

ATE Evaluation Survey 2005 at a Glance: Projects & Articulation Partnerships

The 2005 survey is the sixth annual survey of the National Science Foundation (NSF) Advanced Technological Education (ATE) program conducted by The Evaluation Center at Western Michigan University. This survey is conducted annually to describe the program characteristics, work activities, accomplishments, and impacts.

This fact sheet presents selected survey indicators for projects¹ only and an added breakdown of results for the top one-third of project spenders in each program activity category. The basis for this analysis is twofold. First, for NSF program officers, ATE project staffs, and others especially interested in projects, this project-specific analysis provides much greater clarity regarding the projects' work and productivity. Second, for four designated work categories the report provides additional information about the one-third of projects that allocated the most resources to that work. This added breakdown is provided because most projects work at one or two activities. By focusing on projects that allocate the most resources to each category, the report provides a perspective of what projects do and how productive they are when resources are focused on a targeted area.

Two additional fact sheets supplement this one; one for the entire ATE program and another for ATE centers, which parallels this analysis. A detailed report and online data displays will be available at the "evaluation products" link at the ate.wmich.edu Web site in early summer 2005.

At the time the survey sample was selected in November 2004, the NSF awards database showed that ATE had 248 active awards. Our survey sample was restricted to 171 projects, centers, and articulation partnerships that had been active for at least a year at the time of the survey and/or had received a precursor ATE award. One hundred sixty-seven directors (98%) responded, of which 142 (85%) directed a project. Projects accounted for 64 percent of the reported total award funding for the year. These project directors reported the length of their awards to be 3 years on average (SD= .8) and that they had completed an average of 2 years of funding at the time of the survey.

Table 1 provides the number and percentage of project responses to each survey section, the total allocation of project funding to the four ATE work categories (including administration and other allocations), and the total allocation by the top one-third of spending projects in each ATE work category.

Table 1. Survey Section Response Rates and Funding Allocations and Expenditures for Projects

Total Project <i>N</i> = 142	Project Response Rate		Project Funding Allocation in the Past 12 Months		Top 1/3 of Project Funding Allocation for the Past 12 Months		
	<i>n</i>	%	\$ (in thousands)	% of Total	\$ (in thousands)	% of Activity Spend	<i>n</i>
1. Grantee Characteristics	142	100%					
2. Organizational Practices	140	99%					
3. Collaboration	140	99%					
4. Materials Development	94	66%	\$5,005	21%	\$3,701	74%	31
5. Professional Development	116	82%	\$5,496	23%	\$3,907	71%	39
6. Program Improvement	98	69%	\$4,889	20%	\$3,494	71%	33
7. Articulation Agreements	83	58%	\$567	2%	\$446	79%	28
Administration			\$3,918	16%			
Other^a			\$3,679	15%			
Unspecified^b			\$651	3%			
Total			\$24,205	100%			

Note. Funding allocations represent the annualized funding (total award divided by length of project in years) multiplied by the percent allocated for each spending category.

^aOther expenditures include, for example, equipment, evaluation, indirect costs, and travel.

^bUnspecified expenditures include projects that did not provide a breakdown of their grant funds and, where their breakdowns did not total 100 percent, the difference between their stated expenditures and 100 percent.

¹ This fact sheet aggregates data from 137 projects and 5 articulation partnerships. For simplicity, the term *project* is used throughout this fact sheet to refer to the combined group.

As shown in Table 1, the allocation of funds is roughly evenly divided across materials development, professional development and program improvement, with slightly more total funds allocated to professional development than the other two. Articulation agreements were allocated the least funding for the year—all other categories were allocated almost 9 times more money by the projects. The top third of spenders in each activity category accounts for approximately three-fourths of the spending in that category. Fifty-nine projects were among the top spenders in 1 work category; 27 projects were top spenders in 2 categories, and 6 were the top spenders in 3 of the 4 possible work categories.

Organizational Practices (n = 140)

Three practices that project directors can employ to obtain guidance from key stakeholders are reported here; (a) workforce needs analyses, (b) advisory committees, and (c) evaluators. Seventy-four (74) percent indicated having conducted at least one needs assessment; 82 percent indicated having at least one type of advisory committee; and 81 percent indicated use of one or more project evaluators. Table 2 provides additional information on these variables.

Collaboration (n = 140)

Project directors reported a total of 2,637 ($M = 19$, $SD = 26$) collaborations with business/industry, host institutions, other educational institutions, public agencies, other ATE projects, and/or other organizations. Three elements of collaboration are addressed here: monetary support, in-kind support, and the types of collaborators viewed as most effective.

The collaborative contributions for the year investigated increased all projects' resources by 72 percent, from \$24.2 million to \$41.6 million for those surveyed. Sixty-one percent (\$10.6 million) of this increase is due to direct monetary contributions and 39 percent (\$6.8 million) was due to in-kind support. The majority of project directors identified either other educational institutions (31%) or their host institution (28%) as the most effective collaborators in helping them attain their objectives. Professional development (22%) was the most frequently cited purpose for collaborations with other education institutions, while general support (55%) was the most frequently cited purpose for collaborations with their host institutions.

Materials Development (n = 94, top 1/3 spenders n = 31)

Project directors were asked to report *only* on instructional materials being developed for national dissemination. Four facets of their materials development and use are described here: numbers and types of materials developed, groups targeted for receipt of the materials, numbers of materials distributed and to whom, and actions taken by projects to ensure good quality in their developed materials. For comparison purposes, in each of these cases parallel information is provided for all projects and the top third of project spenders for this category. [This comparison basis is carried through the remaining sections of the report.]

All project directors reported a total of 985 new materials in various stages of development including approximately equal thirds in draft stage (313), materials being field-tested (303), and materials completed (369)

Table 2. Indicators of Organizational Practices

Indicator	%	Total
Never conducted a workforce needs assessment	24%	100%
Conducted a workforce needs analysis in the past 12 months	36%	
Conducted a workforce needs analysis more than 12 months ago	38%	
Missing data (did not report)	2%	
Have an advisory committee	82%	100%
Do not have an advisory committee	18%	
Have a National Advisory Committee ^a	32%	Multiple Response Item
Have a Regional Advisory Committee	22%	
Have a Local Advisory Committee	43%	
Have another advisory committee	8%	
Proportion of grant funds allocated to advisory committees	< 1%	
Have an evaluator	81%	100%
No evaluator	16%	
Missing data (did not report)	3%	
External evaluator only	64%	Equal to % that has evaluator
Internal evaluator only	6%	
Both internal and external evaluators	11%	
Proportion of grant funds allocated to evaluation	4%	

Notes. For the proportion of grant funds allocated for advisory committees and evaluation, the total amounts (\$.2 million and \$.9 million, respectively) were divided by total project funding for the past 12 months (\$24.2 million).

^aTypes of advisory committees are not mutually exclusive, that is, projects could report more than one type.

during the past 12 months. The top third of spenders accounted for 74 percent of the funding allocated by projects for materials development, and 41 percent, 62 percent, and 46 percent of the materials in draft stage, being field-tested, and competed, respectively.

As shown in Table 3, materials were most frequently developed for use at the associate degree level, but substantial numbers were also targeted for the other levels. The top third spenders accounted for half of the materials developed at this level. Modules were the most frequently developed type of materials at the secondary, associate, and baccalaureate levels. The top third of spenders produced two-thirds of all modules at the secondary level, just over two-thirds (68%) of modules at the associate level, and three-fourths of modules produced at the baccalaureate level.

Table 3. Materials Development by Type and Target Audience

Education Level	Type of Material							
	Course		Module		Other		Total	
	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders
Secondary School	30	9	215	142	34	4	279	155
Associate/2-Year College	240	54	399	272	72	28	711	354
Baccalaureate/4-Year College	31	17	160	119	19	3	210	139
Other	4	2	58	26	506	2	568	30
Total	305	82	832	559	631	37	1,768	678

Directors reported 1,137 materials (courses, modules, and other materials) completed and in use. Of these, 36 percent were in use locally, 60 percent elsewhere, and 4 percent published commercially. The top third spenders reported a higher proportion of their 681 completed materials had been disseminated beyond the local level—74 percent were in use elsewhere and 6 percent had been published commercially. Across all projects, directors reported that 2,090 external institutions were using at least 1 of their materials.

Table 4. Use of Information Gathering Activities “All of the Time” or “Most of the Time” in Materials Development

	All Projects	Top 1/3 Spenders
Input from business and industry	67%	87%
Student & industry standards	79%	94%
Verification of alignment with workforce needs	71%	84%
Pilot testing	76%	87%
Internal field-testing	78%	87%
External field-testing	44%	71%
Assess student success relative to industry standards	31%	32%
Assess student success in comparison with nonproject students	31%	32%
Student performance in the workplace	27%	29%

Ninety-one percent of project directors reported using one or more modes of gathering input to guide development of materials “all of the time” or “most of the time.” Overall, the proportion of projects gathering student success data is low in comparison with other types of data gathered. A larger proportion of the top third of spenders reported giving substantial attention to gathering various types of data for development purposes, but roughly equal attention to gathering student assessment data. When viewed in total, 47 percent of all projects reported applying at least one of the student assessment strategies “all of the time” or “most of the time.”

Finally, directors of the top third of materials development spenders considered themselves more successful in meeting their goal of national dissemination than all projects (means of 3.6 and 3.2, respectively (3 = somewhat successful, 4 = successful)).

Professional Development (n = 116, top 1/3 spenders n = 39)

Project directors were asked to report their professional development activities if they were significantly engaged in providing professional development opportunities for current and/or prospective college faculty and/or

secondary school teachers. All projects reported offering a total of 1,252 professional development opportunities, an average of 11 per project, that were attended by a total of more than 16,000 participants. The majority of participants (51%) were at the secondary level, 37 percent were at the associate level and 12 percent at the baccalaureate level.

The top third of spenders accounted for 71 percent of the funds allocated by projects for professional development. They offered 36 percent of all projects' professional development opportunities, which were attended by 40 percent of the reported participants. In contrast to projects generally, the top third focused professional development efforts more toward the associate degree level with 39 percent of their participants at the secondary level, 47 percent at the associate level, and 14 percent at the baccalaureate level.

Table 5 shows the proportion of all projects and the top third of spenders that "always collect" or "collect most of the time" follow-up data from professional development activities. These results show that the top spenders are slightly more likely to collect all types of follow-up and impact data.

Table 6 shows that project directors view themselves as successful in all four categories of professional development effort. They view themselves as most successful in helping STEM faculty understand current technologies and practices. These results are consistent among all projects and the top third of spenders.

Table 5. Follow-Up Data Collection from Professional Development Activities

	All Projects	Top 1/3 Spenders
End-of-program reaction data	80%	90%
Follow-up data to determine implementation	65%	77%
Impact of professional development on student achievement	46%	51%

Table 6. Professional Development Goal Achievement

	All Projects <i>M</i>	Top 1/3 Spenders <i>M</i>
Improving STEM disciplinary skills	4.2	4.1
Educator teaching skills	4.3	4.3
Use of educational technology	4.0	4.0
STEM faculty understanding of current technologies and practices	4.4	4.4

Note. From 1 = not successful to 5 = highly successful; 4 = successful.

Program Improvement (*n* = 98, top 1/3 spenders *n* = 33)

Projects that were significantly engaged in program improvement were asked to complete this survey section. For this survey, "program" was defined as a series of courses that led to a specific certificate or degree. "Courses" were components of programs. Table 7 provides a summary of these results. As the table shows, the typical (average) project reported having created or improved 2 programs offered at 5 different institutions and serving nearly 300 students across all 3 targeted education levels (secondary, associate, and baccalaureate) and on-the-job training. Of the 3 education levels, the associate degree level garnered by far the most attention with a large majority (78%) of programs, courses, institutional participation, and student enrollments at that level.

Table 7. Numbers of Programs, Courses Created or Changed, Institutions Using, and Students Reached by Education Level

	Education Level									
	Secondary		Associate		Baccalaureate		On-The-Job Training		Total	
	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders
Number of Programs	61	19	147	58	8	4	22	5	238	86
Number of Courses	144	26	1,005	419	74	18	31	6	1,254	469
Number of Institutions	132	36	279	116	16	6	36	24	463	182
Number of Students	5,527	534	22,671	5,934	411	99	352	246	28,961	6,813

The top third of spenders accounted for 71 percent of the program improvement spending by all projects. This group (a) accounted for 36 percent of programs affected, (b) focused 89 percent of its efforts at the associate degree level, (c) reached approximately 6 institutions per project, and (d) involved 200 students per project.

Table 8 shows student demographics. Among the students served, all projects served a higher proportion of females than the top third of spenders. Both groups reported serving similar proportions of minority students.

Table 8. Student Demographics

	All Projects	Top 1/3 Spenders
Male	56%	67%
Female	44%	33%
Hispanic/Latino	11%	10%
American Indian/Alaska Native	3%	3%
Asian	3%	3%
Black/African American	12%	13%
Native Hawaiian/Pacific Islander	<1%	<1%
Multiracial	3%	1%
All Minorities	32%	30%
White	68%	70%
Total	100%	100%
ADA Students	1%	3%

Table 9. Mean Success Rating in Developing Model Programs and Dissemination of Program

	All Projects	Top 1/3 Spenders
Development of program models	4.1	4.2
Dissemination of program	3.3	3.3

Note. From 1 = not successful to 5 = highly successful.

Table 9 shows that project directors view themselves as more successful in developing program models than in disseminating their programs.

Articulation Agreements (n = 83, top 1/3 spenders n = 28)

Articulation agreements are specific agreements that enable students who complete a program to matriculate to a higher level of education at specified institutions. Single agreements serve many students and may exist between individual and/or multiple institutions, or across college and/or university systems. The agreements reported here may be new or existing agreements that have been improved or enhanced with ATE support.

On average, projects reported developing or improving 3 articulation agreements, working with 9 institutions, and serving 14 students. The nature of these arrangements varies as shown in Table 10. Notably, nearly half (47%) of agreements pertain to articulation between high schools and 2-year colleges. But, the largest number of students (46%) articulated from 2-year to 4-year colleges. The top third of spenders accounted for 79 percent of project funds allocated to this activity. That group developed or improved 46 percent of agreements, involved 25 percent of the institutions, and yielded one-third (33%) of the student articulations.

Table 10. Number of Agreements, institutions, and Students Who Articulated

	Between High Schools and 2-Year Colleges		Between 2-Year and 4-Year Colleges		Teacher Preparation Between 2-Year and 4-Year Colleges		Total	
	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders	All Projects	Top 1/3 Spenders
Agreements	106	37	67	27	51	40	224	104
Institutions Involved	341	95	238	61	160	32	739	188
Students Who Articulated	349	164	518	44	262	166	1,129	374

Table 11 identifies some of the benefits of articulation agreements and the proportion of agreements providing each of the stated benefits. Agreements made by the top spenders are more likely to provide the stated benefits.

Table 11. Benefits to Students from Articulation Agreements

	All Projects	Top 1/3 Spenders
Some or all of the general education credits transfer	48%	64%
Some or all of the technical education credits transfer	52%	64%
Program completion allows students to matriculate at specific institutions	46%	57%
Program completion allows students to matriculate at selected institutions with standing	42%	54%