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The 2006 survey is the seventh annual survey of the National Science Foundation's (NSF) Advanced Technological Education (ATE) program conducted by The Evaluation Center. This survey collects information about the general characteristics of the ATE program's grantees and their work activities, accomplishments, and impacts. This fact sheet presents selected survey indicators of the overall program.

NSF's (2005)[1] ATE program guidelines call for funded projects, centers, and partnerships to engage in one or more of the following work categories: (1) developing instructional materials for national dissemination; (2) providing professional development to increase the capabilities of science, technology, engineering, and mathematics educators; (3) improving instructional programs at the secondary, associate, and baccalaureate levels; and (4) establishing formal articulation agreements with other institutions. The 2006 survey addressed these efforts via 7 sections, of which 3 (grantee characteristics, organizational practices, and collaboration) were required for all respondents and 4 (materials development, professional development, program improvement, and articulation agreements) were required only for those grantees significantly engaged in the specified work activity. (For centers the criterion for significant engagement in an activity was that $\geq$ \$100,000 of their direct costs in the past 12 months was allocated specifically to that activity; for projects the criterion was that $\geq$ 30 percent of their direct costs in the past 12 months was allocated to the activity.[2])

At the time the survey sample was selected in November 2005, the NSF awards database indicated that the ATE program included 235 active grants (i.e., projects, centers, and articulation partnerships). The sample frame was restricted to 178 grantees that would have been active for at least 1 year at the time of the survey and/or were continuation grants, having received a precursor ATE award. The Web-based survey was administered to principal investigators (PIs) from February 17, 2006, through April 30, 2006. During this time, 163 PIs (92 percent) responded to at least the 3 required survey sections.

GRANTEE CHARACTERISTICS

Table 1 provides survey section response rates and PIs' estimates of their allocation of ATE funding. Since virtually all grantees in the sample responded to the survey, the response rates for the survey sections provide a reliable estimate of the relative emphasis given to the various work categories. The final two columns show PIs' allocations of grant funds to the primary work categories and other expenditures over the past 12 months. Results show that materials development, professional development, and program improvement each received approximately one-fifth of program funds, with just 4 percent of funding being used for articulation agreements.

Table 1. Survey Response Rates and PIs' Estimates of Total Award Allocations of Funds

Sample N = 163	Survey Section Response Rate		Program Funding Allocation for the Past 12 Months	
	n	**%**	**%**	**$**
Grantee Characteristics	163	100%		
Organizational Practices	163	100%		
Collaboration	163	100%		
Materials Development	56	34%	18%	$7,777,703
Professional Development	66	40%	20%	$8,931,526
Program Improvement	67	41%	21%	$9,106,828
Articulation Agreements	25	15%	4%	$1,664,600
Administrative & General			24%	$10,484,743
Other			14%	$6,100,892
Total			100%	$44,066,292

Note. Funding allocations represent the annualized funding (total award divided by length of project in years) multiplied by the percentage allocated for a specific category.

ORGANIZATIONAL PRACTICES

The Organizational Practices section of the survey asks PIs about their use of workforce needs assessments, advisory committees, and grant-level evaluators. As shown in Table 2, 73 percent of grantees have conducted needs assessments (either prior to or since receiving their ATE grants), nearly all (98 percent) are using some form of advisory committee—usually national (45 percent)

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and/or local (58 percent) ones—and 87 percent have engaged an evaluator. Collectively, ATE PIs reported that they have put $445,000 toward advisory committee activities and $1,385,040 toward evaluation in the past 12 months: 1 percent and 3 percent of their total annual awards, respectively.

Table 2. Indicators of Organizational Practices

Indicator	%	Total
Workforce Needs Assessment		
Since receiving ATE grant	42%	
Prior to receiving ATE grant	31%	100%
Never	26%	
Missing data (did not report)	1%	
At least once	73%	
Advisory Committees		
National advisory committee	45%	
Regional advisory committee	33%	
Local advisory committee	58%	Multiple Response Item
Other type of advisory committee	18%	
At least one type of advisory committee	98%	
Evaluation		
No evaluator	12%	
External evaluator	70%	
Internal evaluator	6%	100%
Both internal and external evaluators	11%	
Missing data (did not report)	1%	
At least one type of evaluator	87%	

COLLABORATION

Collaboration was defined as an ongoing relationship with another institution, business, or group that provides monetary and/or other types of support to grantees. The PIs reported a combined total of 5,517 collaborations with business and industry, their host institutions, other education institutions, other ATE grantees, and other organizations. The reported monetary and in-kind contributions increased the program's total resources *for the past 12 months* by about $13 million (of which $5 million was monetary and $8 million was in-kind support)—from $44 million to $57 million. ATE PIs identified either other education institutions (36 percent) or business and industry (33 percent) as their most effective collaborators. More than half (57 percent) reported that these collaborative relationships were in place prior to receiving ATE funding.

MATERIALS DEVELOPMENT

Thirty-four percent (56 of 163) of ATE PIs reported that they were significantly engaged in materials development. They responded with regard to (i) the number of materials under development or in the past 12 months, (ii) distribution of all completed materials, and (iii) education levels targeted by the materials.

Over the 12 months prior to the survey, 698 materials were reported to be in various stages of development, including 263 (38 percent) in draft stage, 177 (25 percent) being field-tested, and 258 (37 percent) completed. In regard to completed materials, PIs reported developing 1,002 courses, modules, and other materials, with 623 (62 percent) in use locally, 339 (34 percent) in use elsewhere, and 40 (4 percent) published commercially. Moreover, PIs indicated that 3,989 institutions, other than their own, were using at least 1 material developed with ATE support. Table 3 shows the number and type of materials (i.e., course, module, and other) under development or completed for specific education levels (i.e., secondary, associate, baccalaureate, and other).

Table 3. Number of Materials Under Development or Completed for Specified Education Levels

	Type of Material			
Education Level	Course	Module	Other	Total
Secondary	11	89	71	171
Associate	114	269	174	557
Baccalaureate	21	50	58	129
Other	12	40	243	295
Total	158	448	546	1,152

In developing their materials, most PIs indicated that they "most of the time" or "always" gather input from business and industry regarding workforce needs (68 percent), use applicable student and industry standards and guidelines (81 percent), verify and validate alignment of materials with industry needs (68 percent), field-test materials internally (83 percent), and field-test materials externally (60 percent). Less than half said they "most of the time" or "always" assess student success in comparison with industry standards (45 percent) and assess improvement of student performance in the workplace (38 percent).

PROFESSIONAL DEVELOPMENT

Forty percent (66 of 163) of ATE PIs indicated that they were significantly engaged in providing professional development opportunities for current and/or prospective college faculty and/or secondary school teachers. They reported offering 1,136 professional development activities that were attended by 13,858 participants, of which 38 percent (5,265) were at the secondary school level, 40 percent (5,575) at the associate level, and 22 percent (3,018) at the baccalaureate level. As shown in Table 4, most PIs (90 percent) reported that they "most of the time" or "always" collect end-of-program reaction data (90 percent) and follow-up data to determine implementation (84 percent), but less than half reported

taking more rigorous steps to assess quality and impact of programs, including gathering follow-up data to determine impact (43 percent), obtaining feedback from experts regarding content and instruction (39 percent), and conducting expert panel reviews of activities or products (21 percent).

Table 4. Frequency of Collecting Quality Assessment Data "Most of the Time" or "Always"

Type of Follow-Up Activity	%
End of Program Reaction Data	90%
Follow-Up to Determine Implementation	84%
Follow-Up to Determine Impact of Implementation	43%
Feedback from Experts Regarding Content and Instruction	39%
Expert Panel Review of Professional Development Activities	21%

Overall, PIs described the quality of their professional development activities as "very good" ($M = 4.4$, $SD = 0.6$).[3]

PROGRAM IMPROVEMENT

Forty-one percent (67 of 163) of ATE PIs indicated that they were significantly engaged in improving programs or courses, where "programs" are a series of courses designed to lead to a specific degree or certification and "courses" are components of programs. As shown in Table 5, PIs reported developing or improving 302 programs at 283 locations, consisting of 956 courses and serving 28,200 students in secondary, associate, baccalaureate, and on-the-job contexts combined. PIs also described the quality of their program improvement efforts as "very good" ($M = 4.3$, $SD = 0.4$).[4]

Table 5. Direct Student Impact

	Education Level				
	Secondary	Associate	Baccalaureate	On-the-Job	Total
Programs	57	197	21	27	302
Locations	61	165	23	34	283
Courses	52	790	60	54	956
Students	2,719	23,913	289	1,279	28,200

ARTICULATION AGREEMENTS

Fifteen percent (25 of 163) of ATE PIs indicated that they were significantly engaged in articulation agreement activities. These agreements are intended to enable students who complete a program or series of courses to matriculate to a higher level of education at specified institutions. As shown in Table 6, PIs reported a total of 69 agreements at 95 locations, which resulted in 106 student matriculations in the past 12 months.

Table 6. Articulation Facts

	Between High Schools and 2-Year Colleges	Between 2-Year and 4-Year Colleges	Teacher Preparation Between 2-Year and 4-Year Colleges	Total
Agreements	38	28	3	69
Institutions	51	40	4	95
Students	14	53	39	106

STUDENT CHARACTERISTICS

The 67 PIs who completed the Program Improvement section of the survey also provided demographic information about students who had taken at least one ATE course in the past 12 months. Table 7 presents this demographic information, including gender, race/ethnicity, and students requesting Americans with Disabilities Act (ADA) accommodations.

Table 7. Demographic Characteristics of ATE Students

	%
Male	77%
Female	23%
Hispanic/Latino	7%
American Indian/Alaska Native	1%
Asian	3%
Black/African American	13%
Native Hawaiian/Pacific Islander	0%
Multiracial	3%
Minorities	28%
White	72%
ADA	3%

Additional briefing papers will be available in August 2006 at www.wmich.edu/evalctr/ate/publications

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[3] From 1 = "poor" to 5 = "excellent."
[4] From 1 = "poor" to 5 = "excellent."