currently web-based career guidance and counseling materials are available to all citizens of the state through the Alaska Commission on Postsecondary Education's support of AKCIS, the Alaska Career Information System. EED staff frequently recommends this resource to district and school personnel who are planning to implement Strategy 1 of the Alaska Career & Technical Education Plan.

In order to ensure this free resource meets the intent of this bill, a review of this available resource by counselors/teachers/advisors would be recommended. This review could include recommendations for specific staff training and identify how students are given sufficient time and guidance to learn its content. This review falls under the scope of allowable expenses under the current federal Career and Technical Education funding.

FISCAL NOTE

STATE OF ALASKA
2012 LEGISLATIVE SESSION

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Travel							
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POSITIONS							
Full-time							
Part-time							
Temporary							

CHANGE IN REVENUES							

Estimated SUPPLEMENTAL (FY12) operating costs _____ *(separate supplemental appropriation required)*
(discuss reasons and fund source(s) in analysis section)

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By STEPHEN DEUTSCH and DEAN RASMUSSEN, Economists

Green Jobs Come Into Focus

State's first comprehensive survey shows a growing role

Hearing about or reading environmental news has become a part of daily life for most of us. Environmental issues capture radio, television, magazine, and newspaper coverage not only nationally, but in Alaska too. The environment has become an economic driver, promoting research and development along with creating demand for new products and advances in technology. This "greening" effect is changing the way we live and do business.

In most states, both private and public sectors are part of this new trend, especially in the areas of renewable energy and energy efficiency. Policy makers, educators, and economists have begun asking, how important is this growing sector of the economy? How many so-called "green jobs" are there? Is there an adequate workforce trained for these jobs? What education and training will workers need to gain the skills required for future work?

Green Employment by Industry 1

Alaska, 2011

Industry	Estimated green jobs	As % of all green jobs	3rd qtr 2010 employment	As % of industry employment
Agriculture, Forestry, Fishing, and Hunting[1]	205	4.1%	1,208	17.0%
Mining, Quarrying, Oil and Gas	125	2.5%	16,156	0.8%
Utilities	110	2.2%	2,233	4.9%
Construction of Buildings	278	5.6%	5,698	4.9%
Heavy and Civil Engineering Construction	58	1.2%	4,540	1.3%
Specialty Trade Contractors	481	9.7%	9,341	5.1%
Manufacturing	305	6.1%	19,040	1.6%
Wholesale Trade	91	1.8%	6,666	1.4%
Retail Trade	225	4.5%	36,898	0.6%
Transportation and Warehousing	53	1.1%	21,414	0.2%
Information	0	0.0%	6,483	0.0%
Financial Activities	91	1.8%	15,385	0.6%
Professional, Scientific, and Technical Services	1,013	20.4%	14,209	7.1%
Administrative and Support Services	17	0.3%	10,713	0.2%
Waste Management and Remediation Services	367	7.4%	1,626	22.6%
Educational Services, Private	37	0.7%	2,065	1.8%
Health Care and Social Assistance, Private	5	0.1%	39,891	0.0%
Leisure and Hospitality	321	6.5%	37,399	0.9%
Other Services (Except Government)	158	3.2%	12,174	1.3%
Local Government	1,033	20.8%	30,996	3.3%
TOTAL	4,973	100.0%	294,135	

[1] Excludes the self-employed and most commercial fishermen and agricultural workers.
Note: All numbers exclude state and federal employment. Percentages won't sum due to rounding.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

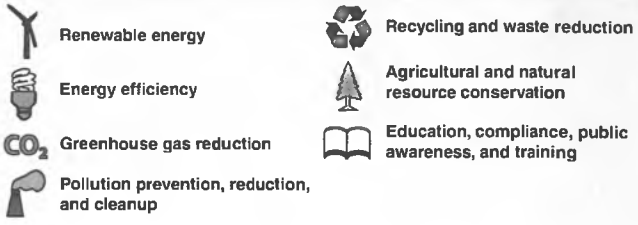
Although Alaska has a number of renewable energy and energy efficiency projects already built and more are on the horizon, no formal study had been done to measure this emerging part of the economy, until now.

Green jobs defined

In 2010, the Alaska Department of Labor and Workforce Development's Research and Analysis Section surveyed 4,826 private and local government firms. R&A received a response from 2,979 of these firms, with 375 reporting they employed at least one worker in a green job. R&A defined a green job as providing a good or service in at least one of seven categories:

- Renewable energy
- Energy efficiency
- Greenhouse gas reduction
- Pollution prevention, reduction, and cleanup
- Recycling and waste reduction
- Agricultural and natural resources conservation
- Education, compliance, public awareness, and training

Icons Key



2 Top Green Occupations by Employment
Alaska, 2011

Occupation	Estimated green jobs	3rd qtr 2010 employment	% of all green jobs	Categories of work*
Tour Guides and Escorts	440	1,133	8.9%	
Carpenters	275	3343	5.5%	
Fishers and Related Fishing Workers[1]	266	605	5.4%	
Environmental Scientists and Specialists, Including Health	254	401	5.1%	
Retail Salespersons	247	11,520	5.0%	
Construction Laborers	212	5461	4.3%	
Zoologists and Wildlife Biologists	166	254	3.3%	
Environmental Science and Protection Technicians, Including Health	158	158	3.2%	
Geological and Petroleum Technicians	144	649	2.9%	
General and Operations Managers	139	3,780	2.8%	
Roofers	111	324	2.2%	
Environmental Engineering Technicians	93	253	1.9%	
Ship Engineers	93	208	1.9%	
Service Unit Operators, Oil, Gas, and Mining	63	660	1.3%	
Environmental Engineers	60	177	1.2%	
Hazardous Materials Removal Workers	58	327	1.2%	
First-Line Supervisors/Managers of Construction Trades and Extraction Workers	52	1,134	1.1%	
First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	52	125	1.1%	
Office Clerks, General	51	6,236	1.0%	
Power Plant Operators	49	441	1.0%	

[1]Excludes most commercial fishermen

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

*See the top of this page for icon key.

How many green jobs are there?

R&A identified 145 individual green occupations with reported employment in Alaska. Total green employment was estimated at 4,973 jobs[1] among 1,552 employers during 2010, with green work representing 1.7 percent of Alaska's private and local government employment. (See Exhibit 1.)

The results are consistent with existing research that suggests green jobs do not represent an industry of their own; rather, they are spread across all industries where employers pursue more environmentally sustainable concepts.

The seven categories

Renewable energy accounted for 13 percent (639) of all positions.[2] These jobs were found primarily in utilities and local government.

Energy efficiency accounted for 39 percent (1,954) of all positions. These jobs were found primarily in construction.

Greenhouse gas reduction accounted for 9 percent (466) of all positions. These jobs were found primarily in utilities and mostly in jobs helping the transition to power sources with less carbon pollution.

Pollution prevention, reduction, and cleanup made up 33 percent (1,620) of all green positions. These jobs were found primarily in waste management and remediation.

Recycling and waste reduction accounted for 32 percent (1,611) of all positions. These jobs were found primarily in waste management and local government, but this category spanned the largest cross-section of industries.

Agricultural and natural resources conservation accounted for 26 percent (1,313) of all positions. These jobs were found primarily in agriculture and in professional and scientific services.

Education, compliance, public awareness, and training accounted for 35 percent (1,740) of all positions. These jobs were found primarily in professional and scientific services.

Shades of green

Most workers in green jobs don't spend 100 percent of their time producing a green product or service.

Angoon residents install a solar power panel on a home as part of the Sustain Angoon Project. Photo courtesy of Central Council, Tlingit and Haida Tribes of Alaska.

Survey data support the idea of "shades of green." Many workers have accepted new environmentally conscious roles that supplement their primary workload. In other cases, workers have found themselves in essentially new occupations where the green work differs significantly from that of their nongreen counterparts.

By taking the average percentage of time workers in an occupation spend on green tasks, R&A estimated the various shades of green among industries and occupations. The results show that 8 percent of green occupations involved 50 percent or more time on average performing work in one of the green categories.

Industries

The largest concentrations of green jobs were in local government at 1,033 jobs (20.8 percent); and in professional, scientific, and technical service organizations at 1,013 jobs (20.4 percent).

Among industries, local and tribal governments have the largest number of green jobs. In a rural community, people often wear many hats in addition to their regular jobs. It is not unusual to find seemingly unlikely combinations, such as cooks who also run the community compost program.

The Environmental Protection Agency's Indian General Assistance Program had a big impact in Alaska by providing funds for tribal governments to address solid and hazardous waste management, recycling,

3 Top Green Jobs by Green Score
Alaska, 2011

Occupation	Estimated green jobs	3rd qtr 2010 employment	Green score	Categories of work**
Environmental Science Teachers, Postsecondary	*	*	10	
Wind Turbine Service Technicians	*	*	10	
Materials Scientists	*	*	9	
Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	*	*	8	
Environmental Science and Protection Technicians, Including Health	158	158	8	
Zoologists and Wildlife Biologists	166	254	7	
Boilermakers	30	44	5	
Conservation Scientists	23	28	5	
Foresters	*	*	5	
Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	14	30	5	
Power Distributors and Dispatchers	17	34	5	
Ship Engineers	93	208	5	
Chemical Engineers	40	48	4	
Environmental Scientists and Specialists, Including Health	254	401	4	
Fishers and Related Fishing Workers[1]	266	605	4	
Environmental Engineers	60	177	3	
Farm and Home Management Advisors	*	*	3	
First-Line Supervisors/Managers of Farming, Fishing, and Forestry Workers	52	125	3	
Geological and Petroleum Technicians	144	649	3	
Natural Sciences Managers	17	28	3	
Sales Engineers	20	45	3	
Tour Guides and Escorts	440	1,133	3	
Travel Guides	*	*	3	
Biological Technicians	7	59	2	
Economists	*	*	2	
Environmental Engineering Technicians	93	253	2	
First-Line Supervisors/Managers of Landscaping, Lawn Service, and Groundskeeping Workers	13	65	2	
Logging Equipment Operators	11	50	2	
Roofers	111	324	2	
Soil and Plant Scientists	*	*	2	
Training and Development Specialists	32	156	2	

[1]Excludes most commercial fishermen.
An asterisk (*) means the data are suppressed due to confidentiality and/or reliability reasons.
Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

**See page 16 for icon key.

Green Occupations With Special Requirements 4

By training category, Alaska, 2011

Training category	% reported	Examples
Renewable Energy Certification	3.2%	Wind Turbine Operation and Maintenance (O&M), Calibrating solar panels
Cleanup and Abatement Certification	15.5%	HAZWOPER Oil Spill Response Training
Equipment Operators License/CDL	4.9%	Class A CDL Hazardous Materials Endorsement (HME)
Energy Efficient Construction/LEED (Weatherization)	16.4%	LEED Certified Building Energy Efficiency Standard (BEES)
Other Certification	10.4%	Certified Erosion and Sediment Control Lead (CESCL), Certified Forester
Prior Experience/On-the-Job Training	17.8%	Organic Farming Techniques, Knowledge of Regulations

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section

and renewable energy.

Professional and scientific services came in a close second for number of green jobs. Work in this industry is broad and instrumental in development of renewable energy, energy efficiency, and sustainability education.

The highest concentration of green jobs was in the waste management and remediation industry. Its percentage of statewide employment is one of the smallest, but occupations in this sector are critical to supporting the state's environmental health. Many of this industry's jobs are fundamentally green because they deal overwhelmingly with handling waste and mitigating the effects of pollution.

Green jobs are found across almost all industries, but this survey didn't uncover any in the information industry, and found few in health care and administrative support. These results are in line with other states' research.

Occupations

R&A asked employers to identify occupations that fell into at least one of the seven green categories. Those who responded reported:

- The total number of workers in these jobs
- How many performed green work
- The percentage of time each employee spent doing green work
- The green categories of work performed

By employment numbers, the top 25 green occupations represent 66 percent of green employment in the state. Tour guides and escorts are the largest occupation by green employment. (See Exhibit 2.) Alaska has a highly seasonal tourism industry that depends on the state's natural beauty and resources. The survey shows that slightly less than 38 percent of tour guides and escorts educate the public on sustainable practices and increase public awareness of sustainability concepts.

As a major occupational group, construction and extraction occupations have the largest total employment and include eight of the top 25 green occupations. This result matches other states' data, and reflects a subset of the construction industry that focuses on home weatherization and energy efficiency upgrades.

The green occupations with the highest employment fall primarily into the energy efficiency category, which is followed closely by education.

Green score

An occupation's green score is the weighted average of the percentage of time spent on green activities within a given occupation. The numbers are rounded up and indexed between 1 and 10, with 10 representing 100 percent of work qualifying as green, 9 representing 90 percent, and so on.

Thirty-five green occupations scored greater than 2. (See Exhibit 3.) Occupations with the most time spent on green activities (for example, wind turbine technicians) often have the lowest total employment.

It is also important to look at an occupation's green employment percentage to assess whether green is prevalent throughout the group or in just a fraction, represented by a few companies producing a

specific green product. This distinction is useful for determining how to discuss and target green occupations in the state.

Carpenters and construction laborers are two occupations ranking high in green employment and low on percentage of time spent in green activities. Both are large occupation groups doing important home weatherization work; however, targeting all of these positions for training may not be the best approach. It might make more sense to focus on businesses employing carpenters or construction laborers whose primary purpose is a green product or service.

On the other end of the spectrum, a wind turbine service technician's work is 100 percent green. Even though employment in this occupation is extremely low, any training would go directly toward producing green goods and services.

When grouped by green score, occupations are primarily performing work in the agriculture and natural resources category, followed closely by pollution reduction, then education.

Taken together, the employment estimates and green scores provide a more robust look at the effects of green work in Alaska. Jobs with high employment and low green activity, as well as jobs with low employment and high activity, are both critical to development of the state's green infrastructure. Understanding their differences will increase the efficacy of developments targeting these two groups and any combination.

Training, skills, and certifications

Employers reported that 46 percent of green occupations require special skills, certificates, or licenses to perform the work. (See Exhibit 4.) This survey did not determine whether these requirements are a condition of hire.

About 3 percent of green jobs required renewable energy certification or training, and these requirements were primarily in the utilities and local government industries. Employers reported that 5 percent of green jobs required an equipment operator or commercial driver's license. A CDL was often paired with a Hazardous Materials Endorsement.

By far the most prevalent certification reported was the Hazardous Waste Operations and Emergency Response Standard, or HAZWOPER. Cleanup and abatement certification was required by 15.5 percent of green occupations, with the HAZWOPER certification accounting for approximately half of the responses within the category. Energy efficient construction and certification in Leadership in Energy and Environmental Design, or LEED, was the largest specific requirement reported, at 16 percent of all occupations.

Other certifications at 10 percent and prior experience or on-the-job training at 18 percent captured a wide breadth of requirements that did not contain enough responses to stand on their own. Other certifications included occupations requiring a bachelor's degree specific to green work. Exhibit 4 provides examples of reported requirements.

Recruiting green workers

Recruiting and retaining green workers is not currently an issue for 80 percent of all green jobs. Employers who have had difficulty cite a lack of workers in Alaska (6 percent), a lack of required green skills (4 percent), and other reasons (4 percent).

As a group, green occupations have a nonresident hire rate of 16 percent, compared to 20 percent across all private and local government employment. Occupations with the most difficulty recruiting due to lack of workers in Alaska usually reported nonresident hire rates above the rate for all green occupations.

These data support the conclusion that green jobs are an emerging component across all industries and occupations in Alaska. In some cases, workers have been doing green work without that previous classification, and their industries are well established. In other cases, occupations such as power plant operators integrate investments in renewable resources while supporting existing traditional power generation infrastructure.

The Alaska Green Jobs Report is available in its entirety on R&A's Web site: http://labor.alaska.gov/research/greenjobs/greenjobs.htm. The full report includes additional information, methodology, and a complete listing of the 145 occupations in which Alaskan employers reported green employment.

Notes

[1]Except where otherwise noted, all employment references in this report only reflect private and local government employment. See the methodology appendix and the state government chapter in the full report online for a discussion of the challenges of reporting public green employment.

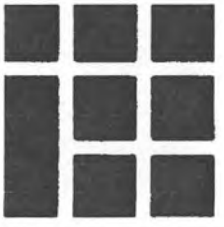
[2]An employer can classify workers in more than one category. The sum will exceed the total number of green jobs.

School-Based Career Development: A Synthesis of the Literature

Katherine L. Hughes
and
Melinda Mechur Karp

Institute on Education and the Economy
Teachers College, Columbia University

February 2004



Conclusion and Recommendations

In general, this review of the career guidance and academic counseling literature has produced many positive findings. Meta-analyses have found positive impacts of career guidance. Researchers have found benefits to students of comprehensive guidance programs, career courses, academic counseling and computer-based guidance systems. However, there are also limitations to these interventions and to the research methods studying them.

With regard to comprehensive guidance programs, much more research is needed. The attempts of Lapan, Gysbers and their colleagues to use statewide data to uncover relationships between the implementation of such programs and student outcomes are admirable. However, their research relies on self-report of variables such as student GPA, which would be better reported through transcripts. In addition, it would be useful to have a conceptual model explaining how the different elements of comprehensive guidance programs might impact students' grades and other variables.

Students do seem to benefit, both vocationally and academically, from participation in career courses. In particular, they seem to increase their knowledge of careers and their ability to make career-related decisions. On most career-related measures, students did see increased outcomes when compared with students not enrolled in a career course. In the one study exploring academic measures (Fouad, 1995), participants in a career course did improve academically. However, there is little evidence that any gains—either academic or career-related—are maintained over time.

The few studies on academic counseling or advising showed positive findings. It is interesting that this very common but rather low-profile intervention, helping students

plan their secondary school program, appears to be valuable according to certain academic measures. And the meta-analyses found that, of the different types of career guidance interventions, individual counseling interventions were most effective. This simple planning intervention may help students understand the connections between their goals and the necessary steps to take towards them. Thus this intervention is potentially very effective, but more research is needed.

Computer-assisted career guidance programs appear to contribute to students' career development, according to some career-focused inventories. However, these interventions were very short-term and the research tended to consist solely of pre- and post-test inventories, sometimes administered less than a week apart. As more than one author pointed out, the level of dosage of some of the interventions was quite low. With such small amounts of treatment, it is unclear what long-term benefits students might gain. It is also unclear whether computer-assisted programs alone or in combination with other interventions are most effective. Some have found that computer-based interventions by themselves fail to match outcomes produced in combination with some other intervention (Meier, 1991), while others have found that adding a computer program to a career course produces no additional benefits beyond the course alone (Garis & Niles, 1990).

One limitation found in common to many of the interventions and the research is that they focus on change in students' knowledge, and even more commonly, their attitudes. Students' actual behaviors were a minor focus, as in the studies that examined the effects of career courses on students' later course-taking, or research examining the relationship between academic counseling and later academic achievement. The element

of time was also a weakness in much of the research. Much like a history test that measures what students have learned in a half-semester of a history course, inventories were used to measure the digestion of career information, or a change in an attitude. In most cases no follow-up research was conducted over time to see the lasting nature of any knowledge gain or attitude change, or the relationship of these with actions taken later.

There is general agreement that career development is a desirable part of schooling, and there is evidence that many different types of career guidance interventions are effective, according to the measures chosen. Yet, the research overall does not help us in determining the optimum content of or method of delivery of career guidance. We have reviewed various interventions, but because of the diversity of goals, methods and measures, a clear direction for policy in this area is still unclear. We can, however, recommend the following:

Other career development activities that are more experiential in nature have been found to positively influence such variables as school attendance and completion. Compared to these types of activities, many of the guidance interventions reviewed seem inauthentic and artificial. Until additional research is done, students should engage in a variety of career development activities that complement one another.

Given the finding that career guidance and academic counseling is potentially very effective with middle school students, a greater investment in these activities in the middle schools should be made, and future research should be focused there as well.

Academic counseling appears to be a straightforward and cost-effective way to improve student outcomes. Resources should be targeted to ensure that all middle- and

high-school students have regular conferences with counselors to discuss their current and future academic programs.

Finally, research should focus on exploring the relationships between guidance interventions and positive student behaviors.