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ABSTRACT

Tech prep final project reports for the 1991-92 school year submitted by participating consortia members in North Carolina were analyzed to compile a data summary. (Tech prep is a focused, sequential 6-year course of study for high school and technical college students in North Carolina.) Data for the summary were gathered from an instrument developed by the North Carolina Departments of Public Instruction and Community Colleges and distributed to all 41 tech prep consortia members. Analysis of the data gathered with the questionnaires showed that approximately 7,000 teachers and staff were involved in tech prep during the year, with about 20 percent involved on the secondary level. Student involvement in the tech prep programs grew during the year, as enrollment in general education courses dropped. A small number of special population students were enrolled in tech prep during the year, but the numbers of those students who had preregistered for the following school year increased. Most students enrolled in tech prep were performing at or above their grade levels. During the year, staff orientation was completed, study guides were developed, and curriculums were enhanced. The study concluded that tech prep programs are helping the state make substantial progress toward a goal of preparing 85 percent of all high school graduates in a college prep or college preparatory course of study. The number of consortia offering tech prep increased from 41 to 45 for the following school year, and administrative and staff size grew by more than 50 percent for the 1990-91 to the 1991-92 year. The tech prep programs were moving from initial planning phases into fully implemented curricula. (The report includes 25 figures, 5 tables, and a list of the participating consortia.) (KC)

ED 365 865

1991-1992
Final Report

Tech Prep Planning and Implementation Grants

North Carolina Department of Public Instruction
Bob Etheridge, Superintendent

North Carolina Department of Community Colleges
Bob Scott, President

ACKNOWLEDGEMENTS

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I. Introduction

Tech Prep (Technical Preparation) is a focused, sequential six-year course of study designed to meet the need for high school and community college graduates to have greater academic rigor and a stronger technical educational foundation. Through a blending of higher-level academic and vocational/technical secondary courses, Tech Prep prepares students for advanced courses required by two-year technical and community college programs, which in turn prepares workers for increasingly sophisticated occupations. At present, the North Carolina Department of Public Instruction (DPI) and Department of Community Colleges (DCC) provide grants to Tech Prep consortia based upon competitive proposals received from all interested local education agencies (LEAs) who have developed agreements with community colleges or other post secondary institutions to provide a 2 + 2 + 2 year educational program consisting of two years of secondary preparatory course work (grades 9 and 10), two years of occupational/technical-specific and advanced academic secondary course work (grades 11 and 12), and followed by two years post secondary course work leading to the associate degree or certificate of completion.

The following report is a summary of Tech Prep final project reports for the 1991/92 school year submitted by participating consortia members. The data presented in this summary were gathered from a multi-question instrument developed by DPI and DCC distributed to all Tech Prep consortia members for on-site completion during the fall semester, 1992. Completed sheets were received from all consortia members. Unless otherwise noted, summarized data presented in this report are based directly upon responses submitted by consortia members. Where incomplete data were submitted, this summary report relied upon random or stratified sampling techniques performed by DPI personnel. It should be noted that the data contained herein are for relative comparison purposes and do not represent complete reliability or accuracy beyond reasonable tolerances expected from self-reported questionnaires.

II. Tech Prep Demographics

Funding

During the 1991/92 school year, 41 Tech Prep Consortia were funded through Title III of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990 (Perkins Act). These are listed in Appendix A. A total of 40 requests for planning grants were received from which 23 were selected for funding. Another 36 consortia requested funding for continued implementation of previously planned or partially implemented Tech Prep programs. From that number, 18 were selected for funding. In total, 65 LEAs participated in Perkins Act-funded Tech Prep planning or implementation consortia during 1991/92. Thirty-six community colleges participated in consortia. Some community colleges participated simultaneously in both planning and implementation projects. A total of $1,846,862.71 was allotted from Perkins Act funds, of which $1,798,532.00 were expended during the 1991/92 school year.

Personnel Involved

Figure 1 presents the aggregated total of personnel who participated in Tech Prep activities during 1991/92. A breakdown of secondary and post secondary staff participation is presented in Figure 2. Table 1 provides a detailed description of all personnel, including students and parents.

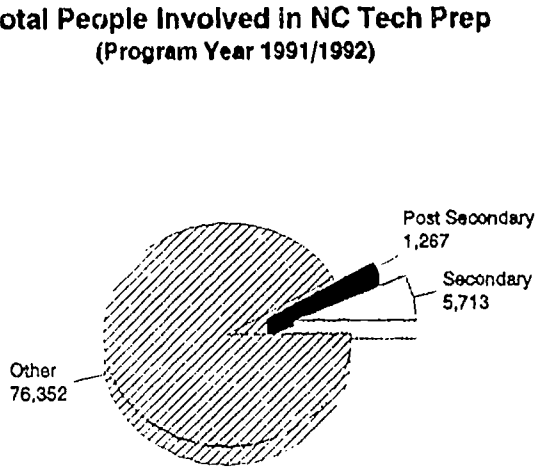

Figure 1
Total Groups Involved

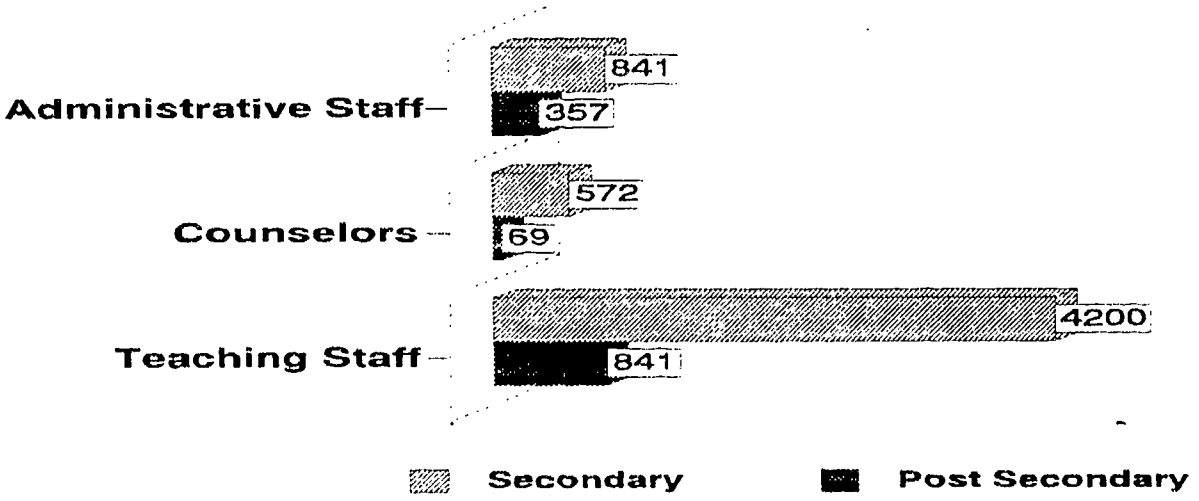

Figure 2
Secondary and Post Secondary Personnel

Table 1

Tech Prep Participants by Group

		Secondary	Post Secondary
Teachers	Vocational Education	1,695	587
	Academic:		
	Math	576	61
	Science	456	60
	Communication Skills	625	63
	Social Studies	328	27
	Other	520	43
Counselors		572	69
Administration	Superintendents	61	
	Assistant/Associate Superintendents	102	
	Program Directors	167	
	Principals	246	
	Assistant Principals	306	
	Presidents		45
	Deans		85
	Department Chairs		135
	Other	59	92
Others	School Board Members	346	N/A
	Board Trustees		379
	Chamber of Commerce Members	509	(Inclusive)
	Business/Industry	1156	(Inclusive)
	Advisory Groups	1244	(Inclusive)
	Non-DPI/DCC Government Staff	151	(Inclusive)
	Parents	14,233	N/Available
	Students	58,284	N/Available
	Other	50	(Inclusive)

Student Demographics

This section presents demographic data relating to Tech Prep students. No data were collected separately for secondary and post secondary Tech Prep students. Because of the relative newness of Tech Prep as funded by the Perkins Act, it is reasonable to believe that, during the 1991/92 school year, few secondary students had completed an entire four year secondary Tech Prep educational program. Therefore, the data should be interpreted as representative of the number of secondary students participating in Tech Prep. Subsequent years will see the fruition of the Tech Prep movement and will, therefore, see increasing numbers of secondary graduates entering the community college system.

The data presented are based upon percentages of the whole. However, in some cases sections of the data instrument were returned with either incomplete or missing data. In those instances where data were incomplete or missing, DPI staff used either random sampling or stratified random sampling techniques to approximate percentage levels. Such instances are noted where applicable.

Student enrollment data for 1991/92 and 1992/93 pre-registration numbers were collected for five major academic categories - General Education, Regular Vocational/Technical Education, Technical Preparation, College Preparation, and Vocational/Occupational Preparation. Percentages of students grouped by these five major academic program areas are presented in Figure 3. Percentages were calculated based upon random sampling of participating LEAs. Percentage decrease or increase from 1991/92 to 1992/93 are also presented. The greatest changes occurred with a 24% drop in General Education curricula enrollment, 24% drop in Regular Vocational/Technical curricula enrollment, and a 14% increase in Tech Prep curricula enrollment.

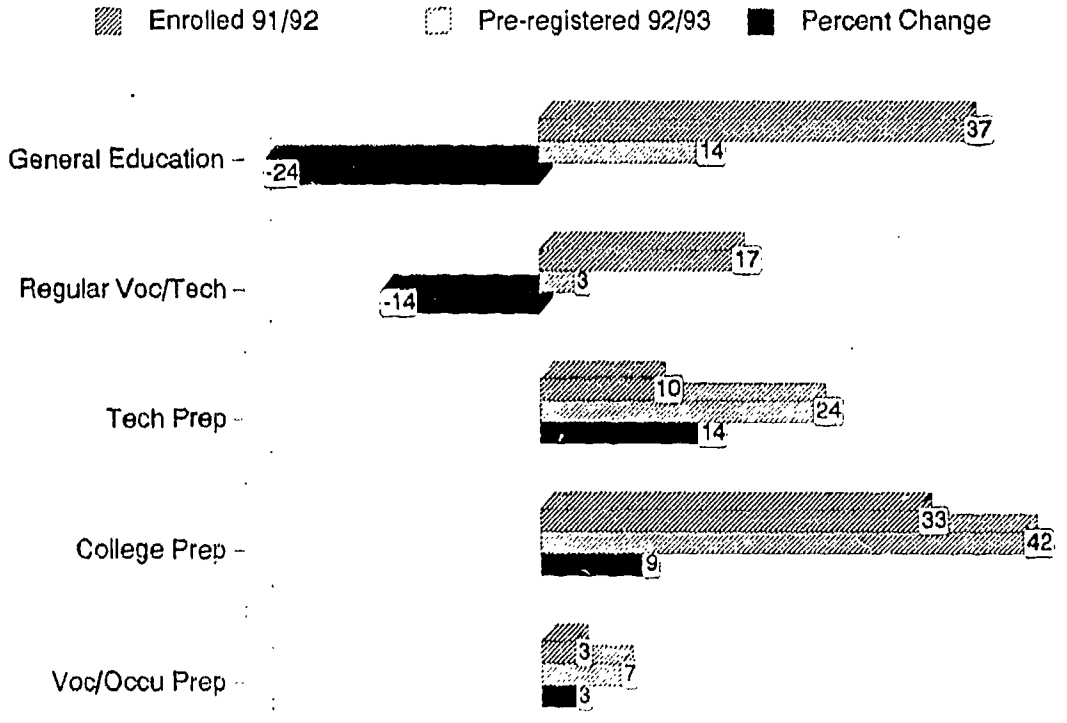

Figure 3
Enrollment by Curricula Area

Total student enrollment data were collected by race for each LEA that received either a Tech Prep planning or implementation grant in 1991/92. A comparison of non-white minority and white majority student enrollments in participating LEAs is presented in Figure 4. These data represent total student population rather than Tech Prep students solely. Percentages were derived from random sample of completed reports and validated against state-level enrollment data. Actual numbers from state-level counts are 128,980 (91/92) and 144,855 (92/93).

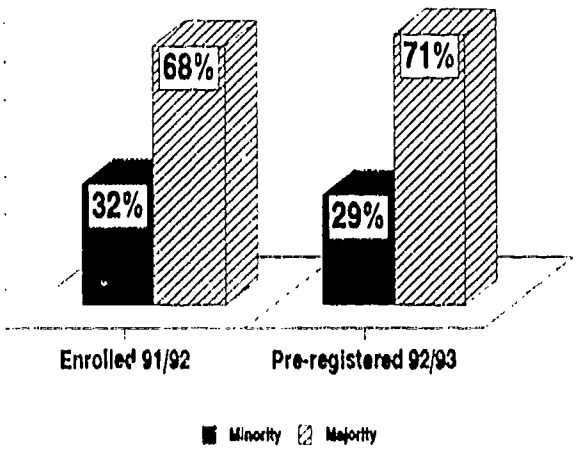

Figure 4
Total LEA Enrollment

Student enrollment data collected by race and gender were also grouped by general academic area. These data are presented in Figure 5. Percentages were calculated from completed summary questionnaires submitted by consortia members. Data were calculated using figures from completed summary sheets, and, therefore, should be considered as a sample rather than definitive values.

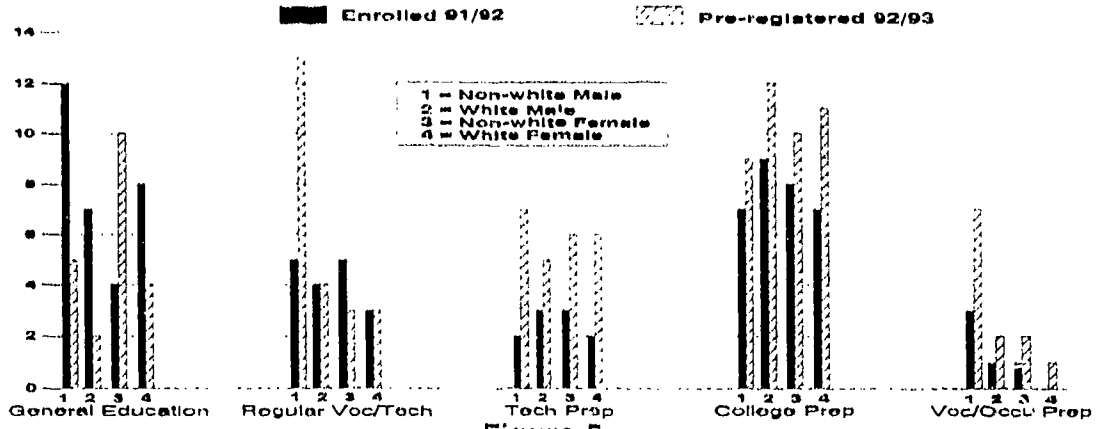

Figure 5
Student Enrollment by Race, Gender, and Program Area

Student enrollment data grouped by race and gender and grouped by specific courses are presented in Figures 6 - 18. Percentages were calculated using data only from completed summary questionnaires submitted by consortia members, and, therefore, should be considered as a sample rather than definitive values.

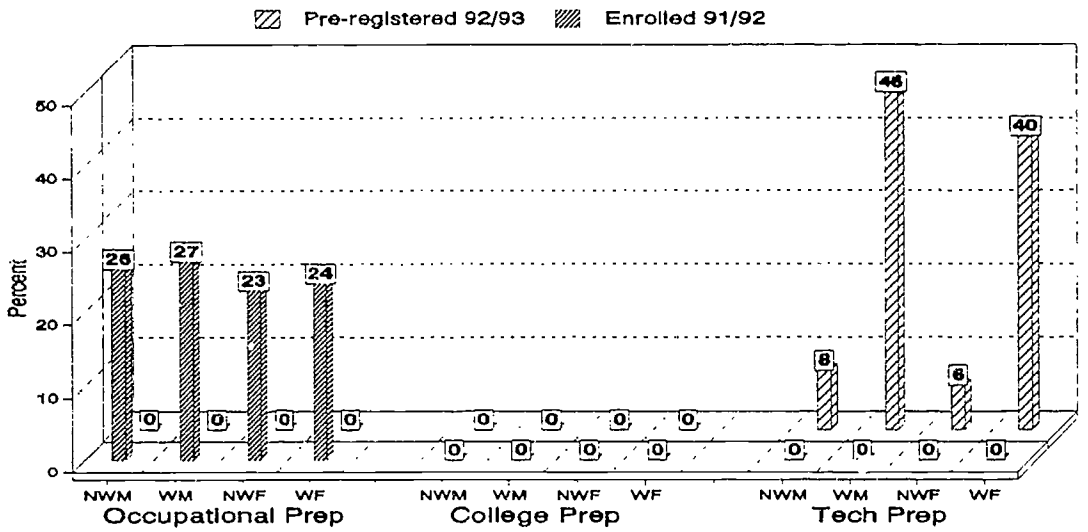

Figure 6
Pre-Algebra

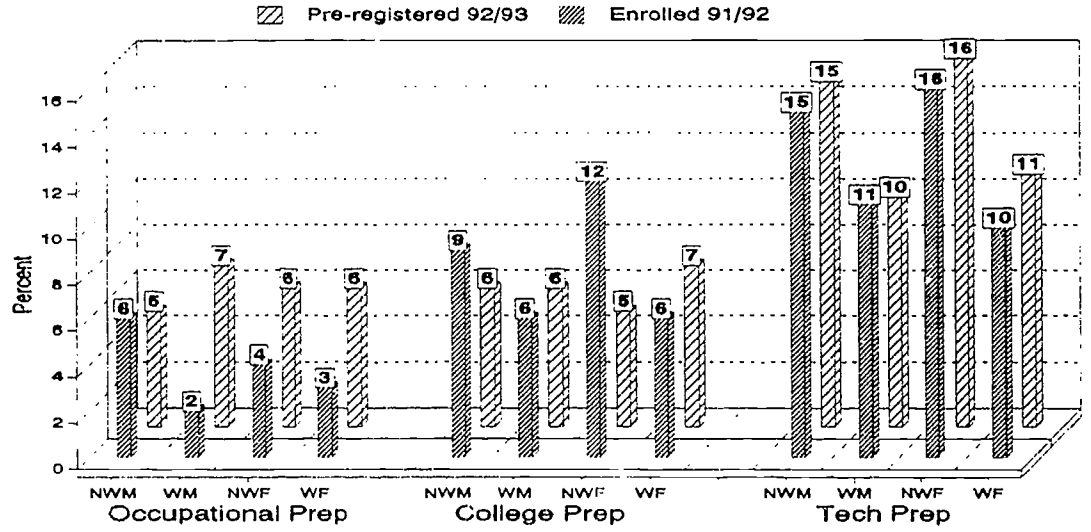

Figure 7
Algebra I–A

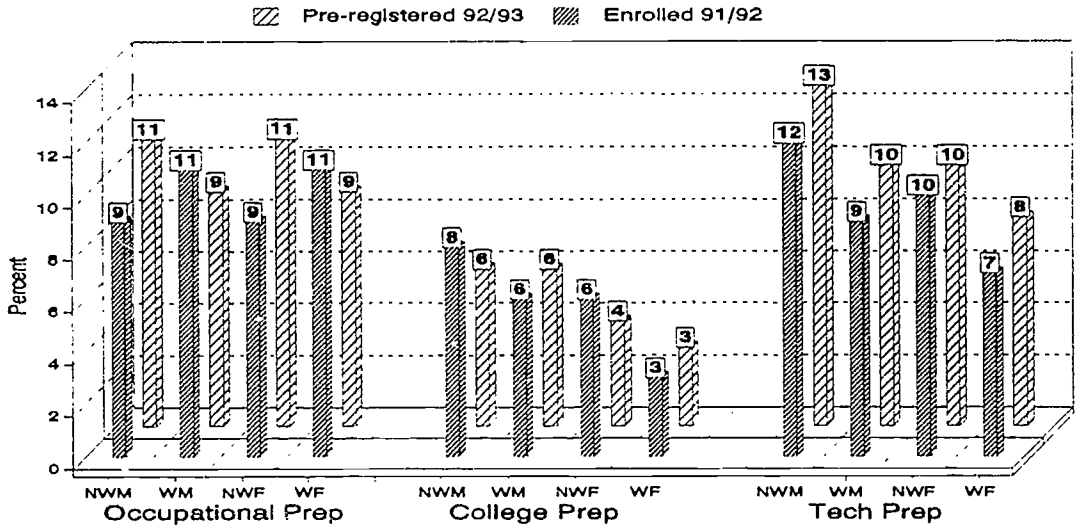

Figure 8
Algebra I–B

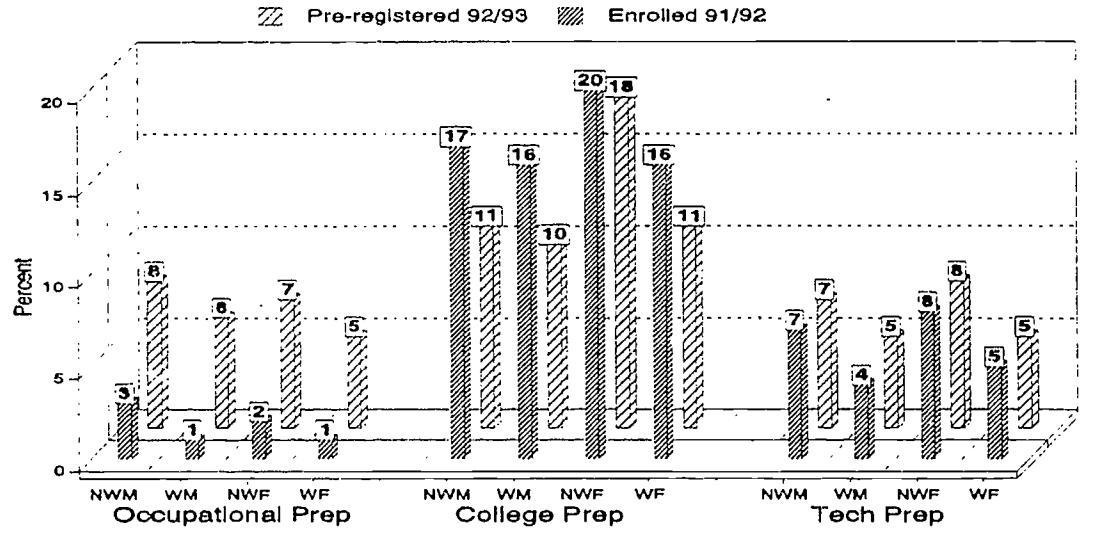

Figure 9
Algebra I

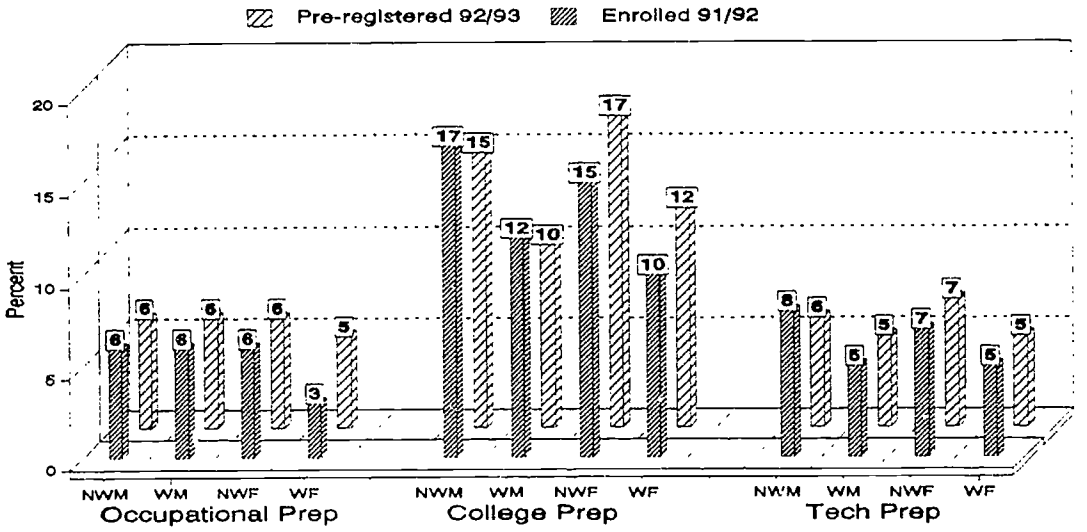

Figure 10
Algebra II

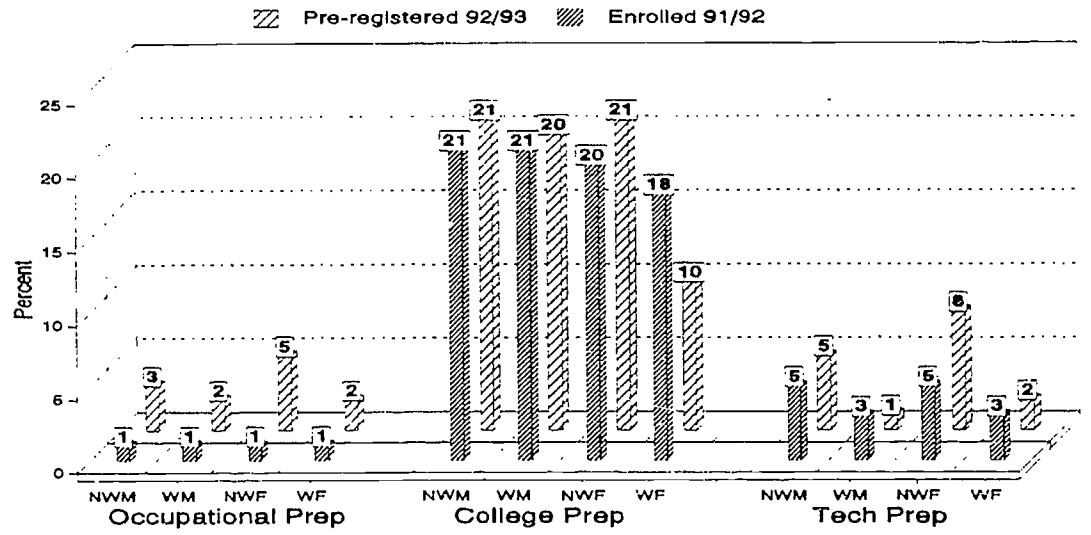

Figure 11
Geometry

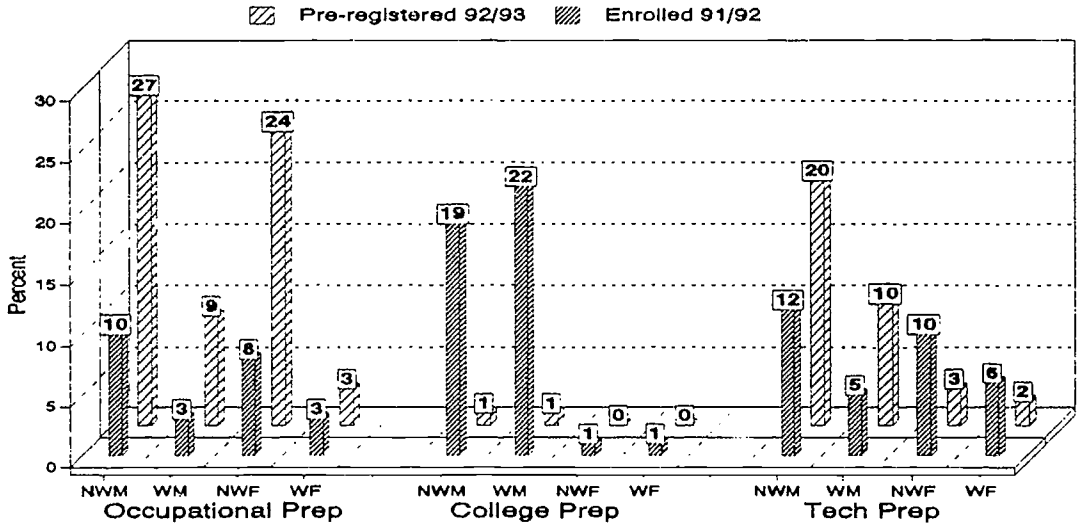

Figure 12
Technical Math

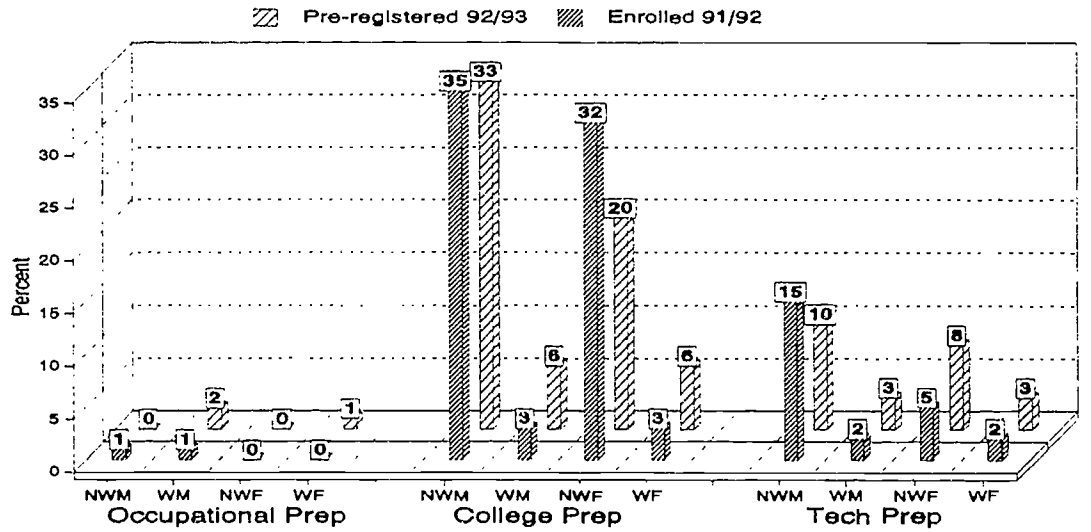

Figure 13
Principles of Technology I

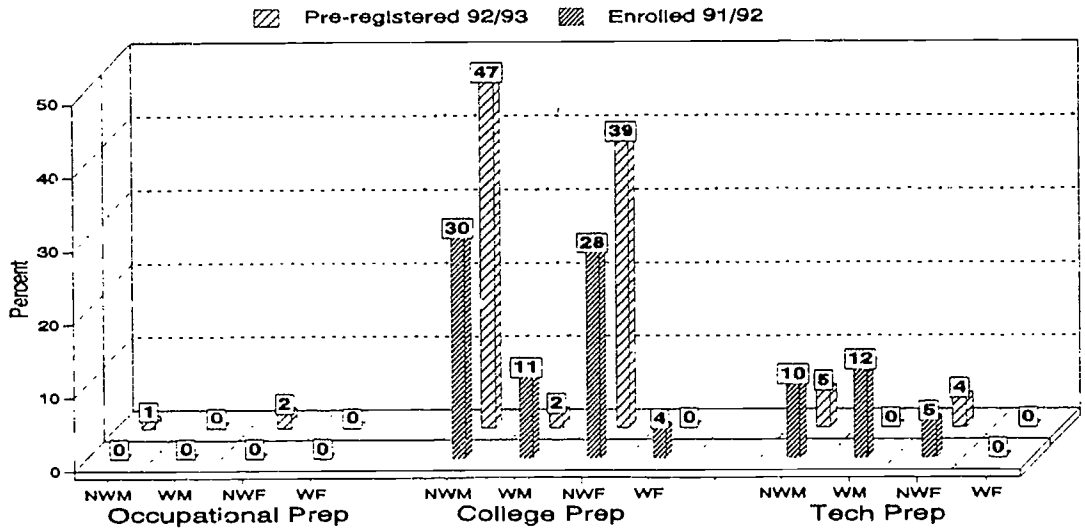

Figure 14
Principles of Technology II

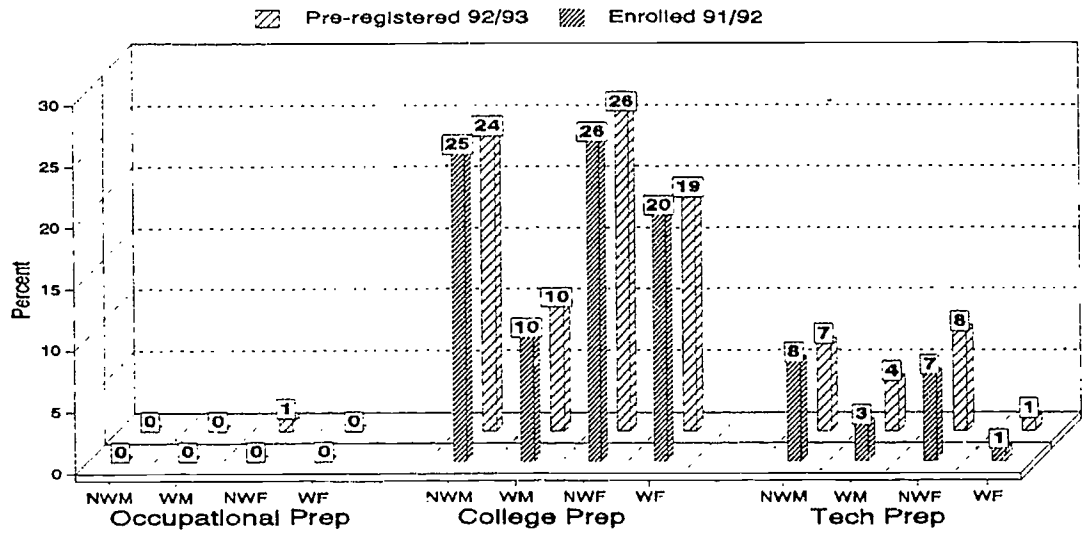

Figure 15
Chemistry

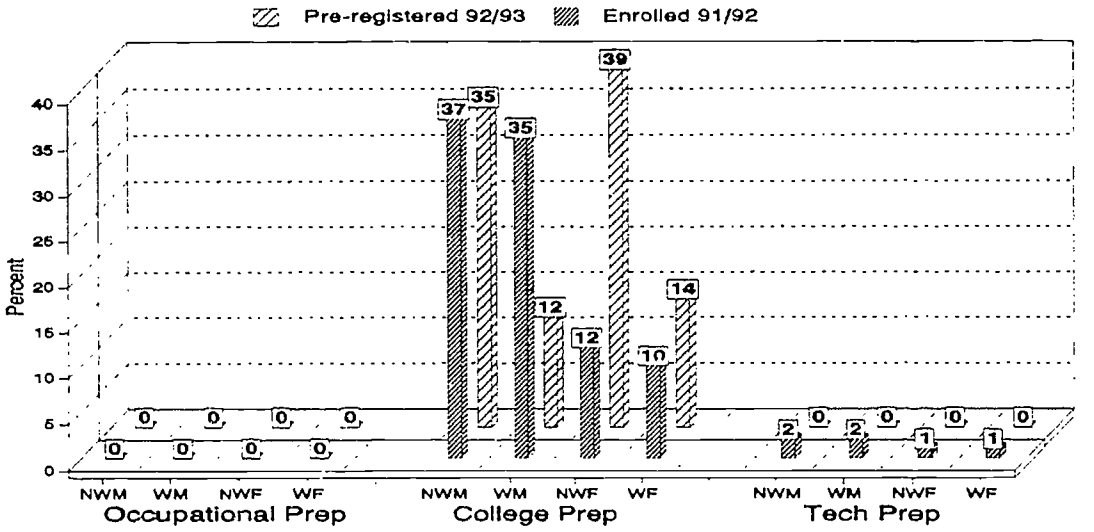

Figure 16
Physics

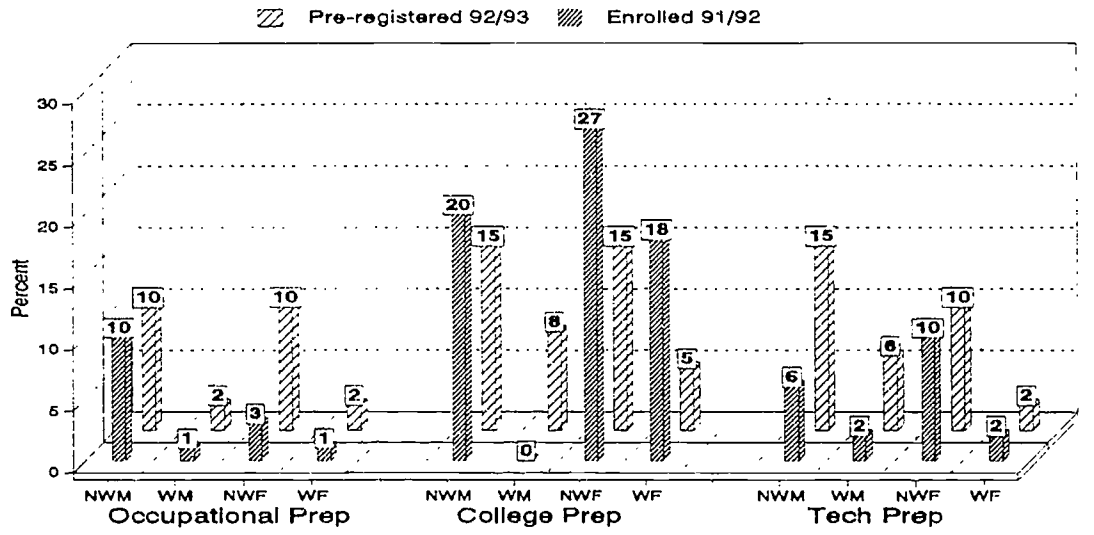

Figure 17
Economics

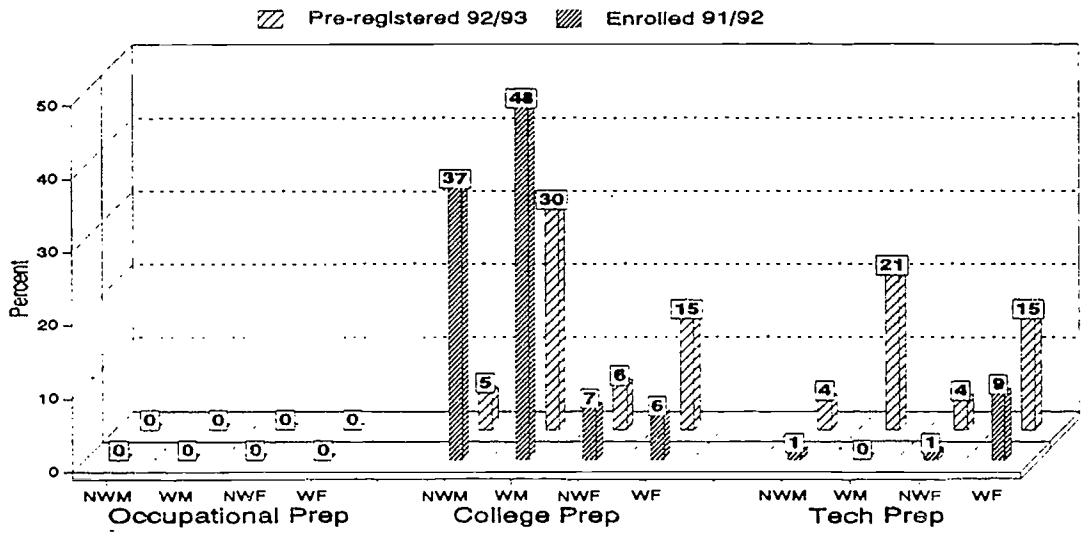

Figure 18
Government

Special Population Enrollment

Percentages of students who are members of special populations are presented in Figures 18, 19, and 20. The data have been grouped into three categories - handicapped, disadvantaged, and limited English proficiency (LEP). Incomplete data for these categories were provided by many participating consortia. Therefore, DPI personnel used stratified random sampling techniques to calculate the percentages presented.

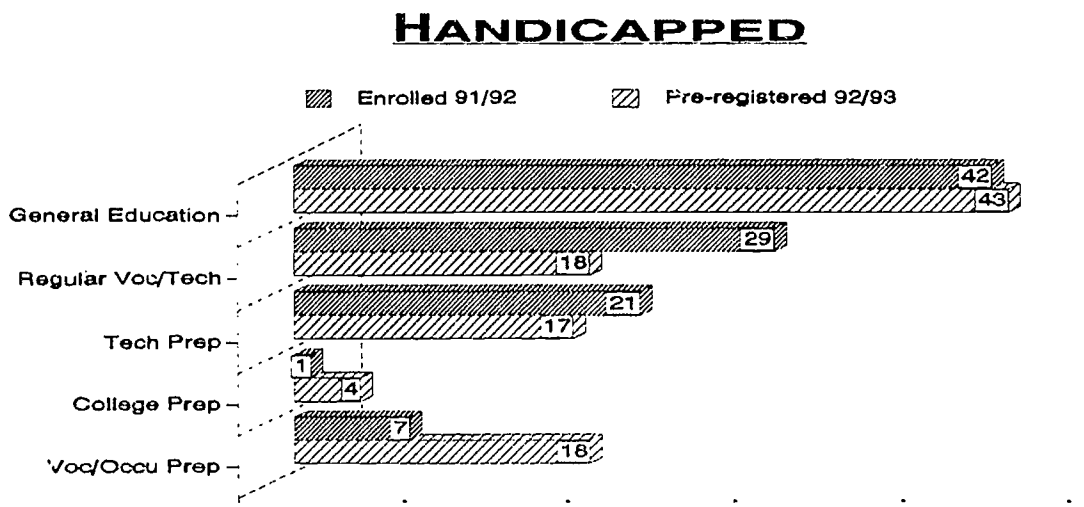

Figure 19
Special Population Enrollment (Handicapped)

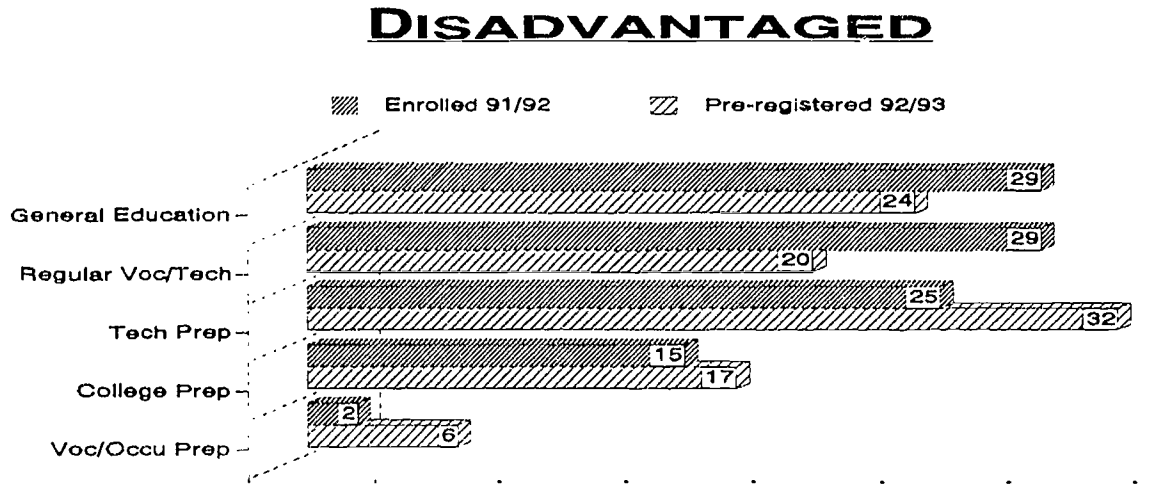

Figure 20
Special Population Enrollment (Disadvantaged)

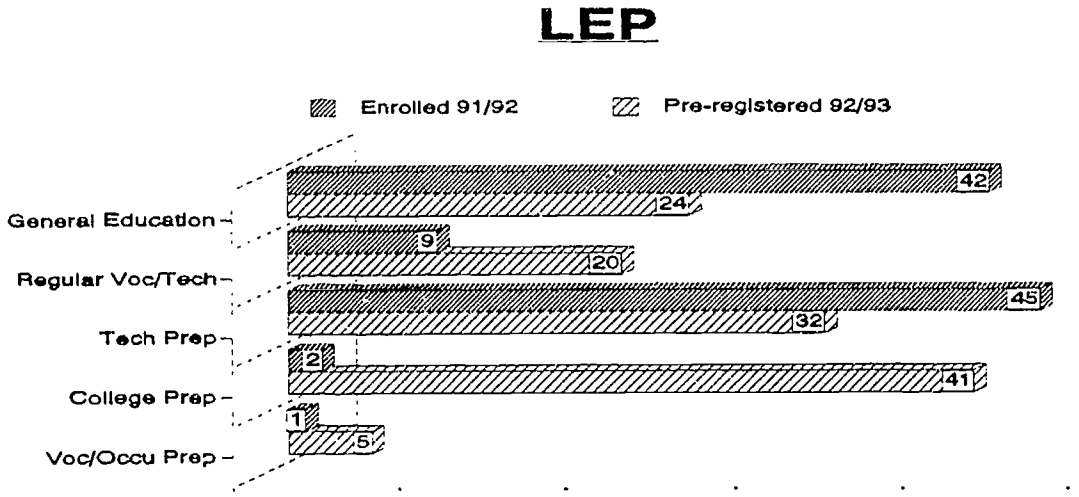

Figure 21
Special Population Enrollment (LEP)

Student Performance

Data were calculated to determine at what level students were performing academic work for the 1991/92 school year. These data were projected and contrasted with pre-registration patterns for the 1992/93 school year. The data are presented in Figure 22. Complete data for 1991/92 were provided by 29 LEAs, and 32 LEAs provided 1992/93 data. Percentages presented were extrapolated from completed summary sheets. Percentages are for within-curricula areas comparison, i.e., 1991/92 math performance compared with 1992/93 pre-registration patterns.

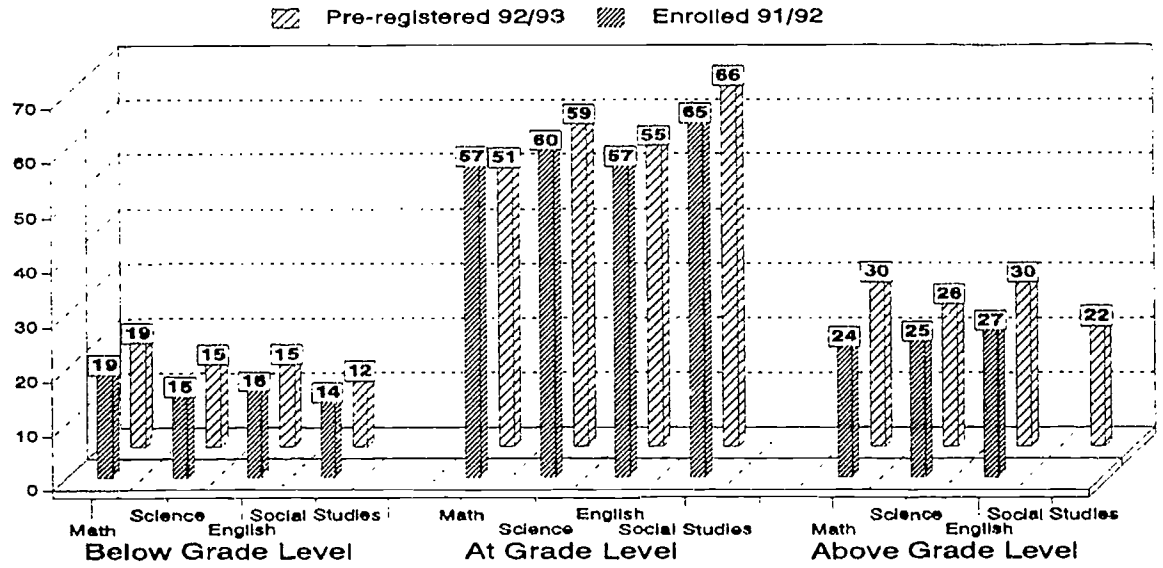

Figure 22
Grade Level Mastery

Pursuits of Secondary Graduates

Data were collected to compare post-graduation pursuits of 1990/91 secondary graduates with those who graduated in 1991/92. The data presented were calculated by DPI personnel using stratified random sampling techniques.

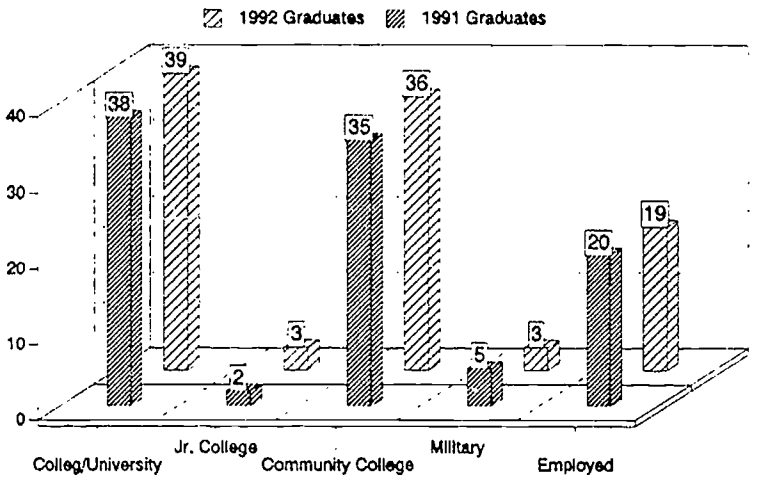

Figure 23
Pursuits of Secondary Graduates
(Percent based on stratified sample)

Figure 24 presents the level of remediation received by 1990/91 secondary graduates who attended post secondary schools during the 1991/92 school year. The data are based on numbers reported by LEAs participating in funded Tech Prep activities during the 1991/92 school year. The values do not account for programmatic impact of Tech Prep since post secondary institutions do not provide separate, verifiable data based upon such categorization.

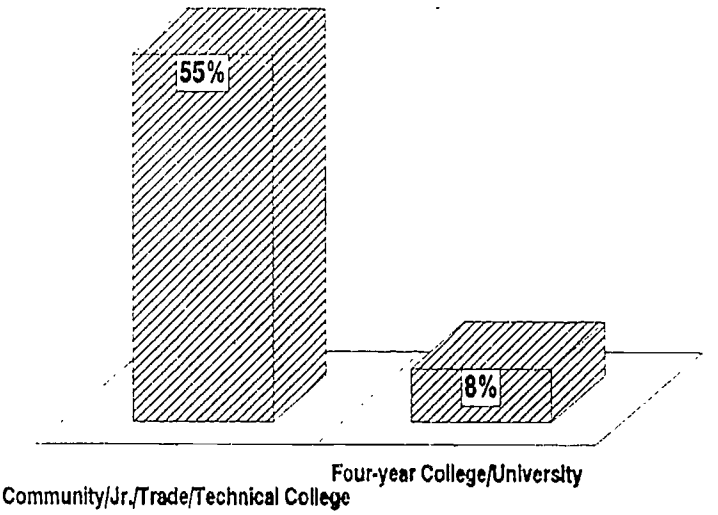

Figure 24
Percent of 1991 Secondary Graduates Receiving Post Secondary Remediation

III. Programmatic Summary

The 1991/92 school year was the first year in which the North Carolina Department of Instruction and the Department of Community Colleges funded Tech Prep projects under Title III of the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. Tech Prep efforts were funded in 1990/91 through grants authorized by the General Assembly through the North Carolina Worker Training Trust Fund and the Celebration North Carolina Program. As a result, Tech Prep state-level funding grew from $280,581.00 during 1990/91 to $1,846,862.71 during the 1991/92 school year. Sixty-one percent of Tech Prep consortia attributed receiving increased funding for Tech Prep from non-Perkins Act sources as a result of Tech Prep activities within the community. The average amount reported was $28,000.00 which was received from local sources such as business and industry donations.

Table 2 presents Tech Prep student enrollment growth from 1990/91 to 1991/92 and includes pre-registration figures for the 1992/93 school year. As can be seen, major student enrollment increases indicate movement from the General Education track toward Tech Prep, College Prep, and Vocational/Occupational Prep career pathways. Thirty eight percent of secondary Tech Prep consortia members reported some level of effort to develop four-year Education Plans for all students in grades 9-12 during the 1991/92 school year. Figure 25 depicts the level (by percentage) of completion for the four-year plans.

Table 2

Student Enrollment Patterns by Course of Study

	General Education	Regular Vocational Education	Tech Prep	College Prep	Vocational / Occupational Preparation
Enrolled 1990/91	4,681	6,306	434	9,337	N/A
Registered 1991/92	1,933	5,944	6,613	10,992	N/A
Enrolled 1991/1992	38,205	16,975	10,850	34,713	3,241
Pre-registered 1992/93	14,906	12,992	24,905	44,075	6,937

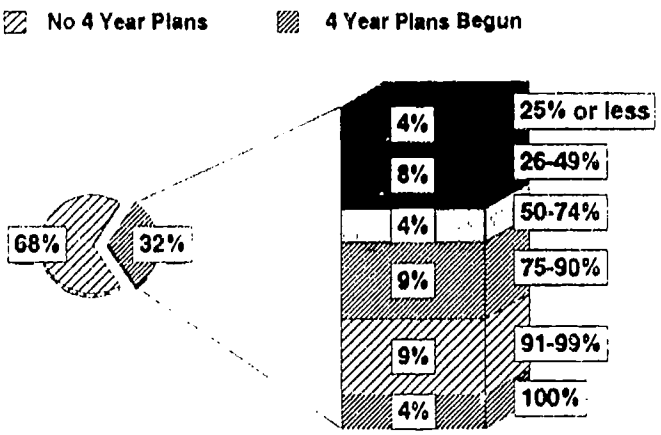

Figure 25
Percent of LEA Effort to Develop 4-year Education Plans

Programmatic Characteristics

Tech Prep consortia funded through the Perkins Act are characterized by several programmatic components. Among these are the requirement to provide orientation to all faculty and staff regarding the nature of Tech Prep as an educational reform initiative and to familiarize the personnel with its implementation. During the 1991/92 school year 29 LEAs reported that all orientation efforts were fully completed, while 14 reported that significant progress had been achieved in such efforts. Reports from LEAs receiving planning grants indicated that orientation and familiarization programs were at various stages of development and delivery.

Tech Prep consortia must also develop policy agreements between participating LEAs and the community college or other post secondary institution providing the final two years of academic work leading to the associate degree or certificate of completion of the Tech Prep curricula. These agreements include statements of intent and points of agreement, and they must be signed by representatives from both the secondary ar.d post secondary institutions. Table 3 present the data for these efforts during the 1991/92 school year. Additionally, 33 consortia reported that Tech Prep Associate Degree Program Agreements between local Boards of Education and community college Boards of Trustee. had been completed during 1991/92. Another ten reported that such agreements were in process at the end of the school year.

Table 3

Status of Tech Prep Policy Agreements Between Consortia Members

	Completed	In Process	Not Initiated
Statement of Intent	38	3	0
Points of Agreement	38	1	2
Signatures of Institutional Representatives	38	2	1

Tech Prep Course of Study Guides were developed and completed by 39 LEAs during the 1991/92 school year. An additional nine LEAs reported that Study Guides were being developed as of the end of the school year. Curriculum matrices were also reported as either completed or being developed during the year. Table 4 presents the curricula areas reported by consortia members.

Table 4

Articulation Agreements Between Boards of Education and Boards of Trustees

(by curriculum area)

	Completed	In Process	Planned (Not Initiated)
Agricultural Education	17	10	14
Business Education	28	11	2
Marketing Education	23	7	9
Home Economics Education	25	10	5

	Completed	In Process	Planned (Not Initiated)
Health Occupations Education	33	12	1
Technology Education	20	11	9
Trade and Industrial Education	28	10	3
Math	13	10	13
Science	15	9	14
English	16	9	13
Social Studies	13	9	19
Criminal Justice	5	0	0

Curricula Upgrades

Tech Prep is intended to promote and emphasize higher order thinking skills throughout the curricula. A number of new courses were added to curricula during the 1991/92 school year in response to this emphasis. These included Principles of Technology, Applied Communications, Technical Math, and Food Science offerings. Additionally, several courses were dropped by many consortia members as students were moved to more rigorous courses of study. These included Basic/General Math, Basic English, and Basic Science. Several consortia also reported increased emphasis on scientific principles and concepts as they upgraded courses in Health Occupations and Agricultural Education.

Computer-assisted learning was introduced in courses such as Drafting, Home Economics, Math, and English. State of the art equipment was added by several consortia. Courses receiving upgrades included Drafting, Electronics Technology, Principles of Technology, and Automotive Technology.

General Enrichment/Enhancement

Consortia members were requested to provide anecdotal responses to a series of questions or statements to determine additional information regarding the year's Tech Prep activities. Among these were the following: (the most often cited responses are listed in order of magnitude)

- Identify the three strongest components of the Tech Prep Program

    1. Administration commitment
    2. Collaboration efforts between schools and local business and industry
    3. Collaboration effort between secondary schools and community colleges

- Describe the impact Tech Prep is having on the local school system

    1. Students are more career oriented
    2. Strengthening the secondary/post secondary school relationships
    4. Improved guidance programs
    5. Increased cooperation between academic and vocational teaching staff

- Identify major staff activities

    Planning Grant recipients

    1. Curricula alignment
    2. Staff orientation
    3. Academic/vocational integration

    Implementation Grant recipients

    1. Academic/vocational integration
    2. Staff orientation
    3. Curricula alignment

Marketing Strategies

Another major focus of Tech Prep activities is the marketing of the program. Table 4 lists representative marketing approaches developed by consortia members during the 1991/92 school year.

Table 5

Tech Prep Program Marketing Activities

Marketing Activity	Percent
Newsletters	50
Video Tapes	60
Newspaper Articles	100
Radio/TV Announcement	80
Personal Presentations	100
Promotional Items (Key chains, pencils, Tee shirts, rulers, drink holders, pen/pencils, caps, etc)	20
Visitations off-site (Feeder schools; NC Tech Prep Leadership Center; Lexington, KY; San Antonio, TX)	60
Brochures (Developed for teachers, students, parents, and business and community partners)	92

IV. Conclusion

This summarization is for Tech Prep final project reports for the 1991/92 school year submitted by participating consortia members. The data reflect that Tech Prep in North Carolina is having an effect throughout the curricula of both the secondary and post secondary institutions involved in this educational reform initiative. The goal of the Tech Prep Associate Degree programs in North Carolina is to prepare at least 85% of all high school students through a Tech Prep or College Prep course of study. The data presented in this report reflect substantial progress toward this goal. Data show that student enrollment grew among Tech Prep consortia LEAs from 43% (10% Tech Prep; 33% College Prep) in 1991/92 to a projected 66% (24% Tech Prep; 42% College Prep) for the 1992/93 school year. Funded Tech Prep consortia also increased from 41 in 1991/92 to 45 in 1992/93. Likewise, the total number of personnel involved in Tech Prep grew significantly. Secondary teaching staff involvement increased from 2,860 in 1990/91 to 4,200 in 1991/92. Post secondary faculty involvement grew from 431 to 841. Administrative personnel involvement also increased from 335 to 841 (secondary) and 165 to 357 (post secondary). In all, total personnel involvement grew from 29,066 in 1990/91 to 83,332 in 1991/92. Similar increases may be expected in subsequent years as Tech Prep programs move from initial planning phases into fully implemented curricula.

APPENDIX A

1991–1992 Tech Prep Consortia

Planning

Local Education Agencies	Community Colleges
Camden County	Beaufort
Caswell County	Blue Ridge
Cherokee County	Caldwell *
Edenton-Chowan	Central Carolina *
Clay County	Central Piedmont
Cumberland County	Cleveland
Currituck County	Coastal Carolina
Durham County	College of the Albemarle
Winston-Salem/Forsyth	Craven
Gates County	Davidson
Graham County	Durham
Halifax County	Edgecombe
Roanoke Rapids City	Fayetteville
Weldon City	Forsyth
Harnett County	Halifax
Haywood County	Haywood
Henerson County	Isothermal *
Herdersonville City	James Sprunt
Hertford County	Mayland
Macon County	McDowell
Charlotte-Mecklenburg	Nash *
Nash County	Piedmont
Northampton County	Randolph
Onslow County	Richmond
Elizabeth City/Pasquotank	Roanoke-Chowan
Perquimans County	Robeson
Person County	Rockingham *
Polk County	Rowan-Cabarrus
Randolph County	Sampson
Rockingham County	Southwestern *
Eden City	Tri-County
Western Rockingham City	Wake
Sampson County	Wilkes
Clinton City	
Transylvania County	
Tyrrell County	
Wake County	
Watauga County	

* Indicates the community college participated in both Planning and Implementation projects in 1991/92

Implementation

Local Education Agencies	Community Colleges
Anson County	Cape Fear
Avery County	Carteret
Cabarrus County	Catawba Valley
Caldwell County	Caldwell *
Carteret County	Central Carolina *
Catawba County	Cleveland
Cleveland County	Craven
Kings Mountain City	Davidson
Shelby City	Edgecombe
Craven County	Isothermal *
Davidson County	James Sprunt
Lexington City	Mayland
Thomasville City	McDowell
Davie County	Nash *
Duplin County	Richmond
Jackson County	Robeson
Lee County	Rockingham *
McDowell County	Rowan-Cabarrus
Rocky Mount City	Southwestern *
New Hanover County	
Pender County	
Richmond County	
Public Schools of Robeson County	
Reidsville City	
Rutherford County	
Swain County	
Yancey County	

* Indicates the community college participated in both Planning and Implementation projects in 1991/92