

ARTC

Alternative Routes to Certification

ANNUAL REPORT TO THE

DELAWARE DEPARTMENT OF EDUCATION

2006 – 2007

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Annual Report to the Delaware Department of Education

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Executive Summary

ARTC was designed to provide an accommodating path to teaching for high-quality individuals from other careers, to help Delaware secondary schools fill "critical needs," and to increase the pool of minority teachers. The program has made contributions in all of these areas. Between 1997-1998 and 2006-2007,

- all qualifying Delaware public and charter schools participated in the program, enrolling more than 450 teachers;
- three-quarters were teaching subjects with the most critical shortages in Delaware: science, mathematics and business/technology;
- a large majority came with broad experience in business and industry, one-third with one or more advanced degrees; and
- one-quarter (more recently, one-third) were minorities, more than twice the state average.

ARTC contributes significantly to recruitment of teachers in "critical needs" areas. Over the past five years, about three-quarters of all candidates enrolled were recruited through the ARTC office, and a recent survey by Raffel & Pullella (2006) indicated that two-thirds of districts are using information provided by the ARTC office as a recruitment tool.

ARTC is having a significant impact on the teaching force in Delaware and this impact is likely to increase in the future. According to recent DOE data,

- ARTC teachers are now at least 10% of all Delaware teachers of English, mathematics, Spanish, French, and German; 20% to 25% of all teachers of biology, chemistry, physical science, earth science and technology education; one-third of all teachers of business and Latin; and almost half of all teachers of physics.
- in at least one recent school year, districts and charters turned to ARTC for half or more of new hires in biology, chemistry, earth science, physical science, business education, technology education and German; about one in three new hires in mathematics, physics and English; and one in four new hires in Spanish and agriculture.

And, according to their supervisors, the impact of ARTC graduates on children is very positive:

- 93% are seen as performing as well as (and almost two-thirds better than) other teachers at similar points in their careers; and
- they are rated "strong" or "very strong" across a variety of specific domains of teaching.

Finally, investments in ARTC teachers do have a lasting impact on Delaware schools. Of the 200 teachers who completed their ARTC courses between July 2001 and May 2006,

- 78% are still teachers or administrators in Delaware public or charter secondary schools; and
- about two-thirds are still employed in Delaware public or charter schools after five or more years;

Recommendations. At the state level, consideration should be given to (1) the level of funding needed to sustain the current ARTC program; (2) increasing the level of financial aid available to candidates and/or better utilizing the funds currently available; and (3) evaluating and addressing the special needs of ARTC teachers for mentoring and curricular support.

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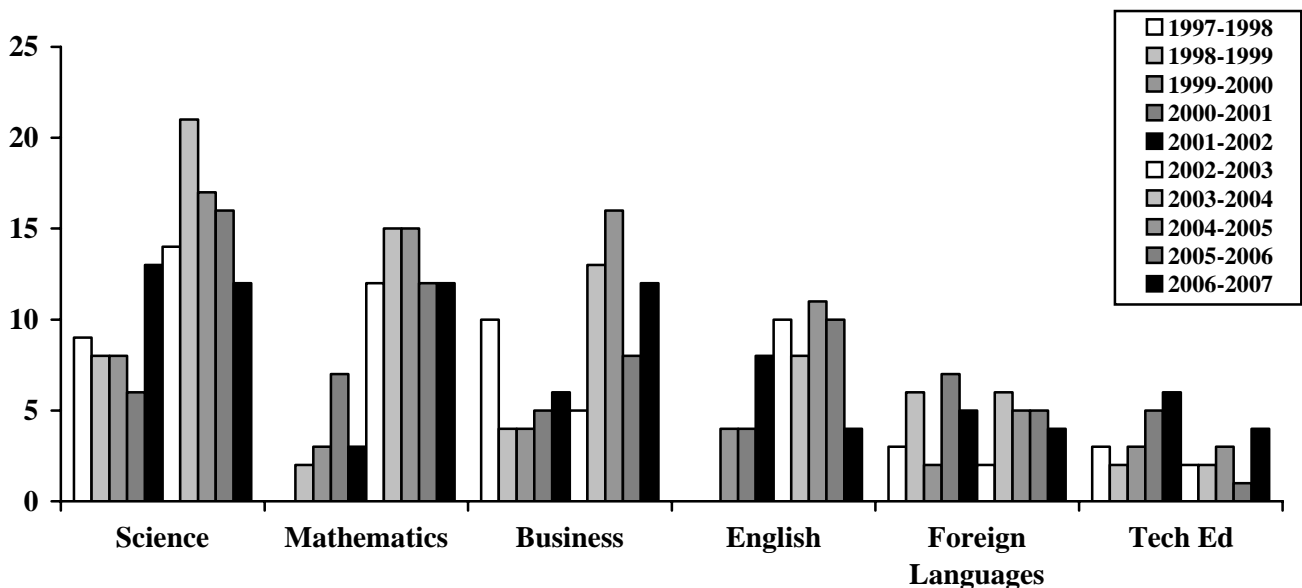
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PART I. ARTC TEACHERS IN DELAWARE 2006 - 2007

This section assesses the impact of ARTC on teacher supply in Delaware and recommendations for the future. It relies heavily on data provided by Raffel & Pullella (Delaware Teacher Supply Survey Analysis Report, University of Delaware Institute for Public Policy Administration, June 2006) and by Terry Anderson, Educational Research Associate at the Delaware Department of Education, May 2006. Patterns of program participation and candidate demographics are addressed in Part II; program completion, retention and classroom performance are summarized in Part III.

ARTC’s Impact on Teacher Supply in Delaware

Raffel & Pullella (2006) continue to report that districts anticipate ongoing difficulties recruiting teachers in “critical needs” subjects covered by ARTC, especially in mathematics, science and business/technology, and to a lesser degree in foreign languages. Recent ARTC enrollments confirm these needs and indicate that ARTC is helping address them: Three-quarters of all ARTC candidates enrolled in the 2004 – 2005 to 2006 – 2007 school years were teaching science, mathematics or business/technology (Figure I-1).



**Figure I-1.
Enrollments by Cohort and Content Area
1997 – 1998 to 2006 – 2007 Cohorts**

Department of Education data for the 2004 – 2005 through 2006 – 2007 school years (T. Anderson, May 2007) confirms that ARTC is having a substantial impact on teacher supply in “critical needs” subjects. Taken together, the data suggest that ARTC teachers already comprise a significant proportion of the state’s teachers in their subject areas and that this proportion is likely to increase in the future.

Figure 1-2 estimates, by subject area, the percentage of all Delaware teachers in those school years who entered or were entering teaching through ARTC. In all but two of the subjects covered by ARTC, at least 10% of the state’s teachers entered the profession through ARTC. ARTC teachers now comprise about

- half of all physics teachers;
- one-third of all business education and Latin teachers;
- one-fourth of all earth science and technology education teachers; and
- one-fifth of all biology, chemistry and physical science teachers.

ARTC’s potential future impact on the teaching force in Delaware is even more apparent in the percentage of ARTC teachers among new hires in their subjects over this same time period (Figure 1-3). In at least one of those years, districts turned to ARTC for

- at least half of all new hires in biology, chemistry, earth science, physical science, business education, technology education, and German;
- about one in three new hires in mathematics, physics and English; and
- one in four new hires in Spanish and agriculture education.

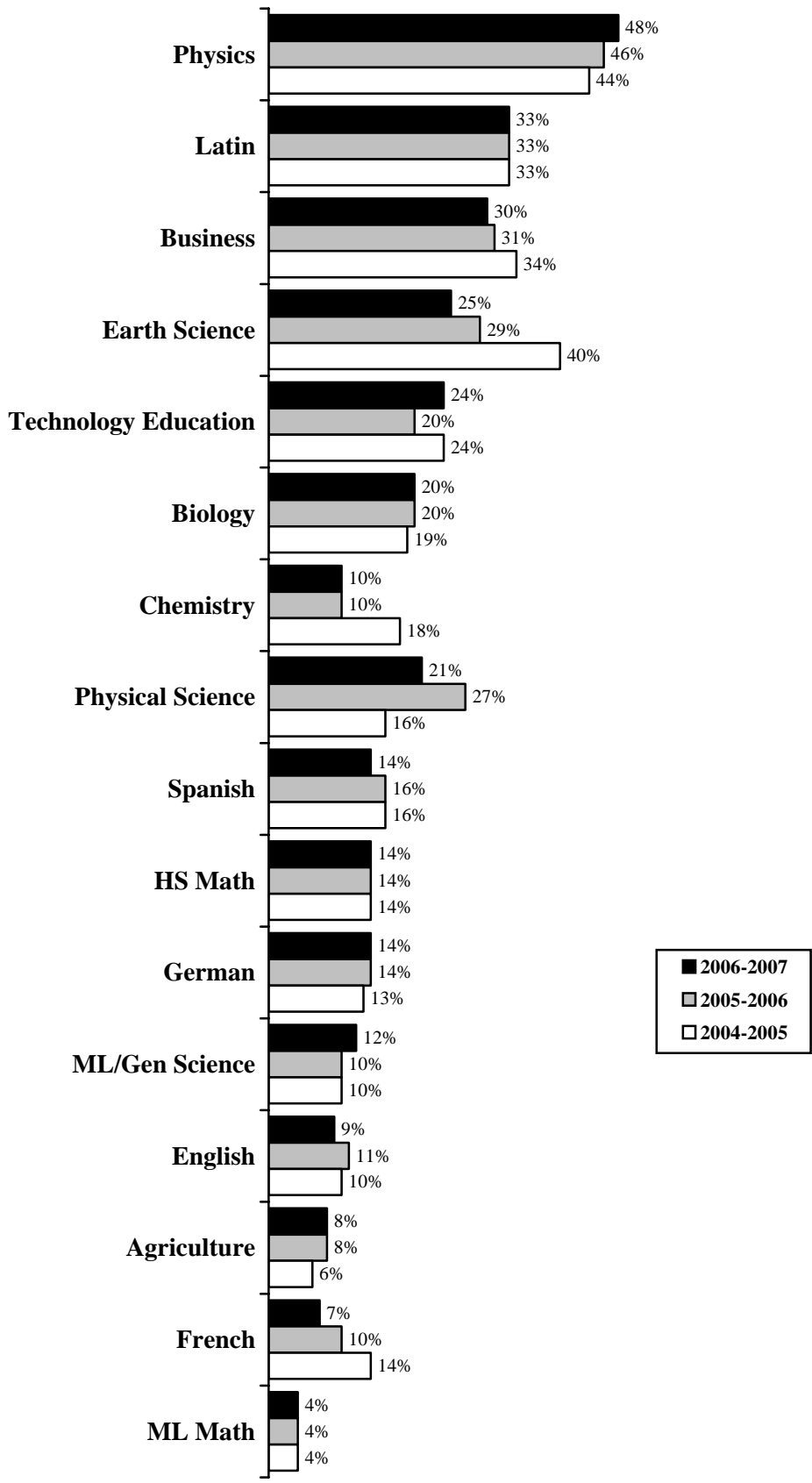


Figure 1-2.
Percent of ARTC Teachers Among All Delaware Teachers by Subject (2004 – 2006)

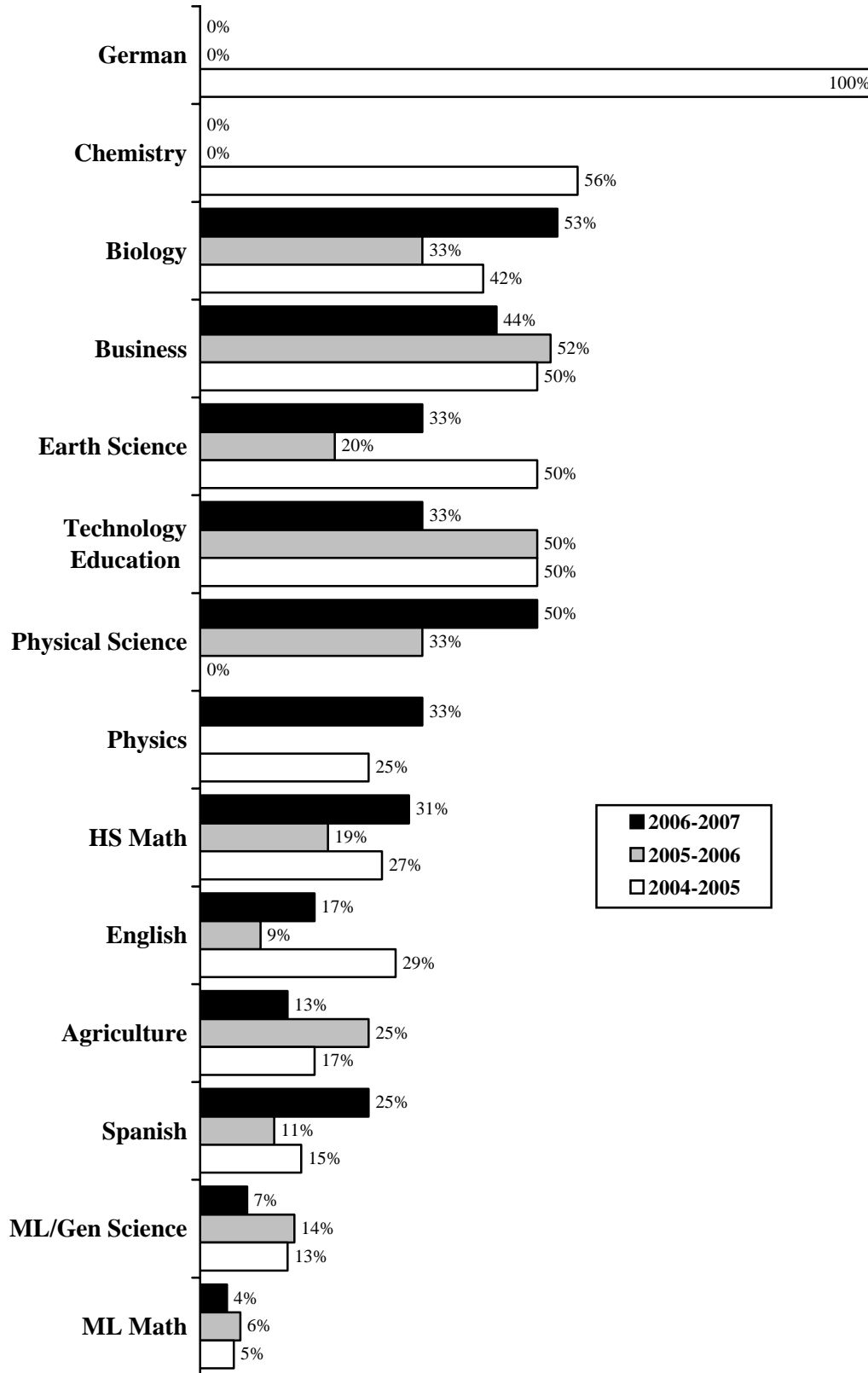


Figure 1-3.
Percent of ARTC Teachers Among New Hires by Subject (2004 – 2006)

At the same time, ARTC continues to contribute to the diversity and quality of the state’s teaching workforce. ARTC teachers include a larger proportion of males and minorities than Delaware teachers as a whole (Figure I-4, Part II and Appendix B). In the most recent cohorts, minority representation has increased to about one in three.

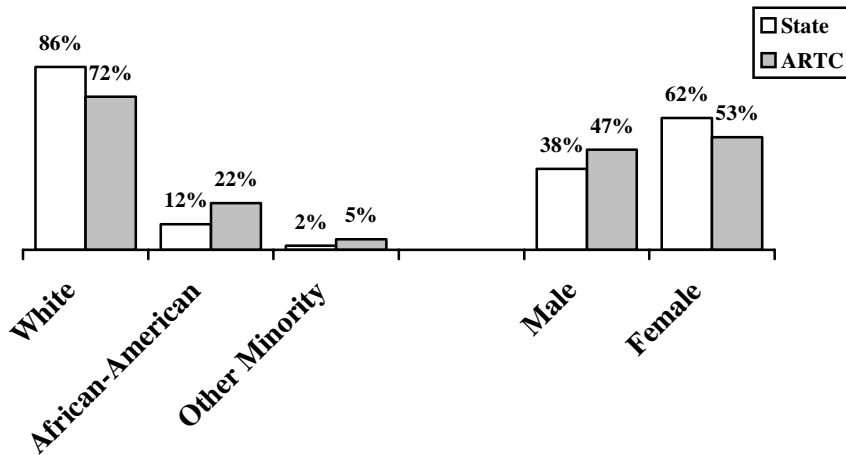


Figure I-4.
Proportions of ARTC and All Delaware Teachers in Traditionally Underrepresented Groups

Quality remains high. According to their supervisors, 93% of ARTC graduates are performing as well as or better than other teachers at similar points in their careers and almost two-thirds are seen as performing better than their colleagues (Fig. I-5; Part III, Appendix G)

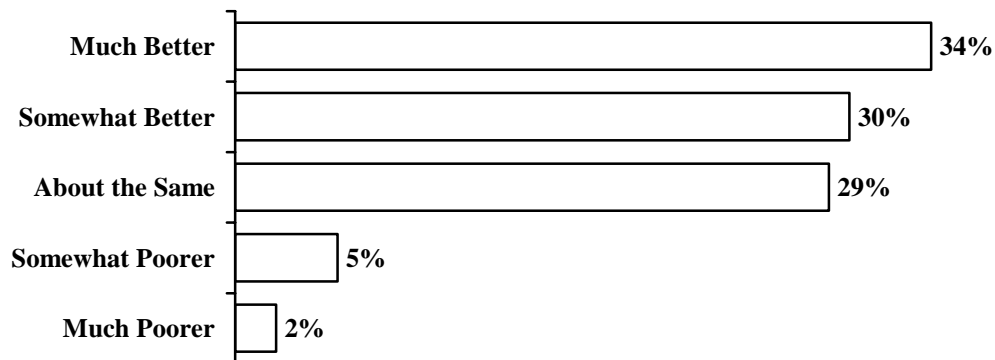
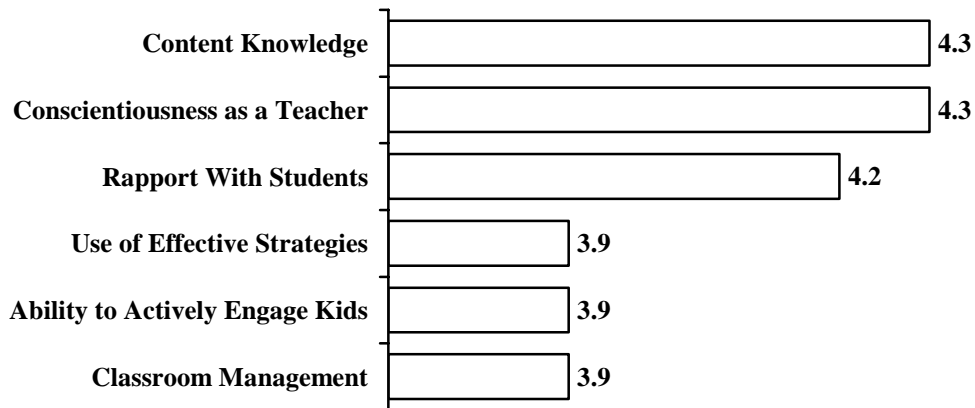


Figure I-5.
Supervisor Ratings of ARTC Graduates' Overall Performance Compared to Other Teachers at Similar Points in Their Careers

They are also rated "strong" or "very strong" across a variety of specific domains of teaching (Figure I-6, Part III and Appendix G). This is especially true in content-area knowledge, conscientiousness as teachers, and rapport with students, ratings that may reflect the greater life experience and maturity of ARTC teachers relative to many other beginning teachers.



(1 = very weak; 2 = weak; 3 = adequate; 4 = strong; 5 = very strong)

**Figure I-6.
Supervisor Ratings of Performance in Specific Domains of Teaching**

Finally, investments in ARTC teachers have a lasting impact on Delaware schools. Of the 200 teachers who completed ARTC courses between July 2001 and June 2006,

- 78% are still working as teachers or administrators in Delaware public or charter secondary schools; and
- about two-thirds are still employed in target schools after five or more years (Part III and Appendices E and F).

ARTC's Role in Teacher Recruitment

The ARTC program has also made significant contributions to recruiting teachers for hard-to-fill positions: Over the past five years, between 68% and 84% of all candidates enrolled were recruited through ARTC (Figure I-7).

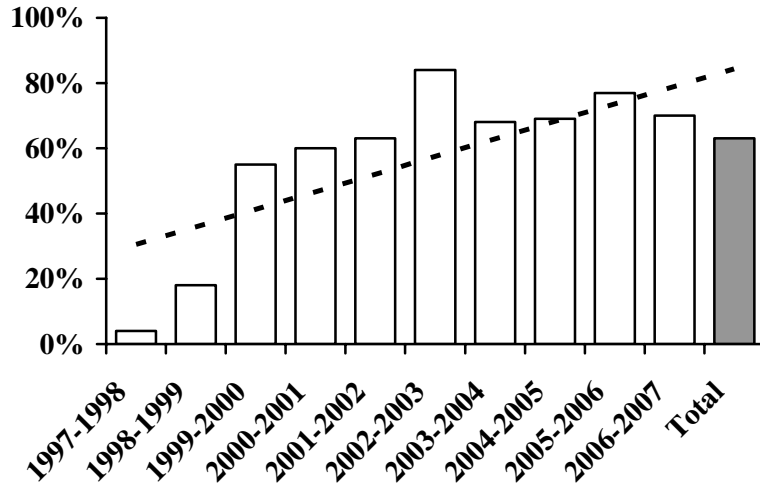


Figure I-7.
Proportion of Candidates Recruited Through ARTC by Cohort

The ARTC office devotes a substantial and increasing amount of time to recruitment efforts. Each year, hundreds of individuals are counseled through the process of qualifying for the program, satisfying testing requirements, and finding a teaching position (or referred to other programs). The ARTC office also now evaluates transcripts for eligibility, almost 800 in the past year. Contact information for more than 300 qualified individuals was forwarded to districts during the 2006 – 2007 school year alone.

Taken together, this suggests that while it was not initially envisioned as a major role of the ARTC program, recruitment has become a key program function for Delaware districts and schools. Raffel & Pullella (2006) report that two-thirds of districts use the ARTC office for recruitment. And, as indicated in Figures I-8 and I-9 for the 2006 – 2007 school year, ARTC has become equally helpful in identifying candidates across all three counties, and especially in the hardest to find subjects: the sciences mathematics and business/technology.

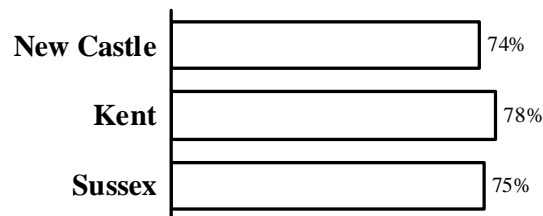


Figure I-8
Percent of ARTC Teachers Recruited Through the ARTC Office & Website by County



Figure I-9
Percent of ARTC Teachers Recruited Through the ARTC Office & Website by Subject

Challenges and Solutions

Date of Hire

Late hiring has been repeatedly identified as an issue in teacher supply in Delaware. A comparison of the timing of ARTC hires with all teachers hired in 2001 – 2002 to 2005 – 2006 school years (Raffel & Pulella, 2006) indicates that the pattern of late hiring is even more pronounced for ARTC teachers than for all Delaware teachers (Figure I-8). Almost all ARTC teachers are hired August or later, and a much larger percentage during the school year. Like the state as a whole, ARTC did see a decline in late hires in 2005-2006, but this was almost entirely due to teachers hired for one new charter school.

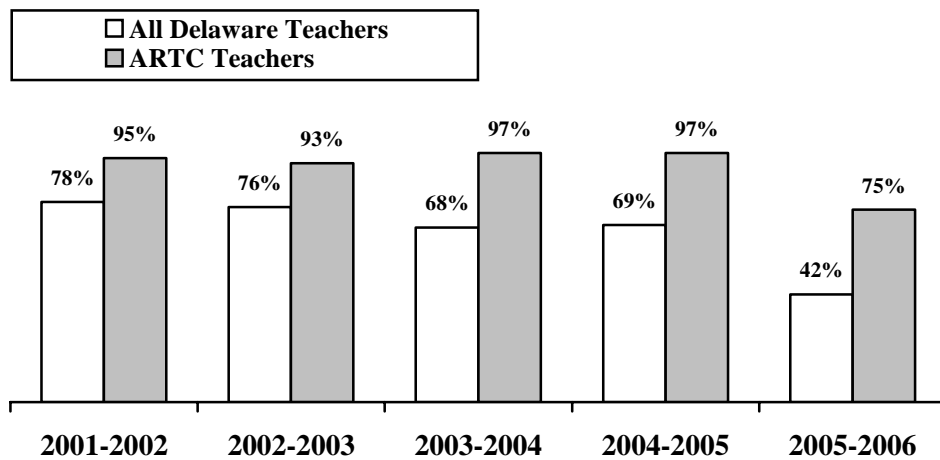


Figure I-10.
Percent of All New Teachers and New ARTC Teachers Hired August or Later

This is not surprising, because ARTC teachers are, by definition, hires-of-last-resort, considered only when the pool of certified teachers has been exhausted. Much of the concern about late hiring has focused on its impact on the pool of qualified, certified teachers, but its impact on ARTC teachers, given their lack of prior education training and experience, presents additional challenges. ARTC teachers are even more likely than other new teachers to miss new teacher induction programs, to be assigned to whatever classes are not yet taken (often resulting in especially challenging schedules and students), to lack basic curriculum and, perhaps most importantly, to be thrust into classrooms with no idea where to begin and how to proceed. The file cabinet is empty. They typically need rather immediate and intensive support that is difficult to provide in most school settings and which may extend beyond the scope of the current New Teacher Mentoring Program.

Mentoring

The New Teacher Mentoring Program is providing more focused and consistent support for new teachers. It is important to note, however, that ARTC teachers do not have the knowledge and experience we assume in new teachers who have completed teacher education programs and student teaching. Regardless of when they are hired or where they are teaching, they often need more immediate and intensive help with curriculum and syllabi, lesson plans and assessments, classroom arrangement and management, district policies and procedures and, perhaps most importantly, in-class monitoring and support when needed, especially in the first days and weeks. This is typically beyond the resources of individual schools or districts, so consideration should be given to providing special mentoring and curricular support to ARTC teachers, either at the district or state level. Christina was the only district that employed a mentor whose only job was to support ARTC teachers, but this position was recently eliminated. Their model, however, should be further explored,

Program Funding

It is likely that a modest increase in the ARTC budget will be required to maintain the current program. The ARTC budget has remained static since 2000, even as enrollments and advisement demands have continued to grow (Figure I-11).

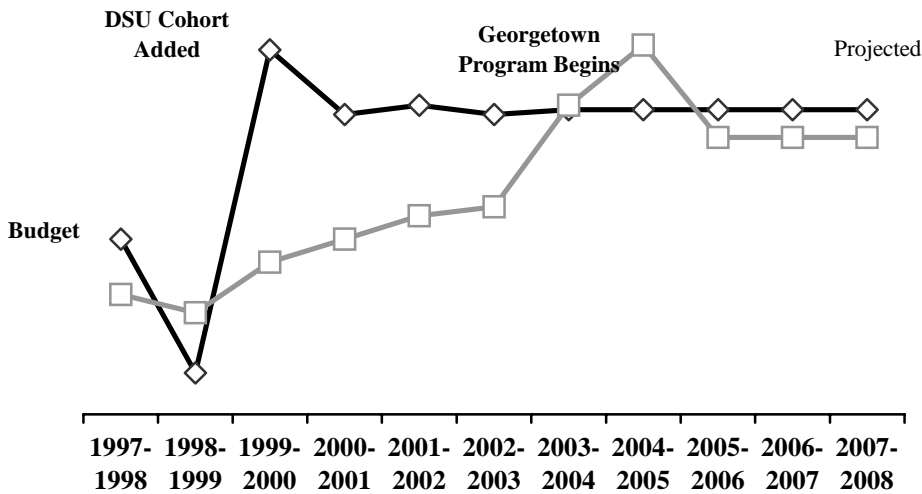


Figure I-11.
Enrollments and Budgets

Program growth has thus far been managed within this budget, but as indicated in Figure I-12, salaries and especially very large increases in fringes, have dramatically reduced or eliminated funds for all other budget categories. Cuts have already been made in instructional materials and equipment, office equipment replacement, and the number of experienced teacher "coaches" hired to support candidates in the Summer Institute. All conference travel has been eliminated, along with a graduate assistant position that supported the production of this report and maintenance of the website and databases of potential candidates. Positions have been further adjusted to reduce salaries and the percentage of the budget devoted to overhead.

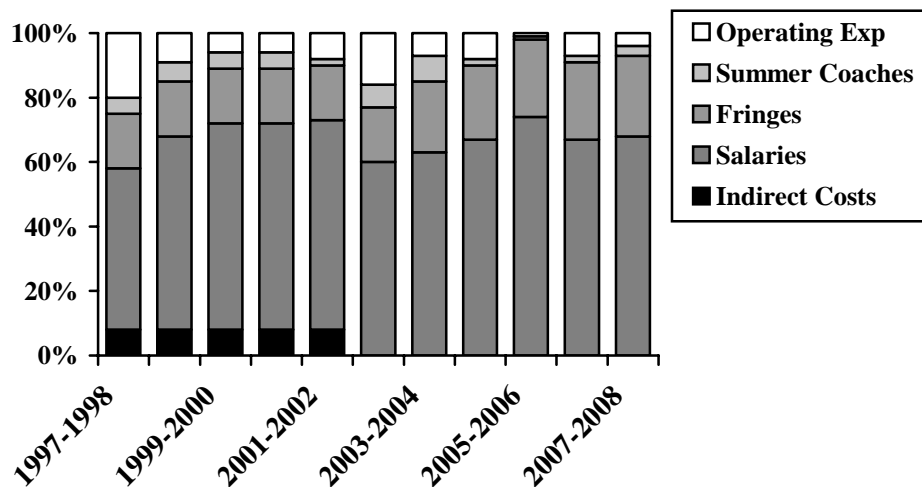


Figure I-12.
Budgets by Year and Category

This pattern cannot be sustained forever, and since Delaware cannot qualify for federal Transition to Teaching grants, other sources of program support must be explored.

Financial Support for Candidates

Many ARTC candidates continue to experience significant difficulty paying course tuition. This is especially true during the first academic-year semester of courses, when many are not yet being paid by their districts, and for those who do not qualify for in-state tuition. For many, it is a constant financial struggle to complete course work as scheduled.

ARTC candidates rely primarily on district course reimbursement (including Critical Needs Scholarship funds). Increases in Critical Needs funds in 2005-2006 have been very helpful in increasing the percent of tuition costs that are reimbursed, but this does not yet address the two major financial stumbling blocks for many candidates:

1. Those who cannot pay tuition and then wait for reimbursement. Currently, the Special Institute is the only source of financial aid that provides funding at the time of registration and help with out-of-state tuition. These funds have been static for many years and now support only one or two in-state ARTC teachers a year. Consideration should be given to increasing Special Institute funding and/or to revising Special Institute rules to increase the impact of existing funds. Allowing students to receive Special Institute funding for only part of their certification course work – for example, for only their first ARTC course or only to help make up the difference between in- and out-of-state tuition – could dramatically ease the financial burdens for those in transition.

2. Those who cannot afford to pay for additional courses until they receive reimbursement for the prior semester. Currently, documentation is submitted to the Higher Education Commission at the end of January for Critical Needs reimbursement, but the funds do not actually reach teachers until the end of March or early April – long after they must pay tuition for their spring courses. Consideration should be given to developing a mechanism to issue funds to candidates earlier and in time to pay for their next courses. This might be done after all required documents are submitted by candidates and the HEC is able to confirm that funds are available.

Summary Recommendations

Consideration should be given to:

- the level of funding required to sustain the current ARTC program into the future;
- increasing existing sources of financial aid for ARTC candidates and/or better utilizing the funds currently available;
- evaluating the special mentoring and curricular needs of ARTC teachers and developing mechanisms to address them.

PART II.

Participation Patterns

1997 – 1998 to 2006 – 2007 Cohorts

Enrollment Patterns

Between 1997 – 1998 and 2006 – 2007, Delaware schools and charters enrolled 441 teachers in the ARTC program.

Yearly enrollments have increased fairly steadily since the beginning of the program, with a spike in the 2003 – 2004 and 2004 - 2005 school years (Fig. II-1). Two factors seem to have contributed to the return to somewhat lower levels in the last two years: (1) the impact of significant staffing adjustments in Christina School District and (2) the availability of the “91-day” alternative for uncertified teachers.

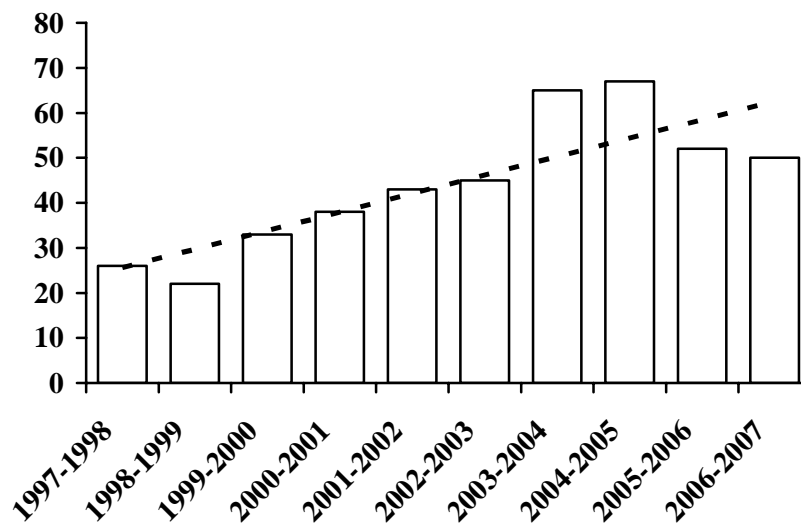


Figure II-1.
Number of Candidates Enrolled By Cohort

A majority of all ARTC candidates (58%) have completed all program requirements and are certified in Delaware (Figure 1-2).

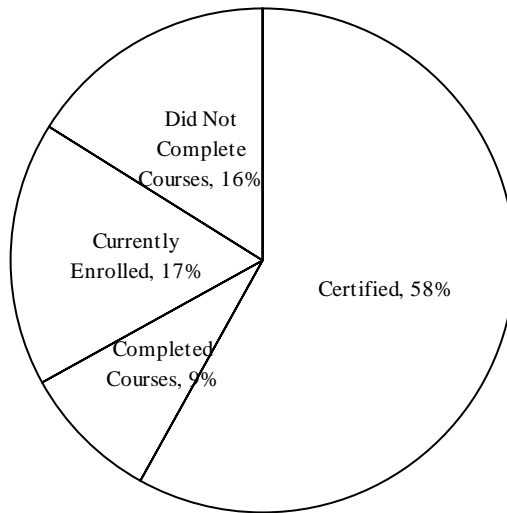


Figure I-2.
Program Completion and Certification

About two thirds were hired to teach science, mathematics and business education (Figure II-3). Most (81%) were hired to teach at the high school level.

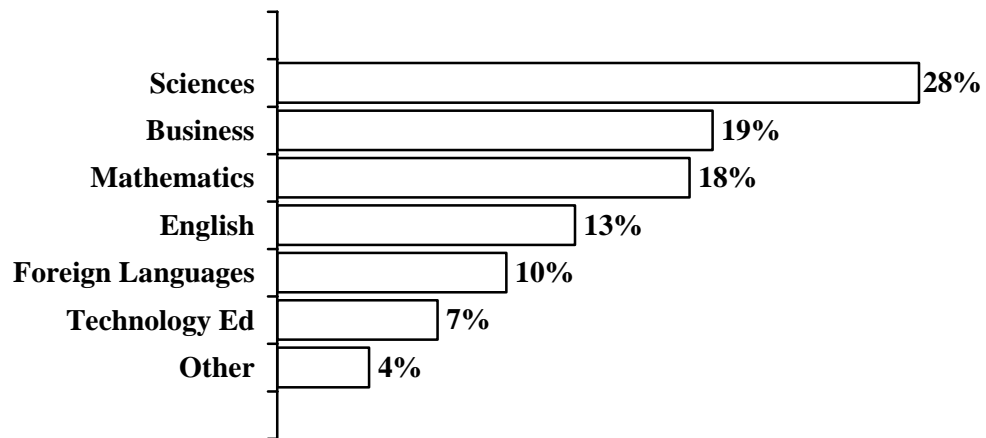


Figure II-3.
Subject Areas of Candidates Enrolled 1997 – 1998 to 2006 – 2007

Enrollments have been consistently high in all these areas, followed closely by English (Figure II-4).

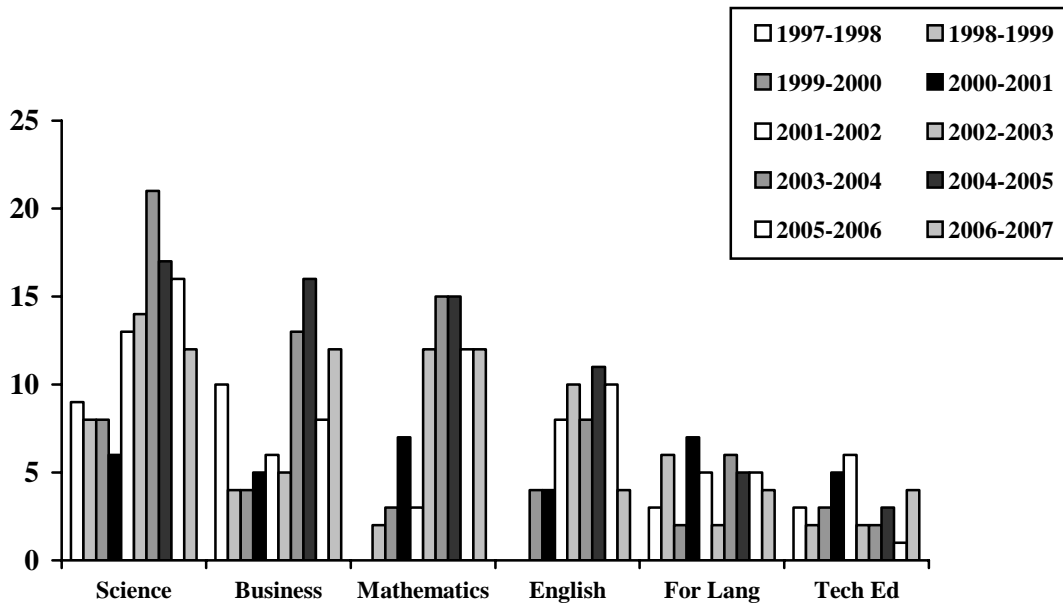


Figure II-4.
Subject Area Enrollments by Cohort

District and School Participation

All qualifying Delaware schools and charters have enrolled teachers in ARTC (Appendix A):

- all 19 regular public and vocational-technical school districts
- all regular and vocational-technical middle schools and high schools
- 11 charter schools
- a variety of special district or state programs (D.A.P.I., the Positive Learning Center in Red Clay; Ferris School for Boys; Douglass Behavioral School; Sara Pyle Academy; Kent Secondary Intensive Learning Center; A Friend of the Family)

About two-thirds of candidates (68%) were enrolled by New Castle County districts and charters (Figure II-

5).

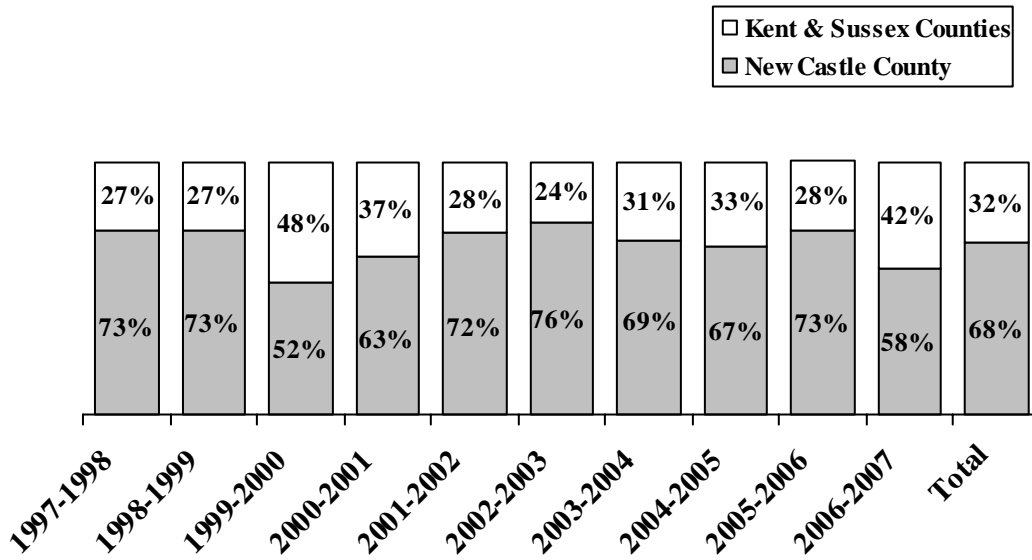


Figure II-5.
Enrollments by County by Cohort

Not surprisingly, larger districts account for most ARTC enrollments. In New Castle County (Figure II-6), half of all ARTC teachers were enrolled by the Christina and Red Clay Districts.

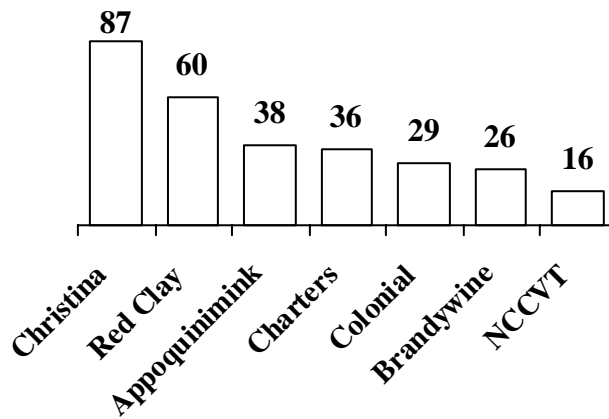


Figure II-6.
New Castle County Enrollments by District

In Kent and Sussex Counties, half were enrolled by Indian River, Capital and Caesar Rodney School Districts (Figure II-7).

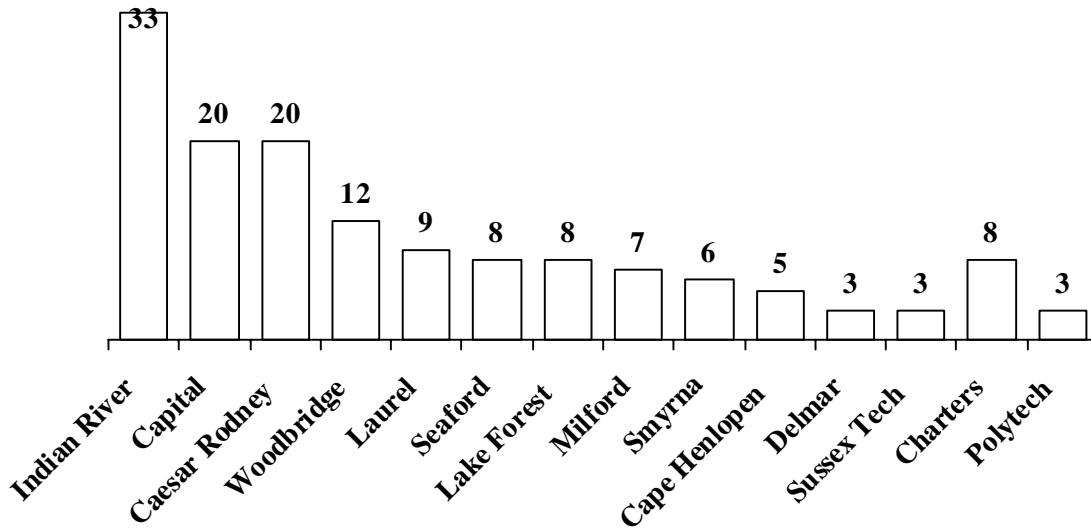


Figure II-7.
Kent and Sussex County Enrollments by District

Candidate Profile

Demographics

Districts enrolled 441 candidates in the first ten ARTC cohorts. Appendix B summarizes characteristics of these candidates by cohort. Candidates were

- evenly balanced by gender (53% women and 47% men);
- one-quarter (and, in recent cohorts, one-third) minority, about twice the proportion of minority teachers state-wide (Figure II-8); and
- mostly in their late 20's and 30's (Figure II-9)

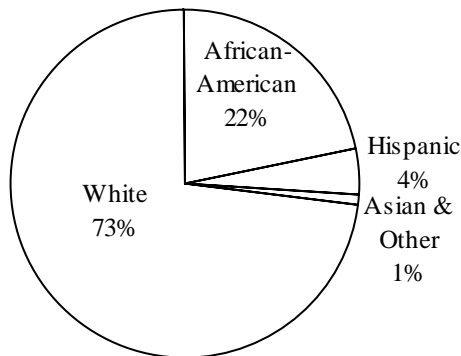


Figure II-8.
Proportion of Minority Candidates Enrolled

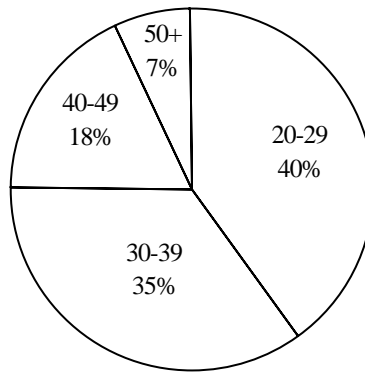


Figure II-9.
Age of Candidates Enrolled

Academic Backgrounds

Of the 428 candidates for whom data is available, almost one in three (29%) had already earned one or more advanced degrees: 24% had one or more master's degrees and 5% had earned a doctorate in their subject areas. Similarly, of the 351 candidates for whom data is available, almost two-thirds (62%) had earned an overall GPA of 3.0 or higher for the highest degree earned (Figure II-10).

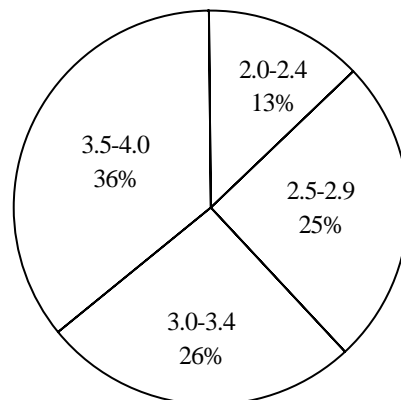


Figure II-10.
GPA For Highest Degree Earned

Employment Immediately Prior to Taking the ARTC Teaching Position

Most ARTC teachers come into teaching directly from other careers and professions (Figure II-11). In the year prior to taking their ARTC positions, almost three in five (59%) were employed in business, industry, or government service. About one-quarter (25%) were employed in an educational setting (teaching full- or part-time, working as aides or paraprofessionals, or substitute teaching) for at least some portion of that year. This group is extremely varied, ranging from those who had been teaching in private schools for as long as 17

years to those who substituted for a few weeks or months before being offered their ARTC position. Only one in ten was a full-time student prior to taking their ARTC position.

Recent cohorts, however, do tend to include more individuals who were full-time students (though not necessarily undergraduate students) and fewer coming directly from business or industry.

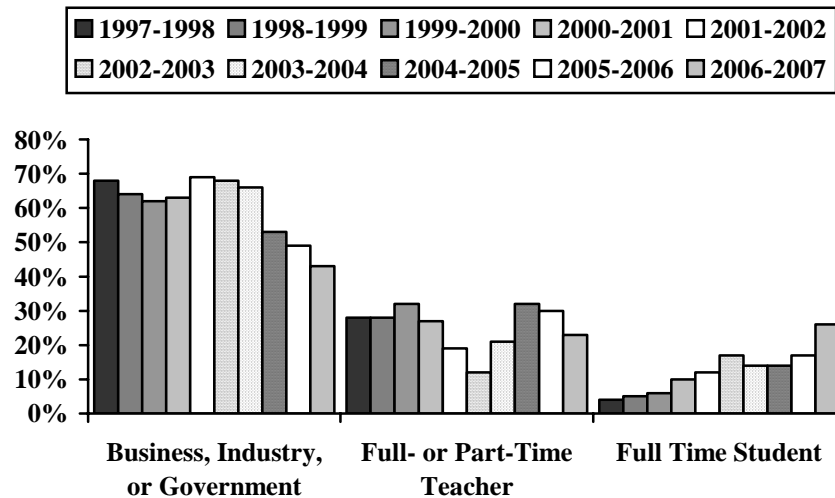


Figure II-11.
Employment in the Year Immediately Prior to Taking ARTC Position By Cohort

Prior Experience Related to Education, Teaching or Working with Children

Overall, only about one-third of candidates report taking education courses (Figure II-12) prior to entering the program. Candidates also report little or no experience related to teaching or working with children at any time prior to entering the program (Figure II-13). Not surprisingly, candidates most commonly reported volunteering with community youth programs like scouting, Sunday school or Little League (35%). About one-third of candidates reported substitute teaching (33%) at some time before entering the program; about one in four (26%) reported teaching full- or part-time and about one in five (21%) had served as classroom aides or paraprofessionals. Only 16% had volunteered in schools.

Given their backgrounds, it is not surprising that one in four reported at some point providing training for adults in business, industry or the military, and about one in five had previously taught at the college level.

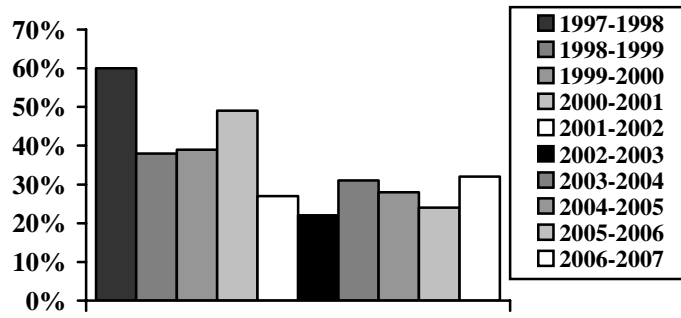


Figure II-12.
Proportion of Candidates Taking At Least One Education Course Prior to Enrolling in ARTC

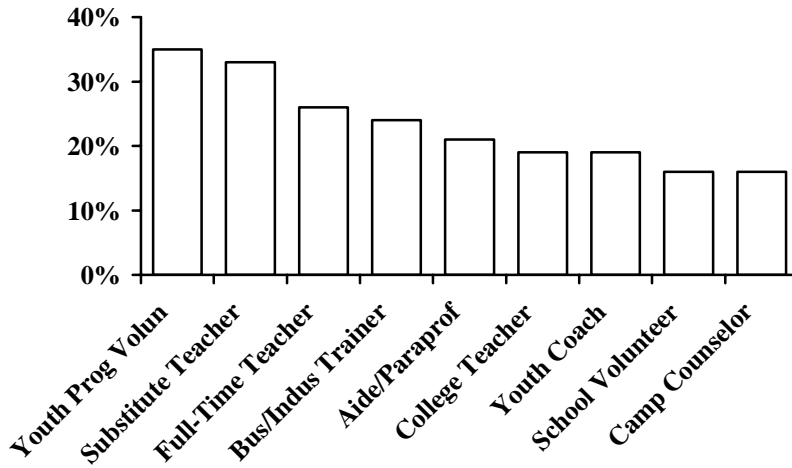


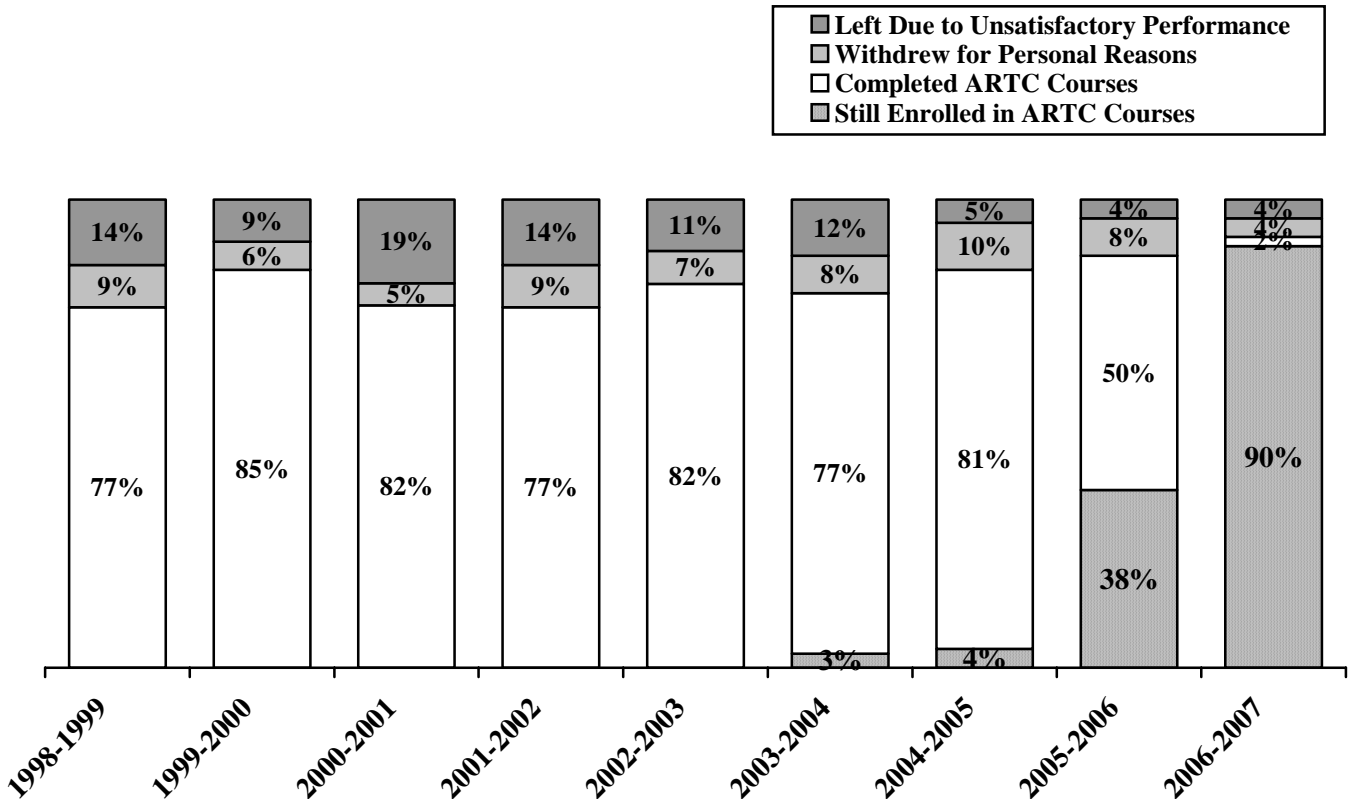
Figure II-13.
Reported Experience With Teaching or Children at Any Time Prior to Entering ARTC

Part III. Program Completion, Retention and Classroom Performance of ARTC Graduates

Are ARTC Teachers Completing Their Courses?

Seventy-seven (17%) of those who enrolled in at least one ARTC course failed to complete their ARTC classes (Appendix C and Figure III-1). Overall, this is consistent with statistics compiled by the National Education Association, indicating that about 20% of new teachers leave teaching by the end of the first year.

Performance in ARTC courses and/or in the classroom was an issue for about half of those who failed to complete the core program of courses (Appendix C); the remaining candidates withdrew for a variety of personal and professional reasons unrelated to satisfactory performance in courses or in the classroom. A number of those have continued to teach in Delaware and elsewhere.



**Figure III-1.
Patterns of Attrition by Cohort**

Candidates who complete their ARTC courses are very similar to those who did not across almost all demographic measures (Appendix D).

Successful candidates did more often tend to

- be female (84%) rather than male (74%);
- be employed in middle schools (90%) rather than high schools (77%);
- be teaching business (90%) or mathematics (84%) rather than other subjects (73% to 77%); and
- have taught part-time immediately prior to taking their teaching job (89%) rather than engaging in other occupations (76% to 82%)
- have volunteered with youth groups (87%) or taught full- or part-time (85%) at some time in their lives.

Less successful candidates appear to include those who were

- over 50 (56%) versus other age groups (77% to 84%);
- full-time students (76%) immediately prior to entering the program versus other employment (81% to 89%); and
- classroom aides or paraprofessionals (71%) at some time in their lives.

Are ARTC Teachers Staying After They Complete the Program?

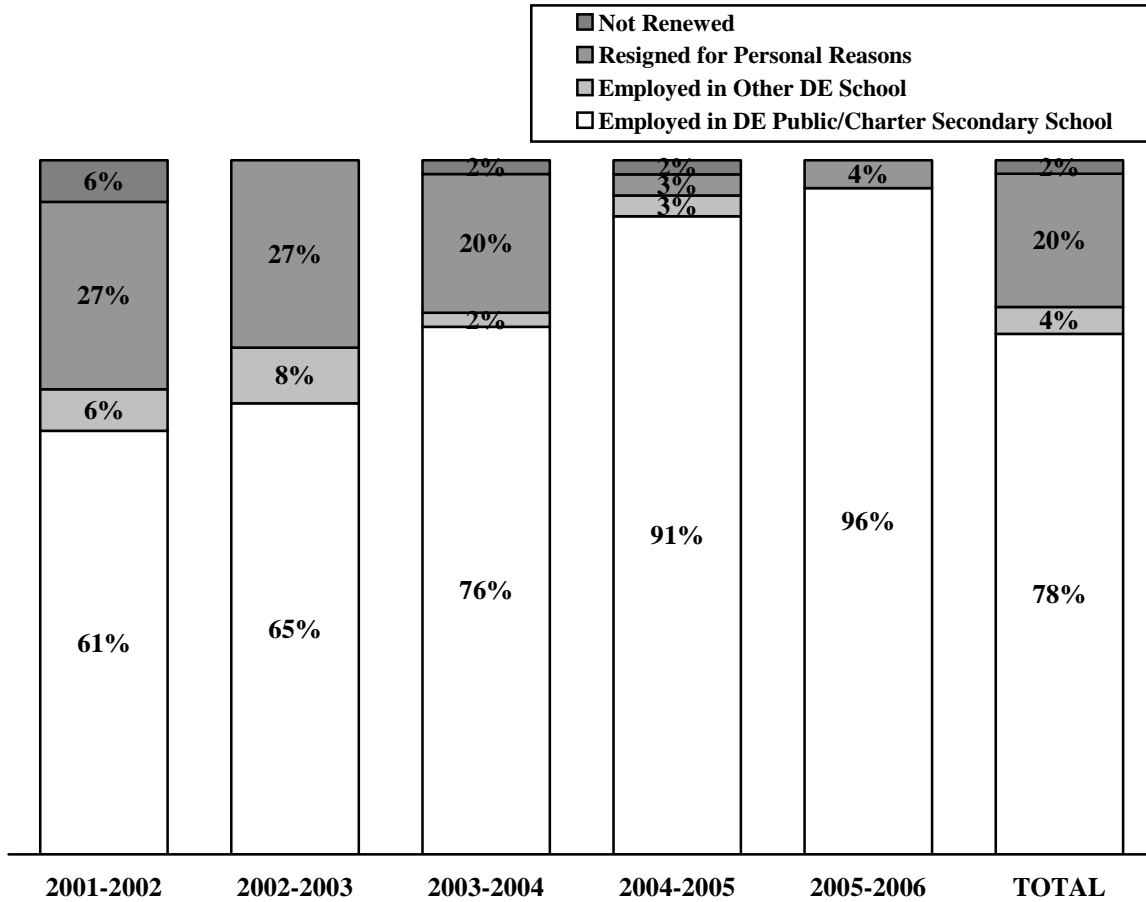
Retention data was obtained from School Supervisor Surveys (see below) and Delaware Department of Education records for all 200 teachers who completed ARTC courses between 2001 – 2002 and 2005 – 2006.

Retention has been very high among ARTC graduates (Appendix E and Figure III-2). Seventy-eight percent of all teachers who completed ARTC course work are still teaching or performing administrative duties in Delaware public or charter secondary schools. Eighty-two percent are still teaching in Delaware public, private or charter schools, or in Delaware colleges and adult education programs.

Using the most conservative measure of “retention” (including only those who are still employed in the secondary public or charter schools that are specifically targeted by ARTC) and including the ARTC internship year, this translates to retention rates of 65% at five or more years; 76% at four years; and more than 90% at one and two years.

As indicated Figure III-2 (and Appendix E), very few candidates who successfully complete their

ARTC courses are later not renewed due to unsatisfactory classroom performance (2%). Most of those who leave their positions after completing courses (85%) do so for personal or professional reasons unrelated to classroom performance. They most commonly leave to teach elsewhere in Delaware or in other states.



**Figure III-2.
Retention of ARTC Graduates by Cohort**

Are ARTC Teachers Succeeding in Becoming Certified and Tenured?

Department of Education records were used to determine whether ARTC teachers who completed their courses also completed all certification requirements (Praxis I and II, any additional required content-area courses, documentation of their internship year and school recommendation for certification). ARTC teachers who complete courses and remain in Delaware schools are successfully completing certification (Appendix F and Figure III-3) and receiving Standard Certificates in one or more content areas.

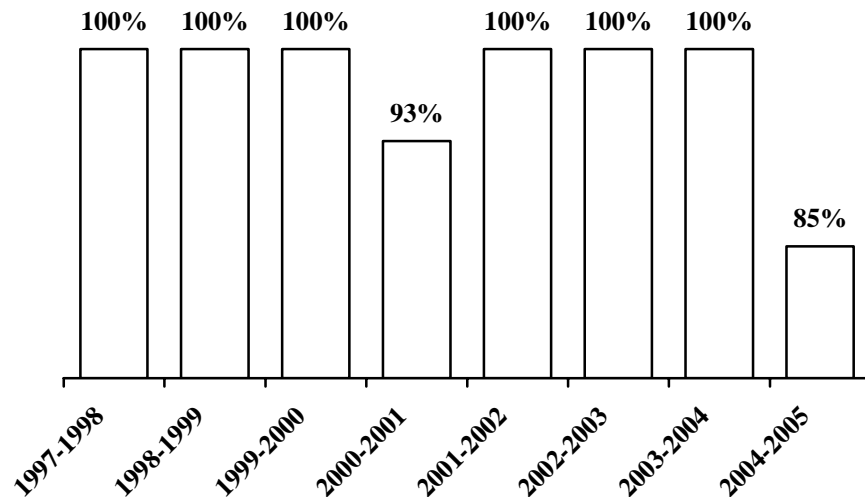


Figure III-3.
Percent of Fully Certified Graduates by Cohort

Tenure status of ARTC teachers was assessed based upon supervisor reports. ARTC teachers are being granted tenure, where applicable (Appendix F). All of those who are not yet tenured are working in settings where tenure is not an option (administrative positions or in charter schools where tenure is not offered) or are not yet eligible.

Are They Succeeding in the Classroom?

Surveys (Appendix H) were sent to the current supervisors of all 156 candidates in the 2001 – 2002 to 2005 – 2006 cohorts who had completed their ARTC course work by January 2007 and were still employed in target schools; 147 (94%) were returned.

Supervisor Ratings of Overall Performance

Supervisors compared the overall performance of their ARTC teachers with the performance of other teachers at similar points in their careers using a 5-point scale from "much poorer" to "much better." Their responses indicate that ARTC teachers are performing very well in the classroom (Appendix G and Figure III-4). Ninety-three percent rated their ARTC teachers as performing as well as or better than their peers; two in three (64%) were seen as performing somewhat or much better.

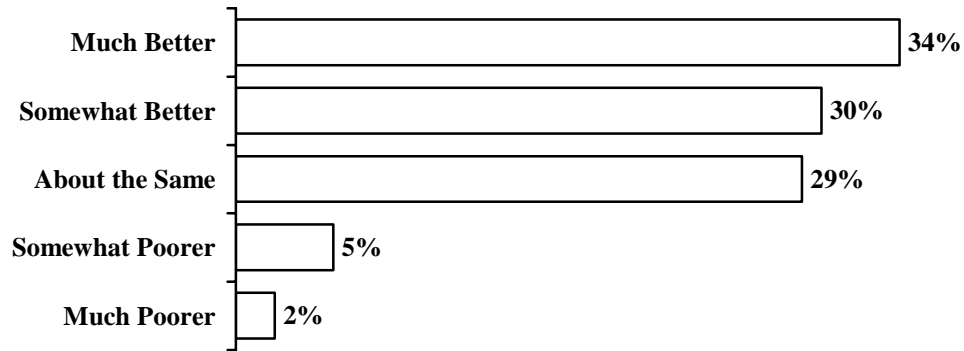
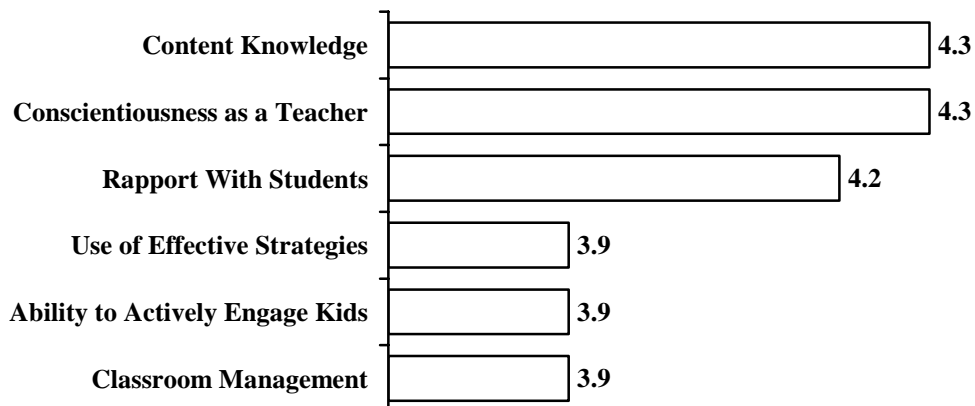


Figure III-4.
Supervisor Ratings of ARTC Graduates' Overall Performance

Supervisors' Ratings of Performance in Specific Domains of Teaching

Supervisors also evaluated their ARTC teachers' performance in several specific domains of teaching, ARTC graduates are perceived as "strong" or "very strong" across all dimensions (Appendix G and Figure III-5), especially in their knowledge of subject matter, rapport with students and conscientiousness as teachers.



(1 = very weak; 2 = weak; 3 = adequate; 4 = strong; 5 = very strong)

Figure III-5.
Supervisor Ratings of Performance in Specific Domains of Teaching

Supervisor Satisfaction With ARTC Teachers

Satisfaction with ARTC teachers is very high among supervisors. Based on their experiences with a particular ARTC teacher, almost all (98%) would be likely to recommend hiring another ARTC teacher in the future (Appendix G).

APPENDIX A

District and School Participation 1997 – 1998 to 2006 – 2007 Cohorts (N=441)

NEW CASTLE COUNTY		296
Appoquinimink	38	Colonial
Meredith Middle School	1	George Read Middle School
Middletown Middle School	2	Gunning Bedford Middle School
Redding Middle School	5	Newcastle Middle School
Middletown High School	30	William Penn High School
Brandywine	26	Red Clay
Hanby Middle School	1	AI duPont Middle School
Talley Middle School	3	Conrad Middle School
Brandywine High School	8	HB duPont Middle School
Concord High School	8	Skyline Middle School
Mt Pleasant High School	6	Stanton Middle School
Christina	87	AI duPont High School
Bayard Intermediate School	2	Cab Calloway School of the Arts
Gauger-Cobbs Middle School	5	Dickinson High School
Kirk Middle School	5	McKean High School
Shue-Medill Middle School	7	Positive Learning Center
Christiana High School	21	
Glasgow High School	19	
Newark High School	25	
Douglass Alternative School	2	
Sara Pyle Academy	1	
New Castle Co Vo-Tech	16	Charters
Delcastle Technical High School	9	The Charter School of Wilmington
Hodgson Vo-Tech High School	3	Delaware Military Academy
Howard High School of Technology	2	East Side Charter School
Ferris School for Boys	2	Marion T. Academy
		MOT Charter
		Pencader Charter School
		Richard Milburn Academy
		Newark Charter School
Public School Services	4	
D.A.P.I.	2	
A Friend of the Family	2	
Brandywine Community School	1	
Cobblestone School	1	

APPENDIX A (cont)

KENT & SUSSEX COUNTIES				145
Caesar Rodney		20	Laurel	9
	Fifer Middle School	2		Laurel High School
	Caesar Rodney High School	18		9
Cape Henlopen		5	Milford	7
	Mariner Middle School	2		Milford Middle School
	Cape Henlopen High School	3		Milford High School
Capital		20	Seaford	8
	Central Middle School	2		Seaford Middle School
	Dover High School	17		Seaford High School
	Kent Secondary Intensive Learning Ctr.	1		3
Delmar		3	Smyrna	6
	Delmar Middle School	1		Smyrna High School
	Delmar High School	2		6
Indian River		33	Woodbridge	12
	Selbyville Middle School	1		Woodbridge Middle School
	Sussex Central Middle School	3		Woodbridge High School
	Indian River High School	7		11
	Sussex Central High School	22		
Lake Forest		8		
	Chipman Middle School	2		
	Lake Forest High School	6		
Polytech		3	Charters	8
	Polytech High School	3		Campus Community Charter School
				Positive Outcomes Charter School
				Providence Creek Academy
Sussex Technical		3		
	Sussex Technical High School	3		

APPENDIX B
Profile of Candidates Enrolled in ARTC
1997 – 1998 to 2006 – 2007 Cohorts (N = 441)

COHORT:	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	TOTAL
TOTAL ENROLLMENT	26 (6%)	22 (5%)	33 (7%)	38 (9%)	43 (10%)	45 (10%)	65 (15%)	67 (15%)	52 (12%)	50 (11%)	441 (100%)
STATUS IN PROGRAM											
Certified	16 (61%)	16 (73%)	26 (79%)	27 (71%)	32 (74%)	33 (73%)	48 (74%)	44 (66%)	13 (25%)	0 (0%)	255 (58%)
Completed ARTC Courses	1 (4%)	1 (4%)	2 (6%)	4 (11%)	1 (2%)	4 (9%)	2 (3%)	10 (15%)	13 (25%)	1 (2%)	39 (9%)
Did Not Complete Courses	9 (35%)	5 (23%)	5 (15%)	7 (18%)	10 (24%)	8 (18%)	13 (20%)	10 (15%)	6 (12%)	4 (8%)	77 (17%)
Currently Enrolled							2 (3%)	3 (4%)	20 (38%)	45 (90%)	70 (16%)
RECRUITMENT											
thru ARTC	1 (4%)	4 (18%)	18 (55%)	23 (60%)	27 (63%)	38 (84%)	44 (68%)	46 (69%)	40 (77%)	35 (70%)	276 (63%)
GEOGRAPHIC AREA											
New Castle County	19 (73%)	16 (73%)	17 (52%)	24 (63%)	31 (72%)	34 (76%)	45 (69%)	45 (67%)	38 (73%)	29 (58%)	298 (68%)
Kent and Sussex Counties	7 (27%)	6 (27%)	16 (48%)	14 (37%)	12 (28%)	11 (24%)	20 (31%)	22 (33%)	14 (27%)	21 (42%)	143 (32%)
LEVEL TAUGHT											
High School	21 (81%)	17 (77%)	29 (88%)	28 (74%)	37 (86%)	41 (91%)	54 (83%)	51 (76%)	42 (81%)	37 (74%)	357 (81%)
Middle School	5 (19%)	5 (23%)	4 (12%)	10 (26%)	6 (14%)	4 (9%)	11 (17%)	16 (24%)	10 (19%)	11 (22%)	82 (19%)
Elementary School										2 (4%)	2 (0.4%)
AGE											
20 – 29	8 (31%)	7 (32%)	12 (36%)	15 (40%)	20 (47%)	21 (47%)	25 (39%)	27 (41%)	20 (38%)	20 (40%)	175 (40%)
30 – 39	14 (54%)	11 (50%)	15 (46%)	11 (29%)	8 (19%)	14 (31%)	23 (35%)	23 (34%)	17 (33%)	19 (38%)	155 (35%)
40 – 49	3 (11%)	2 (9%)	5 (15%)	8 (21%)	11 (25%)	6 (13%)	12 (19%)	15 (22%)	10 (19%)	8 (16%)	80 (18%)
50 +	1 (4%)	2 (9%)	1 (3%)	4 (10%)	4 (9%)	4 (9%)	5 (7%)	2 (3%)	5 (10%)	3 (6%)	31 (7%)
GENDER											
Female	7 (27%)	15 (68%)	17 (52%)	17 (45%)	23 (54%)	24 (53%)	34 (52%)	36 (54%)	31 (60%)	28 (56%)	232 (53%)
Male	19 (73%)	7 (32%)	16 (48%)	21 (55%)	20 (46%)	21 (47%)	31 (48%)	31 (46%)	21 (40%)	22 (44%)	209 (47%)

	ARTC 2007										
COHORT:	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	TOTAL
MINORITY STATUS											
African-American	6 (23%)	4 (18%)	8 (24%)	4 (11%)	11 (26%)	4 (9%)	15 (23%)	15 (22%)	15 (29%)	13 (29%)	95 (22%)
Hispanic		1 (5%)	3 (9%)	4 (11%)	2 (5%)	1 (2%)	1 (2%)	1 (2%)	1 (2%)	2 (4%)	16 (4%)
Asian & Other	2 (8%)				1 (2%)	1 (2%)	1 (2%)	1 (2%)			6 (1%)
Caucasian	18 (69%)	17 (77%)	22 (67%)	30 (78%)	29 (67%)	39 (87%)	48 (73%)	50 (74%)	36 (69%)	30 (67%)	319 (72%)
HIGHEST DEGREE EARNED											
Bachelor's	16 (62%)	16 (73%)	22 (67%)	25 (68%)	27 (63%)	30 (67%)	42 (65%)	52 (80%)	31 (61%)	39 (78%)	300 (68%)
Master's	4 (15%)	2 (9%)	9 (27%)	11 (29%)	12 (28%)	12 (27%)	20 (30%)	11 (17%)	16 (31%)	7 (14%)	105 (24%)
Doctorate	1 (4%)	3 (14%)	1 (3%)	1 (3%)	3 (7%)	2 (4%)	3 (5%)	2 (3%)	4 (8%)	3 (6%)	23 (5%)
GPA (HIGHEST DEGREE)											
2.0 - 2.4	4 (25%)	2 (14%)	7 (24%)	4 (12%)	2 (5%)	5 (13%)	5 (9%)	8 (15%)	3 (8%)	5 (12%)	45 (13%)
2.5 - 2.9	4 (25%)	4 (29%)	7 (24%)	9 (26%)	6 (16%)	7 (18%)	15 (28%)	12 (29%)	9 (22%)	14 (33%)	87 (25%)
3.0 - 3.4	5 (31%)	5 (36%)	8 (28%)	9 (26%)	13 (35%)	9 (24%)	11 (20%)	8 (19%)	14 (33%)	8 (18%)	90 (26%)
3.5 - 4.0	3 (19%)	3 (21%)	7 (24%)	13 (36%)	16 (44%)	17 (45%)	23 (43%)	16 (36%)	15 (37%)	16 (37%)	129 (36%)
SUBJECT AREA											
Sciences	9 (35%)	8 (36%)	8 (24%)	6 (16%)	13 (30%)	14 (31%)	21 (32%)	17 (25%)	16 (31%)	12 (24%)	124 (28%)
Business & Marketing	10 (39%)	4 (18%)	4 (12%)	5 (13%)	6 (14%)	5 (11%)	13 (20%)	16 (24%)	8 (15%)	12 (24%)	83 (19%)
Mathematics	0 (0%)	2 (9%)	3 (9%)	7 (18%)	3 (7%)	12 (27%)	15 (23%)	15 (22%)	12 (23%)	12 (24%)	81 (18%)
English	0 (0%)	0 (0%)	4 (12%)	4 (11%)	8 (19%)	10 (22%)	8 (12%)	11 (16%)	10 (19%)	4 (8%)	59 (13%)
Foreign Languages	3 (12%)	6 (27%)	2 (6%)	7 (18%)	5 (12%)	2 (4%)	6 (9%)	5 (8%)	5 (9%)	4 (8%)	45 (10%)
Technology Education	3 (12%)	2 (9%)	3 (9%)	5 (13%)	6 (14%)	2 (4%)	2 (3%)	3 (5%)	1 (2%)	4 (8%)	31 (7%)
Other	1 (4%)	0 (0%)	9 (27%)	4 (11%)	2 (5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	16 (4%)
Music	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	2 (4%)	2 (0.4%)
PRIOR CERTIFICATION											
Yes	2 (8%)	0 (0%)	0 (0%)	0 (0%)	3 (7%)	1 (2%)	0 (0%)	0 (0%)	0 (0%)	1 (3%)	7 (2%)
PRIOR ED COURSES											
None	10 (40%)	13 (62%)	19 (61%)	19 (51%)	30 (73%)	32 (78%)	40 (69%)	42 (72%)	35 (76%)	21 (68%)	261 (67%)
One or More	15 (60%)	8 (38%)	12 (39%)	18 (49%)	11 (27%)	9 (22%)	18 (31%)	16 (28%)	11 (24%)	10 (32%)	128 (33%)

COHORT:	ARTC 2007										
	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	TOTAL
EMPLOYMENT IN YEAR PRIOR TO ARTC											
Business	11 (44%)	6 (27%)	12 (39%)	14 (38%)	16 (40%)	15 (37%)	19 (33%)	12 (20%)	10 (21%)	9 (29%)	124 (31%)
Industry	5 (20%)	5 (23%)	4 (13%)	5 (14%)	10 (24%)	10 (24%)	12 (21%)	17 (28%)	9 (19%)	2 (7%)	79 (20%)
Government or Social Services	1 (4%)	3 (14%)	3 (10%)	4 (11%)	2 (5%)	3 (7%)	6 (10%)	3 (5%)	4 (9%)	2 (7%)	31 (8%)
Full-time Teaching	6 (24%)	5 (23%)	6 (19%)	7 (19%)	5 (12%)	4 (10%)	7 (12%)	11 (18%)	1 (2%)	0 (0%)	52 (13%)
Part-time Teaching	1 (4%)	1 (5%)	4 (13%)	3 (8%)	3 (7%)	1 (2%)	6 (10%)	8 (14%)	13 (28%)	7 (23%)	47 (12%)
Full-time Student	1 (4%)	1 (5%)	2 (6%)	4 (10%)	5 (12%)	7 (17%)	8 (14%)	8 (14%)	8 (17%)	8 (26%)	52 (13%)
At Home or Unemployed	0 (0%)	1 (5%)	0 (0%)	0 (0%)	0 (0%)	1 (3%)	0 (0%)	1 (2%)	2 (4%)	4 (13%)	9 (2%)
RELATED EXPERIENCE <i>(percentages within cohort may exceed 100%)</i>											
Substitute Teacher	6 (24%)	6 (27%)	14 (45%)	17 (46%)	15 (36%)	11 (27%)	20 (34%)	17 (29%)	16 (35%)	9 (29%)	131 (33%)
Youth Program Volunteer	3 (12%)	6 (27%)	13 (42%)	13 (35%)	19 (45%)	13 (32%)	26 (44%)	19 (33%)	16 (35%)	11 (36%)	139 (35%)
Full- or Part-Time Teacher	8 (32%)	6 (27%)	13 (42%)	10 (27%)	14(33%)	8 (20%)	16 (28%)	15 (26%)	7 (15%)	6 (19%)	103 (26%)
Teacher in Business or Military	1 (4%)	5 (23%)	7 (23%)	13 (35%)	13 (31%)	10 (24%)	18 (31%)	10 (17%)	13 (28%)	5 (17%)	95 (24%)
Classroom Aide or Para	5 (20%)	6 (27%)	9 (29%)	10 (27%)	8 (19%)	4 (10%)	17 (29%)	12 (21%)	7 (15%)	4 (13%)	82 (21%)
Youth Coach	2 (8%)	3 (14%)	10 (32%)	9 (24%)	7 (17%)	7 (17%)	15 (26%)	9 (16%)	6 (13%)	6 (19%)	74 (19%)
College Teacher	3 (12%)	4 (18%)	7 (23%)	9 (24%)	10 (24%)	8 (20%)	12 (21%)	8 (14%)	12 (26%)	2 (7%)	75 (19%)
School Volunteer	2 (8%)	6 (27%)	1 (3%)	9 (24%)	6 (14%)	5 (12%)	11 (19%)	8 (14%)	9 (20%)	4 (13%)	61 (16%)
Camp Counselor	1 (4%)	3 (14%)	6 (19%)	2 (5%)	10 (24%)	6 (15%)	18 (31%)	7 (12%)	7 (15%)	4 (13%)	64 (16%)

APPENDIX C
Attrition Among Candidates Enrolled in ARTC Courses
1997 – 1998 to 2006 – 2007 Cohorts

COHORT:	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	TOTAL
Candidates Enrolled	26	22	33	38	43	45	65	67	52	50	441
Completed / Certified	17	17	28	31	33	37	50	54	26	1	293
Still Completing ARTC Courses	0	0	0	0	0	0	2	3	20	45	73
Did Not Complete ARTC Courses	9	5	5	7	10	8	13	10	6	4	77
Percent Attrition	35%	23%	15%	18%	23%	18%	20%	15%	12%	8%	17%

REASONS FOR NOT COMPLETING

Candidates Who Left Due to Unsatisfactory Performance in Courses and/or in the Classroom	4	3	3	4	8	5	8	3	2	2	42 55%
Candidates Who Withdrew For Personal Reasons:	5	2	2	3	2	3	5	7	4	2	35 45%
<i>Completed Certification Via Another Route</i>	2							1			3
<i>Took Other DE School Position (elementary; counseling; private)</i>	1	1					1				3
<i>Position eliminated</i>			1	1	1		1	1		1	6
<i>Life Changes (move out-of-state; start a family)</i>		1	1	2		1	2	4	4		15
<i>Left Teaching</i>	2				1			1		1	5
<i>Reason Unknown</i>						2	1				3

APPENDIX D
Comparison of Candidates Who Completed
Versus Those Who Did Not
1997 – 1998 to 2006 – 2007 Cohorts

	PROPORTION OF CANDIDATES ENROLLED WHO ...	
	COMPLETED ARTC COURSES	DID NOT COMPLETE ARTC COURSES
NUMBER OF CANDIDATES	295	77
GENDER		
Female	84%	16%
Male	74%	26%
MINORITY STATUS		
African-American	79%	21%
Hispanic	77%	23%
Asian & Other	50%	50%
White	80%	20%
AGE		
20 – 29	81%	19%
30 – 39	84%	16%
40 – 49	77%	23%
50 +	56%	46%
HIGHEST DEGREE EARNED		
Bachelor's	83%	17%
Master's or Doctorate	80%	20%
GPA FOR HIGHEST DEGREE		
2.0 - 2.4	85%	15%
2.5 - 2.9	86%	14%
3.0 - 3.4	88%	12%
3.5 - 4.0	87%	13%
GEOGRAPHIC LOCATION		
New Castle County	80%	20%
Kent & Sussex Counties	77%	23%
LEVEL TAUGHT		
High School	77%	23%
Middle School	90%	10%

**PROPORTION OF CANDIDATES ENROLLED
WHO . . .**

	COMPLETED ARTC COURSES	DID NOT COMPLETE ARTC COURSES
--	-----------------------------------	--

SUBJECT AREA

Business	90%	10%
English	75%	25%
Foreign Languages	73%	27%
Mathematics	84%	16%
Sciences	73%	27%
Technology Education	77%	23%

PRIOR EDUCATION COURSES

None	82%	18%
One or More	85%	15%

EMPLOYMENT PRIOR TO ARTC

Industry	84%	16%
Business	81%	19%
Government or Social Services	81%	19%
Full-time Teaching	82%	18%
Part-time Teaching	89%	11%
Full-Time Student	76%	24%
At Home/Unemployed	100%	

PRIOR RELATED EXPERIENCE

Substitute Teacher	81%	19%
Full- or Part-Time Teacher	85%	15%
Youth Program Volunteer	87%	13%
Classroom Aide or Paraprofessional	71%	29%
Youth Coach	83%	17%
Teacher in Business/Military	80%	20%
College Teaching	79%	21%
School Volunteer	83%	17%
Camp Counselor	89%	11%

APPENDIX E

Retention of ARTC Graduates

COHORT:	2001-02	2002 -03	2003-04	2004-05	2005-06	TOTAL
Employed in DE Public or Charter Secondary School	20 (61%)	24 (65%)	38 (76%)	49 (91%)	25 (96%)	156 (78%)
Resigned for Personal Reasons	11 (33%)	13 (35%)	11 (22%)	4 (7%)	1 (4%)	40 (20%)
<i>to teach in a DE public or charter school</i>	1					
<i>to teach in a DE private school</i>	1	2	1			
<i>to teach in a DE college or adult education program</i>		1		2		
<i>to teach in another state</i>	5	5	2	1	1	
<i>to enroll in graduate school</i>		1				
<i>for medical reasons; deceased</i>	1					
<i>to raise a family</i>		1	3			
<i>to return to prior job</i>	1	1	2			
<i>Position eliminated</i>			2			
<i>Unknown reasons</i>	2	1	1	1		
<i>Personal reasons</i>		1				
Not Renewed	2 (6%)		1 (2%)	1 (2%)		4 (2%)
TOTAL	33 (17%)	37 (18%)	50 (25%)	54 (27%)	26 (13%)	200 (100%)

APPENDIX F

Certification and Tenure Status of ARTC Graduates

Certification Status of ARTC Graduates

COHORT:	2001 – 2002	2002 – 2003	2003 – 2004	2004 – 2005	2005-2006	TOTAL
Standard Certificate	32 (100%)	33 (100%)	48 (100%)	44 (85%)	13 (50%)	170 (89%)
Emergency				8 (15%)	13 (50%)	21 (11%)
TOTAL						191 (100%)

Tenure Status of ARTC Graduates

COHORT:	2001 – 2002	2002 – 2003	2003 – 2004	2004 – 2005	2005-2006	TOTAL
Already Tenured	21 (84%)	27 (96%)	35 (92%)	13 (27%)	0 (0%)	96 (59%)
Not Applicable*	4 (16%)	1 (4%)	2 (5%)	2 (4%)	4 (17%)	13 (8%)
Not Yet Eligible			1 (3%)	34 (69%)	20 (83%)	55 (33%)
TOTAL						164 (100%)

* employed as school administrator, or in a charter, private, or state school, where tenure is not applicable

APPENDIX G

Supervisor Survey Returns and Ratings

2005 Supervisor Survey Returns

COHORT:	2001 – 2002	2002 – 2003	2003 – 2004	2004 - 2005	2005-2006	TOTAL
Completed ARTC Courses	33	37	50	54	26	200
Not Applicable*	4	1	3		1	9
Not Teaching in a Target School	13	13	12	5	1	44
FINAL SAMPLE	16	23	35	49	24	147

*eg. completed courses too late for survey; recently employed in new school.

Based on Your Experience with Other Teachers at Similar Points in Their Careers, How Would You Compare the Overall Performance of Your ARTC Teacher?

COHORT:	2001 – 2002	2002 – 2003	2003 – 2004	2004 - 2005	2005-2006	TOTAL
5 = Much Better	3 (21%)	5 (24%)	13 (40%)	15 (33%)	11 (48%)	47 (34%)
4 = Somewhat Better	5 (36%)	7 (33%)	8 (24%)	15 (33%)	6 (26%)	41 (30%)
3 = About the Same	5 (36%)	8 (38%)	11 (33%)	11 (24%)	5 (22%)	40 (29%)
2 = Somewhat Poorer		1 (5%)	1 (3%)	4 (9%)	1 (4%)	7 (5%)
1 = Much Poorer	1 (7%)			1 (2%)		2 (2%)
TOTAL	14 (10%)	21 (15%)	33 (24%)	46 (34%)	23 (17%)	137 (100%)
Mean	3.6	3.8	4.0	3.9	4.2	3.9
Standard Deviation	1.08	.89	.94	1.05	.94	0.98

How Would You Rate This Teacher's . . .

	COHORT:		2001 – 2002		2002 – 2003		2003 – 2004		2004 - 2005		2005-2006		TOTAL	
	N =		16		25		25		43		38		147	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	
knowledge of subject matter?		4.44	.73	4.04	.83	4.24	.63	4.43	.65	4.42	.65	4.33	.69	
conscientiousness as a teacher?		4.38	.72	3.91	.90	4.29	.97	4.22	.92	4.54	.59	4.28	.82	
rapport with students?		4.00	1.21	4.13	.92	4.12	1.02	4.35	.81	4.38	.58	4.24	.85	
use of effective instructional strategies?		4.00	1.10	3.57	.99	4.00	.92	3.82	1.07	3.96	.81	3.86	.97	
ability to engage students in active learning?		3.81	1.28	3.87	.92	4.06	.98	3.92	1.04	4.00	.83	3.94	.98	
management of student behavior & activities?		3.94	1.34	3.91	.90	4.03	.94	3.86	1.08	4.00	.93	3.94	1.02	

SCALE: 1 = very weak, 2 = weak, 3 = adequate, 4 = strong, 5 = very strong

Supervisor Responses: Based on your Experience with this Teacher, How Likely is it that you would Recommend Hiring an ARTC Teacher in the Future?

	COHORT:	2001 – 2002	2002 – 2003	2003 – 2004	2004 - 2005	2005-2006	TOTAL
very likely		10 (63%)	16 (70%)	23 (70%)	34 (72%)	16 (73%)	99 (70%)
somewhat likely		6 (37%)	7 (30%)	10 (30%)	11 (24%)	5 (23%)	39 (28%)
not at all likely					1 (2%)		1 (1%)
Don't know					1 (2%)	1 (4%)	2 (1%)
TOTAL		16 (11%)	23 (16%)	33 (24%)	47 (33%)	22 (16%)	141 (100%)

Appendix H

Survey of Supervisors of ARTC Graduates

ARTC Teacher: «FIRST» «LAST»

School: «SCHOOL»

Name of Supervisor (*please correct*): «SUPERVISOR»

I. Are ARTC teachers STAYING?

Is this teacher still teaching in your school? yes no

If no, has this teacher taken a job at another school? where? _____
 left teaching? when? _____
 why? resigned not renewed
 other: _____

II. Are ARTC teachers SUCCEEDING?

Based on your experience, how would you compare the **OVERALL PERFORMANCE** of this teacher with that of other teachers at similar points in their careers?

much poorer somewhat poorer about the same somewhat better much better

How would you rate this teacher's . . .

	<i>don't know</i>	<i>very weak</i>	<i>weak</i>	<i>adequate</i>	<i>strong</i>	<i>very strong</i>
knowledge of subject matter?	0	1	2	3	4	5
use of effective instructional strategies?	0	1	2	3	4	5
ability to engage students in active learning?	0	1	2	3	4	5
rapport with students?	0	1	2	3	4	5
management of student behavior and activities?	0	1	2	3	4	5
conscientiousness as a teacher?	0	1	2	3	4	5

Is this teacher **ALREADY TENURED**? yes not yet eligible not applicable not sure

If applicable, **WILL YOU RECOMMEND** this teacher for tenure? yes no not sure

Based on your experience with **THIS TEACHER**, how likely is it that you would recommend hiring an ARTC teacher in the future?

don't know not at all likely somewhat likely very likely

Your comments: