

Digital Learning Commons

By: *SESRC – Puget Sound Division*
 Paul Stern
 Kirby Pitman
 Dave Pavelchek

July 2007

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Paul Stern
Kirby Pitman
Dave Pavelchek

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Social & Economic Sciences Research Center-Puget Sound Division
203 E. 4th Avenue, Suite 521
P.O. Box 43170
Olympia, WA 98504-3170
(360) 586-9292
Fax: (360) 586-2279

About SESRC

The Social and Economic Sciences Research Center (SESRC) at Washington State University is a recognized leader in the development and conduct of survey research.

SESRC-Puget Sound Division provides technical services and consultation to assist clients in acquiring data, understanding what data means, and applying that information to solving problems. The SESRC Puget Sound Division specializes in research design, data collection and analysis, using both qualitative and quantitative methods. The Division also provides interpretive reports, policy studies, presentations and consulting services directly to individual clients, organizations and consortia.

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EXECUTIVE SUMMARY

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By: Paul Stern, Kirby Pitman, and Dave Pavelchek
Social & Economic Sciences Research Center, Puget Sound Office
Washington State University
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The Digital Learning Commons (DLC) is one of several providers of online learning opportunities for Washington's high school students. The DLC offers courses in a wide range of subject areas that students can enroll in through their local high school.

To better understand which students are enrolling in and completing their online courses, the Digital Learning Commons (DLC) commissioned a study of 410 students who enrolled in the 2005-2006 school year to learn more about the following questions:

- What are the characteristics of students who enrolled in DLC courses?
- What are the enrollment and completion patterns of students enrolled in DLC courses?
- What is the relationship between the online course grade earned and overall GPA?

Chapter 1: Students Enrolled in Digital Learning Commons Courses

DLC staff only collect demographic information about the gender of the students enrolled in their courses. Not only were DLC staff interested in additional characteristics of its students but also how students compared to all high school students in Washington. DLC wanted to know whether their courses are being accessed by a diverse range of students or if their use is concentrated to particular types of students. Results from this portion of the study include:

- Females (52%) were more likely to enroll in DLC courses than males (48%).
- There were disproportionately more Black and White students and fewer Asian, Native American, and Hispanic students than would be expected given the districts served.
- The majority of students were high school seniors (37%) or juniors (31%).
- DLC courses tended to attract students with high academic performance in their prior coursework. However, DLC courses are not limited to just academically gifted high school students.
- Compared with the distribution of high school students across Washington, enrollment in DLC courses is very strong in Eastern Washington (25% of all DLC enrollments but only 6% of all high school enrollments in the state), and above average in Coastal (8% and 4%) and Northwest Washington (15% and 11%). Enrollments in the Puget Sound I-5 Corridor area were below average with 43 percent of all high school students enrolled, but only 28 percent of all DLC enrollments.
- Three percent of the students enrolled in DLC courses were special education students compared with 10 percent statewide.

- While the districts that enroll students in DLC courses have a higher overall rate of free and reduced price lunch eligibility, the participation rate (35% of students in DLC courses) is lower than would be expected from this population of students (40%).

Chapter 2: DLC Course Enrollments

Since some students take multiple courses, the course data can be analyzed in two distinct ways. The first is a “per student” perspective (this chapter), and the second is a “per course” perspective (Chapter 3). This chapter looks at the number of courses taken per student and which students completed every course in which they enrolled.

Number of Courses Taken

- DLC offered courses over three terms in the 2005-2006 school year. During the year, 68 percent of students enrolled DLC courses took one course, 28 percent in two, and four percent in three or more courses. However, many courses were two-part sequences. When the number of courses taken in a single term is counted, 90 percent of the students took one course at a time. There were no differences in the number of courses enrolled in by student characteristics.

Course Completion

- Overall, 70 percent of students completed all their courses and 30 percent dropped at least one course.
- The more courses a student enrolled in, the more likely he or she was to drop at least one course. Twenty-three percent of students taking one course in the school year dropped the course and 80 percent of students taking three courses in the school year dropped at least one course.
- Of the 90 percent of students who took only one course per term, 27 percent dropped a course. Of the 10 percent of students who took two or more classes per term, 60 percent dropped a course.
- When students dropped a course, DLC asked their reason for dropping. The most frequently cited reason was “change in school schedule or scheduling conflict” (52%). Fifteen percent had “difficulty starting or navigating the course”.
- Region was correlated with students dropping courses. The Spokane and Southwest regions had the highest percentage of students who dropped courses, at 57 percent each. The Eastern Puget Sound region had the lowest percentage of students (11%) dropping a course.
- Ethnicity was related to the likelihood of students dropping a course. Half of the Native American students and a third of Hispanic students dropped at least one course. Black students had the lowest rate of students dropping at least one course (11%).

Chapter 3: DLC Courses

This chapter describes the data in terms of courses as opposed to students. There are more courses than students since 32 percent of students took more than one course. The 410 DLC course enrollees took a total of 560 courses in the 2005-06 academic year. For all courses taken, this chapter looks at their level, subject area, grade earned, and completion status.

Course Level Taken

- The majority (66%) of courses were standard, 22 percent were credit recovery, and 12 percent were AP/honors courses.
- Males were more likely to take credit recovery courses and females were more likely to take standard courses.
- AP/honors course students were less likely to participate in the Free and Reduced Price Lunch (FRPL) program.
- In all regions except the I-5 Corridor, the highest percentage of students was in standard courses. Courses taken by students living in the northwest (32%) and central regions (27%) had the highest percentages enrolled in the AP/honors category. The courses taken by districts in the Puget Sound I-5 corridor had the highest percentage of credit recovery students at 72 percent.
- The vast majority of students enrolled in credit recovery courses were enrolled in one course. Students who enrolled in AP/honors courses were very likely to be enrolled in two or more courses, probably because most are year-long sequences.
- About half of the students enrolled in standard courses had a GPA of 3.0 or higher. More than one-third of students in standard courses had a GPA between 2.0 and 2.9. The AP/honors courses were made up mostly of students with cumulative GPAs of 3.0 or higher. Credit recovery courses had a majority (63%) of students with GPAs between 2.0 and 2.9 and one-quarter of the credit recovery students had GPAs of less than 2.0.

Course Subject

- The most popular subjects were foreign language (25%), math (19%), language arts (19%) and social studies (17%).
- Gender was related to the subject taken. Technology and business courses were predominately populated by males. A majority of females made up life skills-health, foreign language, and science courses.

Course Grade

- Of all the course grades assigned, A's (23%), B's (21%), C's (26%) and F's (25%) were all similar in proportion. Only five percent of the grades were D's.
- Gender was related to the grade earned. Almost a third of the grades earned by females were A's compared with about half that for males (15%). A higher percentage of males (30%) than females (20%) received a grade of F.

Course Completion

- Seventy-four percent of all DLC courses taken were completed.
- Those who dropped courses were more likely to be females (29%) than males (22%).
- Among courses taken by Black students, only 10 percent were dropped compared with those courses taken by Native American students with 53 percent being dropped.
- The course subjects with the highest drop rates were business and lifeskills-health (both at 50%) and technology (42%). The courses with the lowest drop rates were arts (11%), language arts (15%), and social studies (22%).
- Courses taken by students living in the Southwest, Coastal, and Spokane regions were most likely to drop a course. Courses taken by students living in Eastern Puget Sound, Eastern Washington, and the Puget Sound I-5 Corridor were least likely to be dropped.

Chapter 4: Relationship between Grades Earned and Overall GPA

DLC staff were interested in whether or not students were performing as well in their DLC courses as they did in all their other classes. This chapter explores the relationship between the grade earned in the online course and the student's overall GPA. This section is based on the 286 students who completed at least one course.

- Overall, students who completed a DLC course earned lower grades in their online courses than in their regular courses at school.
- Students with average grades have succeeded in DLC courses.
- For all students who completed at least one DLC class, their GPA for DLC courses was 2.08 and their GPA in all high school courses combined was 2.88. Almost every subgroup had a statistically significant difference between its overall GPA and its GPA in DLC courses.
- There were no groups for whom the DLC GPA was higher than the overall GPA.
- Students in the Southwest and Spokane regions saw a difference in GPAs of between 1.1 and 1.3 grade points. The DLC GPAs of students from Spokane and the Puget Sound I-5 Corridor were particularly low, having DLC GPAs of 1.00 and 1.63 respectively. On the positive side, students from Central and Coastal Washington saw a difference in GPAs of less than half of a grade point.
- By ethnicity, Asians, Blacks, and Native Americans also struggled more with online than traditional courses. The DLC GPAs of Black and Native American students were particularly low, with DLC GPAs of 1.20 and 1.67, respectively.
- In terms of type of course, students enrolled in Credit Recovery classes had a 1.0 grade point difference between their overall GPA and their DLC GPA. The DLC GPA value was also very low. These students had a GPA in their credit recovery courses of 1.3.
- On the positive side, students enrolled in business and technology courses earned very similar grades in the DLC courses as compared to their other high school grades.

Next Steps

Given the interest in who is enrolling and what courses they are taking, the foundation is present for additional research on how DLC courses are working for different kinds of students. If additional research is sought, areas of inquiry may include the following:

- Analyze the factors that contribute to lower grades earned in DLC courses than the students typically earn. Research could compare the experiences of students who are struggling with those who are earning comparable grades.
- Explore issues that determine how students and school staff decide whether to enroll in DLC courses. How did students learn about opportunities at DLC? What is the general satisfaction with DLC education opportunities?
- Follow up on high school graduates who took DLC courses to see how many go to college and are successful. This can be measured both by computing college enrollment rates and by looking at patterns of remediation needs in mathematics and English. The rates on both indicators should be computed for students who took DLC courses and for an appropriate control group.
- Identify the best ways to support students in their learning. What types of support from local teachers or mentors do current students perceive as most beneficial? How can the local teacher or mentor at the school best support the student in an online learning environment? What resources have been most useful to successful students? What types of student mentor support are most helpful? This additional information from students could lead to improved training for students, parents, and teachers who are interested in DLC learning opportunities.

INTRODUCTION

BACKGROUND

The Digital Learning Commons (DLC) is one of several providers of online learning opportunities for Washington's high school students. To date, DLC has collected information about the number of students and the variety of courses in which they enroll. They have also asked students and schools about the value of online courses and the relationship of DLC online courses to graduation and college readiness. Based on these first steps, DLC reports that:

- 76 percent of their students enrolled in a course that was not offered at their local high school
- 61 percent took a course to become better prepared to tackle college level work
- 33 percent took a course that was needed to meet graduation requirements

In June 2007, DLC contracted with Washington State University's Social and Economic Sciences Research Center (SESRC) to examine the characteristics of their enrolled students and their grades earned in DLC courses. Their interest was in a presentation of the facts about their students and how they compared to students statewide. Interpretations on what should be done to accentuate strengths or address weaknesses were left to DLC staff.

SESRC staff was asked to focus on the following research questions:

- What are the characteristics of students who are currently enrolled in DLC courses?
 - Are DLC courses being accessed by a diverse range of students or is their use concentrated to particular types of students?
- What are the enrollment and completion patterns of students enrolled in DLC courses?
 - What are the characteristics of students more likely to enroll in one DLC course? In multiple DLC courses?
 - Are certain types of students more likely than others to complete an online course that they started?
- What is the relationship between the online course grade earned and overall GPA?
 - Do specific types of students have better relative grades in online courses than others?
 - In which subjects do students get the highest and lowest grades online?

STUDY POPULATION

The purpose of this research project is to provide a more detailed understanding and analysis of the 410 students who enrolled in DLC courses in the 2005-2006 school year for whom enrollment and grade data was available. Access to DLC courses varies by school district. In a few districts, students can choose to enroll in a DLC course. However, in most high schools a few school staff members control which students are able to enroll in courses. One would expect that limiting access to DLC courses would sway the results to being somewhat more positive.

REPORT ORGANIZATION

This report is organized into four chapters.

- The first chapter discusses characteristics of students who enrolled in DLC courses.¹ Are DLC courses being accessed by a diverse range of students or is its use concentrated to particular types of students?
- Course enrollments can be explored in two different ways – in terms of courses taken (covered in Chapter 3) and in terms of students taking the courses. Chapter 2, “DLC Course Enrollments”, analyzes course information at the student level. What are the characteristics of students more likely to enroll in one DLC course? Are certain types of students more likely than others to complete an online course that they started?
- The third chapter, titled “DLC Courses”, analyzes course data at the course level instead of the student level. Are “credit recovery” courses more popular with certain groups or regions of the state? Which academic subjects are most popular? Are certain types of students more likely than others to earn an A or B grade in a DLC course than others?
- The chapter titled “Relationship between Grades Earned and Overall GPA” explores whether certain types of students have better relative grades in online courses than others.

DATA SOURCES

DLC enrollment records

DLC staff provided enrollment records on all students enrolled in at least one course during the 2005-2006 academic year. Data elements provided included:

- Student’s name, date of birth, grade level, and gender
- School and School District
- Courses enrolled in, completion status and grade earned

Demographic data

Data from the DLC administrative database were matched by Office of Superintendent of Public Instruction (OSPI) staff to student data files to provide additional student characteristics such as ethnicity, socio-economic status, disability status, and cumulative GPA in all courses.

Published information about student enrollments

To put the DLC data into a statewide context, analysts used data from the OSPI website² on published student characteristics at the building and district level in the 2005-2006 school year.

¹ Student characteristics explored included gender, ethnicity, grade level, grades (overall GPA), disability, socio-economic status, and geographic distribution.

² <http://reportcard.ospi.k12.wa.us/DataDownload.aspx>

Specifically, see: <http://reportcard.ospi.k12.wa.us/Download/2006/DemographicInformationBySchool.xls>

<http://www.k12.wa.us/DataAdmin/default.aspx#download>

Specifically, see: http://www.k12.wa.us/DataAdmin/pubdocs/p105/OCT05P105A_SchGradeEthGender.xls

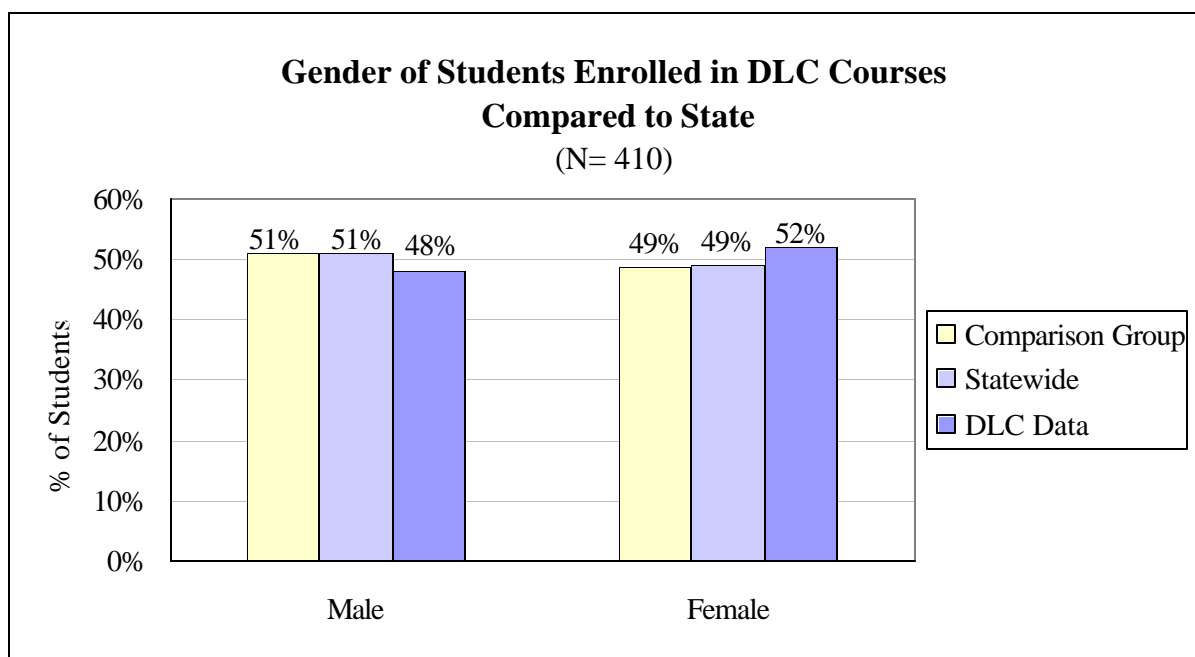
CHAPTER 1: STUDENTS ENROLLED IN DIGITAL LEARNING COMMONS COURSES, 2005-2006

This chapter compares information on the characteristics of students enrolled in DLC courses to all students and to a relevant comparison group. The particular focus is to understand whether DLC courses are being accessed by a diverse range of students or if its use is largely confined to particular types of students. Specifically, the chapter will explore the following student characteristics: gender, ethnicity, grade level, grades (GPA), geographic distribution, disability (Special Education), and socio-economic status (Free and Reduced Price Lunch eligibility).

In order to examine questions about how effectively DLC programs are reaching all types of students, it is important to adjust for the student body composition in the participating schools as well as the number of students participating in DLC in each school. In this chapter, the characteristics of students participating in DLC were compared with what the composition would be if each participating school had randomly selected the same number of students as had participated in DLC programs.³

GENDER

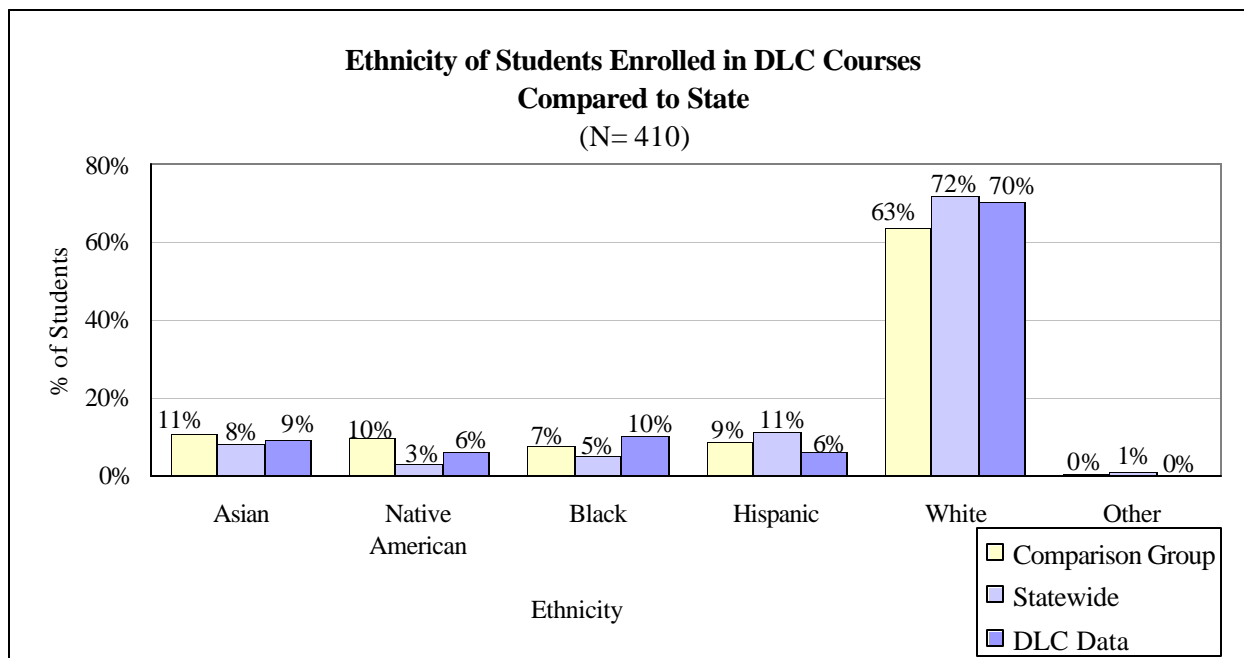
Females were more likely to enroll in DLC courses than males. More than half (52%) of the DLC enrollments were females. Statewide, 49 percent of 9th through 12th graders were female and 51 percent were male. The break down of the comparison group was the same as the statewide gender percentages.



³ For additional information about how the comparison group was created and why it is important, please see Appendix A.

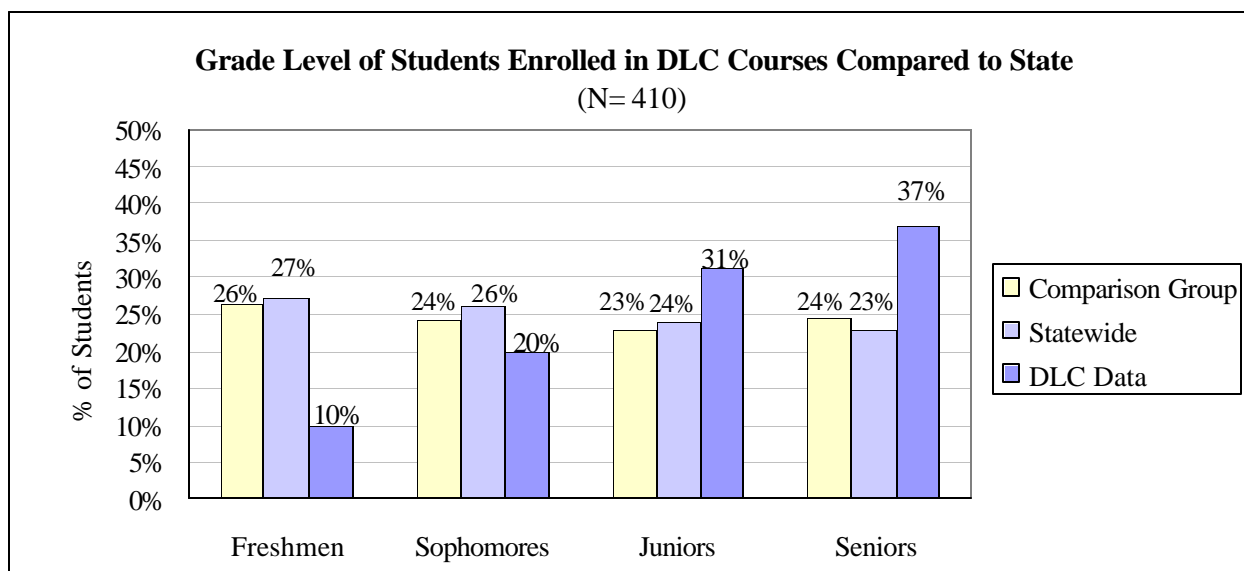
ETHNICITY

Compared to what one would expect given the schools that enroll students in DLC courses, the DLC data contains a higher percentage of Black and White students and a lower percentage of Asian, Native American and Hispanic students.



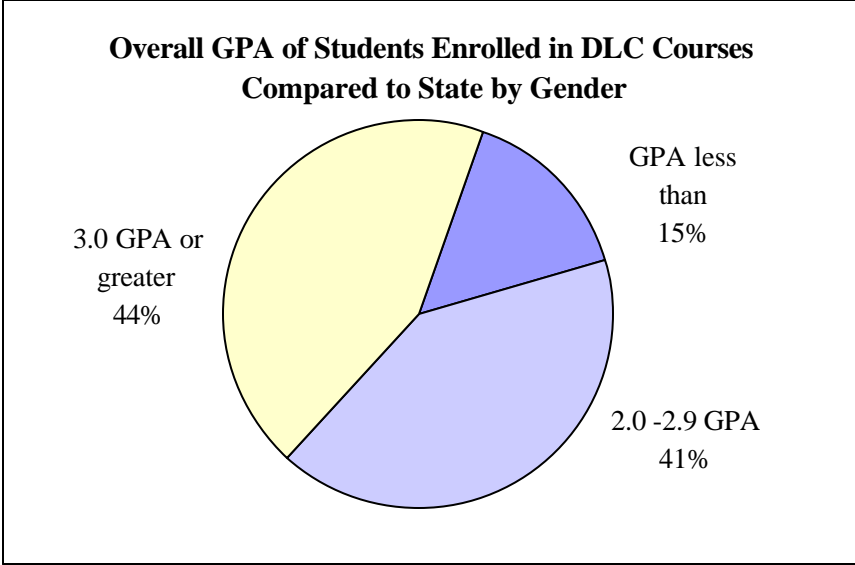
GRADE LEVEL

The majority of students were high school seniors (37%) or juniors (31%). Twenty percent were high school sophomores and ten percent freshmen. A few (2%) were in eighth grade.

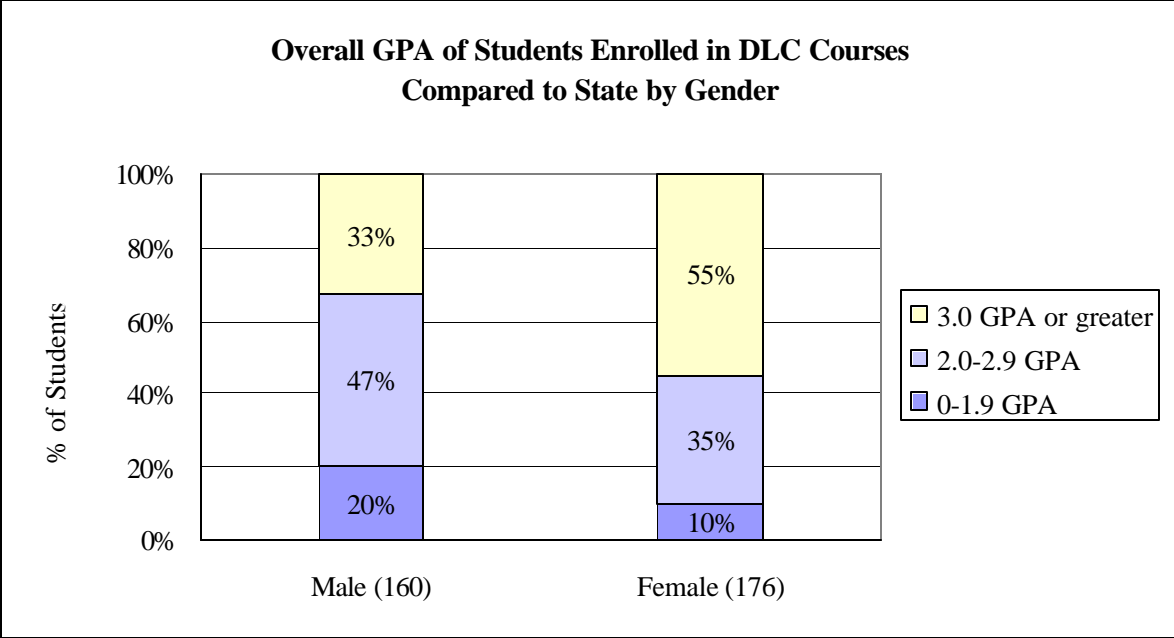


GRADE POINT AVERAGE (GPA)

DLC courses tended to attract students with high academic performance in their prior coursework. However, DLC courses are not limited to just academically gifted high school students. The largest proportion of students had GPAs of 3.0 or above (44%). A similarly sized proportion (41%) had GPAs between 2.0 and 2.9, while 15 percent had GPAs below 2.0.



Gender was the only demographic characteristic that had a statistically significant effect on grade point average within the population of DLC course enrollees. Females had a higher percentage of GPAs at 3.0 or greater (55%) than males (33%). Males were twice as likely as females to have a GPA below 2.0.



REGION

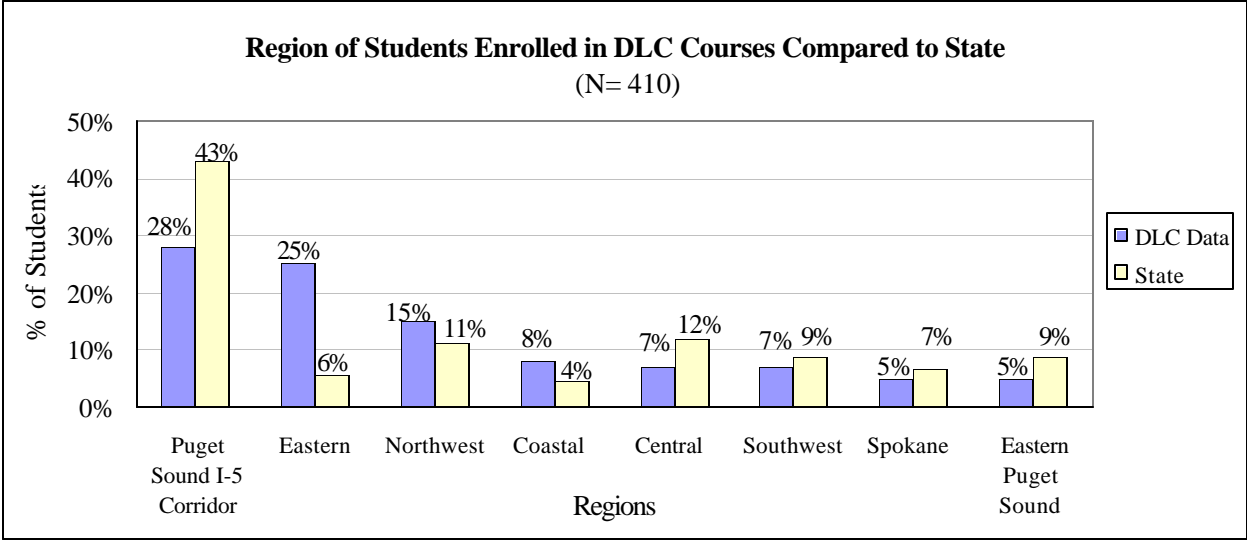
To analyze enrollments geographically, participating high schools were grouped into eight regions:

- *Puget Sound I-5 Corridor* includes districts between Tacoma and Everett along Interstate 5 (DLC districts were Lake Washington, Seattle, and Tukwila)
- *Eastern Puget Sound* includes districts in Thurston, Kitsap, and Mason counties (DLC districts were Bremerton, Mary M. Knight, and North Kitsap)
- *Northwest* includes districts in Island, San Juan, Jefferson, Skagit, Whatcom, and parts of Snohomish counties (DLC districts were Chimacum, Nooksack Valley, Bellingham, Lynden, and Orcas Island)
- *Coastal* includes Skamania, Wahkiakum, Clallam, Pacific, Grays Harbor, and Lewis counties (DLC districts were Taholah, Naselle-Grays, Oakville, Ocosta, Quinault, Stevenson-Carson, and Quillayute Valley) districts
- *Southwest* includes Clark and Cowlitz Counties (DLC districts were Vancouver and Battleground)
- *Central* includes Chelan, Yakima, and parts of Benton, Walla Walla, Grant, Franklin, Adams, Douglas, Okanogan, and Klickitat counties (DLC districts were Granger, Bridgeport, Toppenish, and White Salmon)
- *Spokane* includes districts in the Spokane metropolitan area (DLC districts were Cheney and Spokane)
- *Eastern* includes all other parts of Eastern Washington (DLC districts were Odessa, Glenwood, Curlew, Tonasket, Inchelium, Lyle, Klickitat, Trout Lake, Garfield, Wishram, Oakesdale, and Omak)

The largest proportion of students came from the Puget Sound I-5 corridor (28%). Twenty-five percent were from Eastern Washington and 15 percent from northwest Washington.

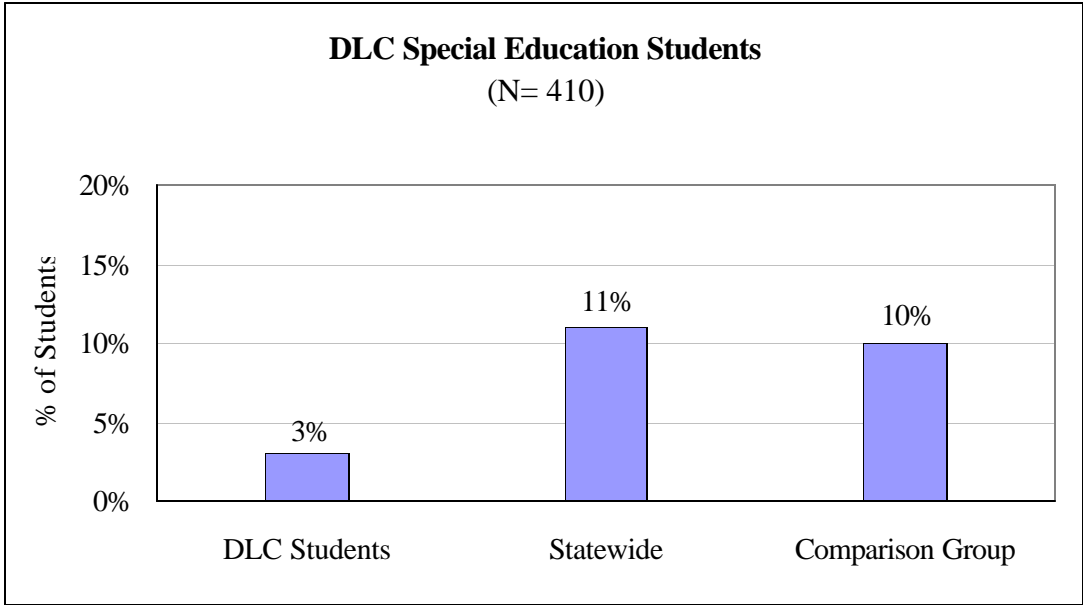
Compared to the distribution of high school students across Washington, enrollment in DLC courses is very strong in Eastern Washington (6% of all high school enrollments in the state but 25% of all DLC enrollments) and above average in Coastal (4% and 8%) and Northwest Washington (11% and 15%). Enrollments in the Puget Sound I-5 Corridor area were below average with 43 percent of high school students, but those students only comprised 28 percent of all DLC enrollments.

In terms of an urban-rural division, students from rural areas were more likely to take a DLC course than students in urban school districts.⁴ Whereas, 59 percent of students are enrolled in urban districts statewide, only 40 percent of students enrolled in DLC courses came from these districts.



SPECIAL EDUCATION STUDENTS

Three percent of the students enrolled in DLC classes were special education students compared with 10 percent statewide and 11 percent from the comparison group.

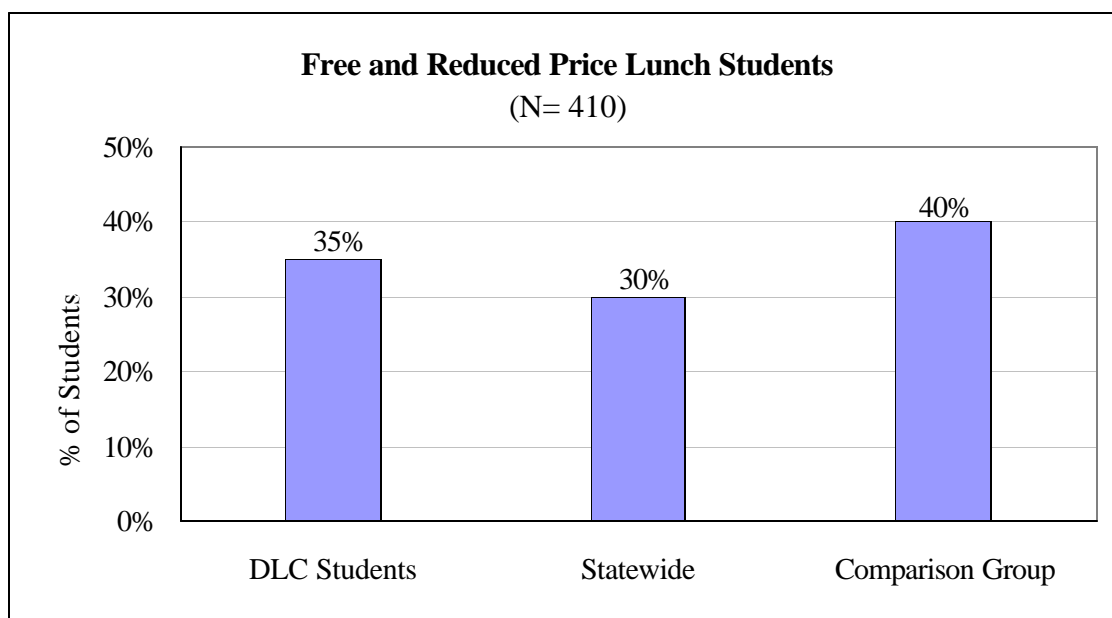


⁴ The Puget Sound I-5 corridor, Southwest, and Spokane regions were grouped as “urban” districts.

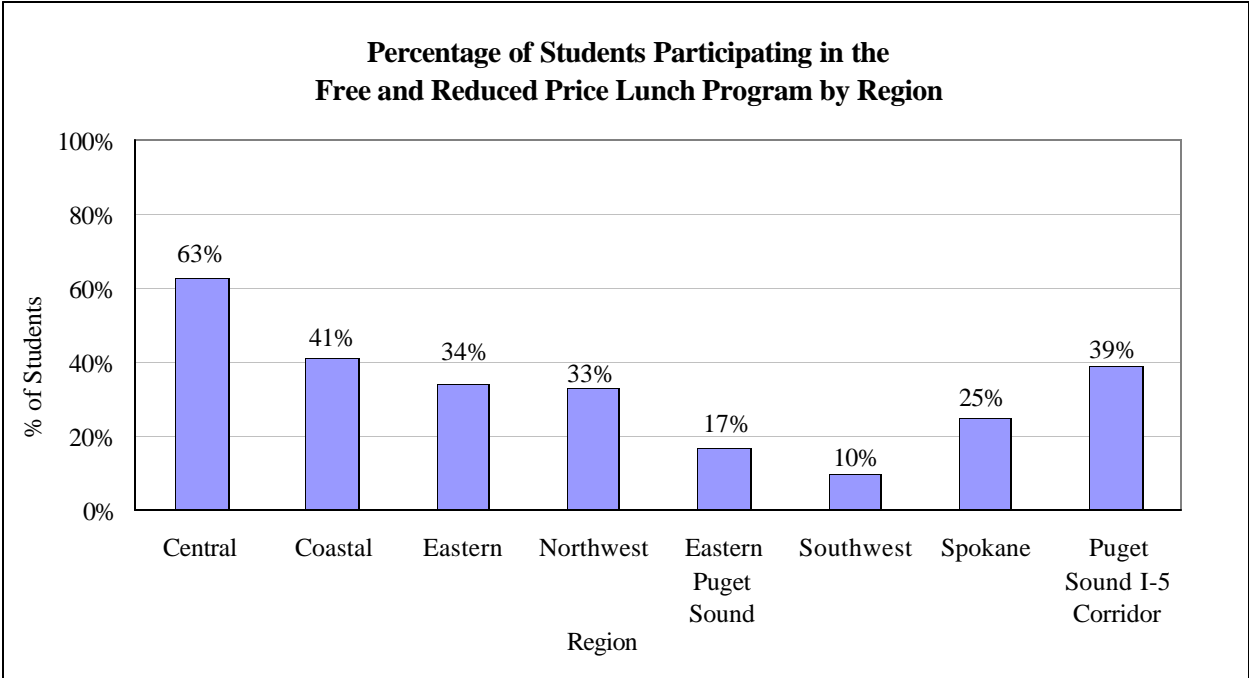
FREE AND REDUCED PRICE LUNCH

The USDA's Free and Reduced Price Lunch (FRPL) program provides an indicator of lower income status. To qualify for the program, students' families must have incomes below federally determined eligibility levels. Not all low-income high school students choose to establish their eligibility for this program, but all who do so are from low-income households. Thirty-five percent of the students enrolled in DLC classes participated in FRPL. The comparison group drawn from the same districts contains 40 percent FRPL participating students. (Statewide, the percentage of participating students was 30 percent.)

This is an example of why the comparison group is important. Although the percentage of DLC enrollees participating in FRPL is higher than the overall statewide percentage, a similar random sample of students from the participating districts would have an even higher rate of FRPL participation. Low income students appear to be less likely to participate in DLC programs, even though the districts participating in DLC tend to have above-average rates of FRPL participation.



Region also impacted the likelihood of a student's participation in FRPL. The highest proportion of FRPL students within a region was for Central Washington. Sixty-three percent of the Central Washington students were FRPL students. Southwest Washington had the lowest percentage with 10 percent FRPL students.



Of the students with a 3.0 GPA or higher, 24 percent were FRPL students. Forty-two percent of the students with a GPA between 2.0 to 2.9 and students with a GPA less than 2.0 were FRPL students.⁵

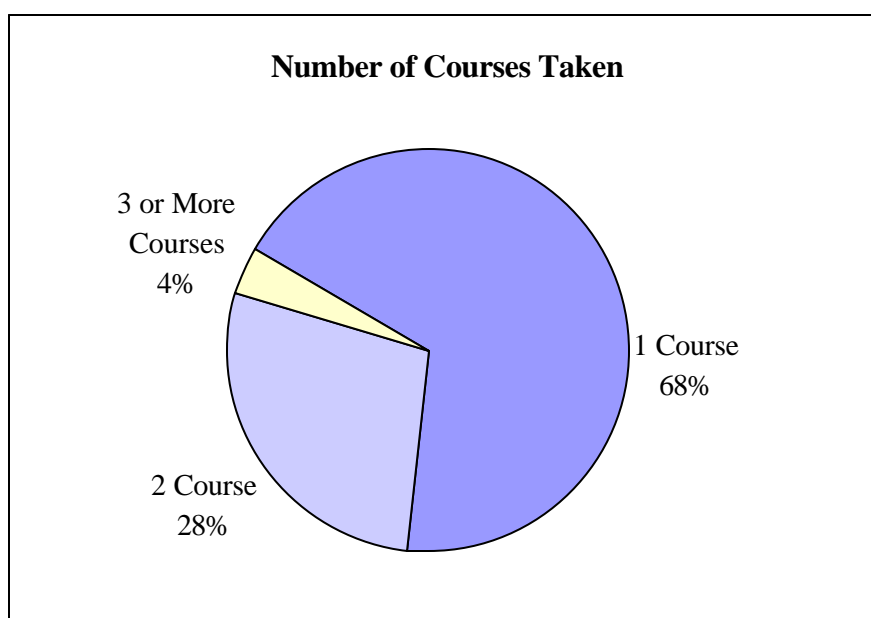
⁵ See Appendix B for supporting data.

CHAPTER 2: DIGITAL LEARNING COMMONS COURSE ENROLLMENTS

Since some students take multiple courses, the course data can be analyzed in two distinct ways. The first is a “per student” perspective (this chapter) and the second is a “per course” perspective (Chapter 3). This chapter looks at the number of courses taken per student and which students completed every course in which they enrolled.

NUMBER OF COURSES TAKEN

DLC offered courses over three terms in the 2005-2006 school year. During the year, 68 percent of students enrolled in one course, 28 percent in two, and four percent in three or more courses. However, many of the courses were two-part sequences. When the number of courses taken in a single term is counted, 90 percent of the students took one course at a time and ten percent took two or more courses simultaneously. There were no differences in the number of courses enrolled in by gender, ethnicity, or other demographic characteristic.

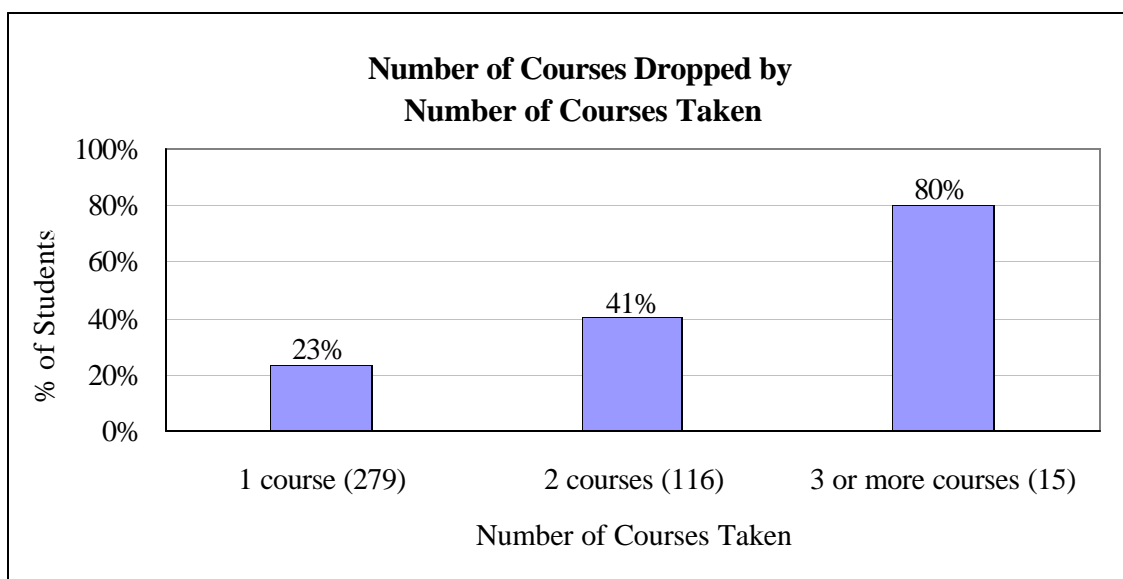


COURSE COMPLETION

Overall, 70 percent of students completed all their courses.

The number of courses taken was related to the likelihood of dropping at least one course. The more courses a student was enrolled in, the more likely he or she was to drop at least one course. Twenty-three percent of students taking one course in the school year dropped the course and 80 percent of students taking three courses in the school year dropped at least one course.

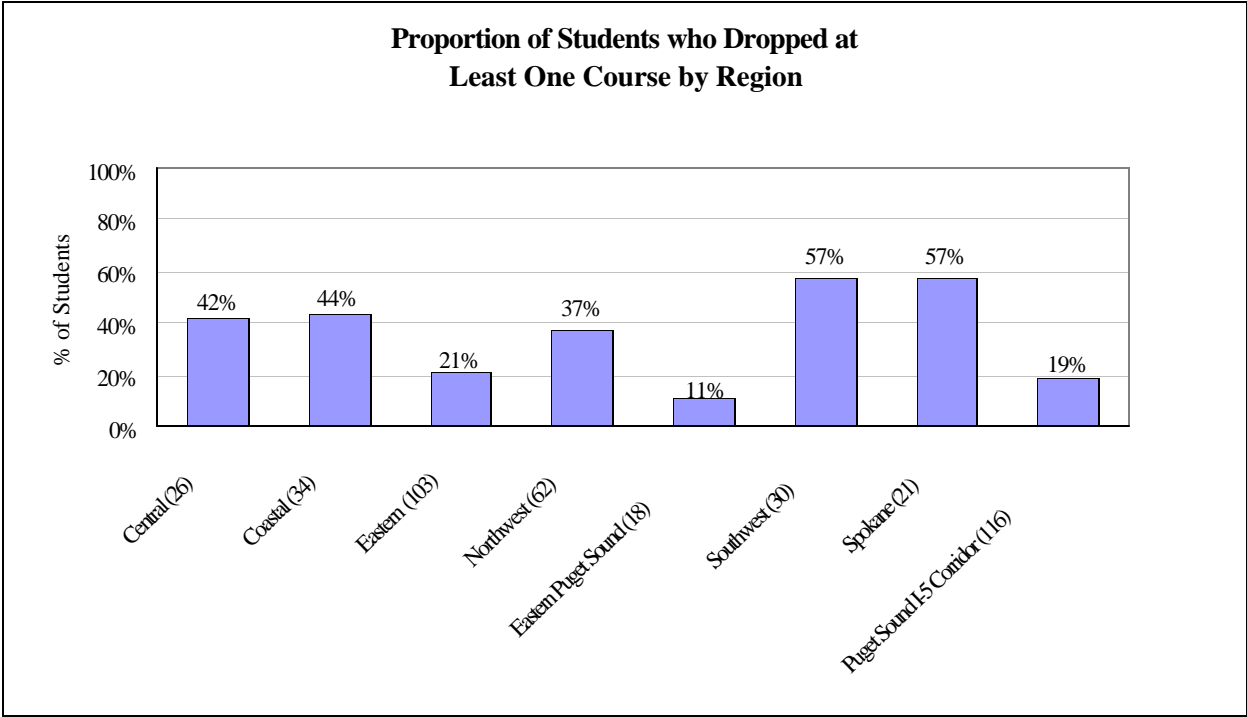
Of the 90 percent of students who took only one course per term, 27 percent dropped a course. Of the 10 percent of students who took two or more classes per term, sixty percent dropped a course.



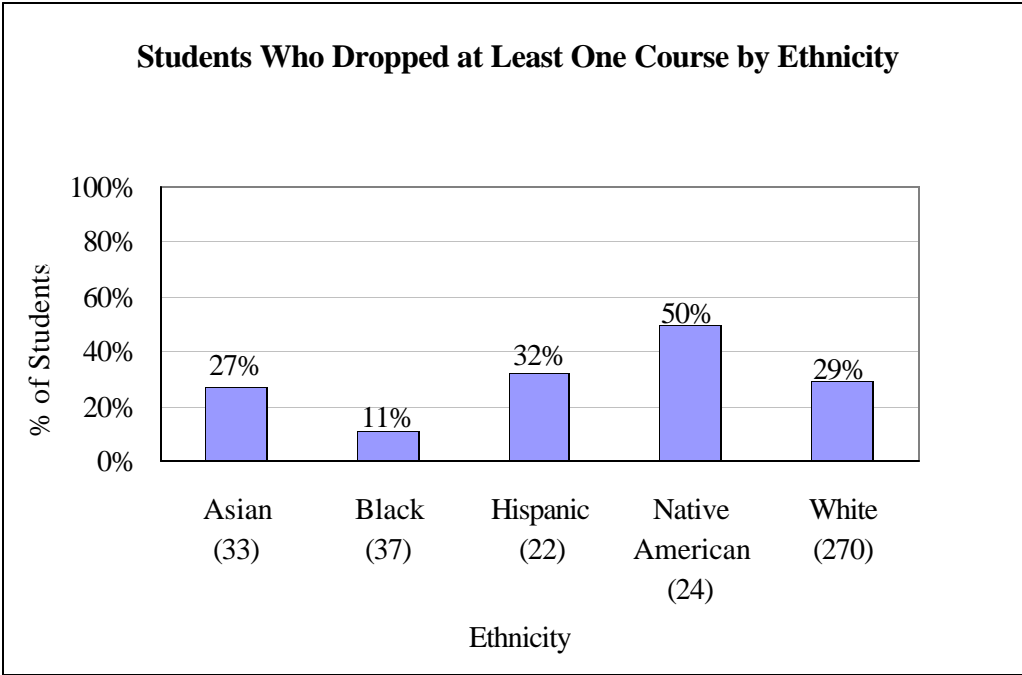
When students dropped a course, DLC asked their reason for dropping.⁶ Of the 198 dropped courses, reasons for dropping were given for 84 percent. The most frequently cited reason was “change in school schedule or scheduling conflict” (52%). Fifteen percent of the students said they had “difficulty starting and/or navigating the course”. Only 2 percent said their reason for dropping was taking the course at their school.

Region was also correlated with students dropping courses. The Spokane and Southwest regions had the highest percentage of students who dropped courses, at 57 percent each. The Eastern Puget Sound region had the lowest percentage of students (11%) dropping a course.

⁶ Appendix C contains the table of reasons for dropping a course.



Ethnicity was related to the likelihood of students dropping a course. Half of the Native American students and a third of Hispanic students dropped at least one course. Black students had the lowest rate of students dropping at least one course at 11 percent.

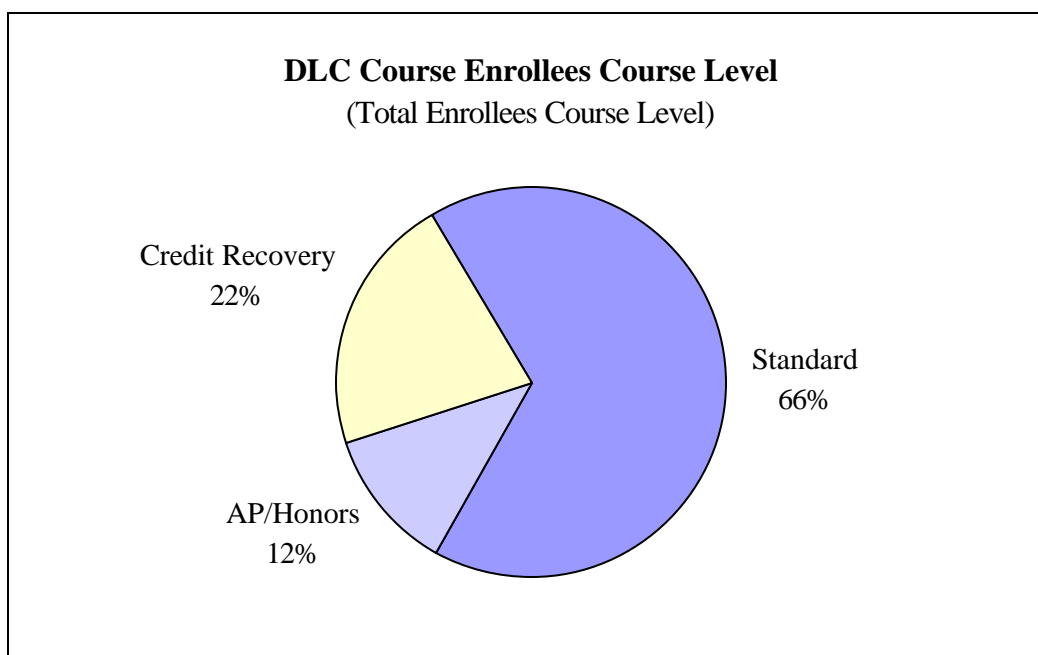


CHAPTER 3: DIGITAL LEARNING COMMONS COURSES

This chapter describes the data in terms of courses as opposed to students. The main difference is there are more courses than students since 32 percent of students took more than one course. In this section, these students are double or triple-counted when looking at the data by course. The 410 students took a total of 560 courses from DLC providers in the 2005-06 academic year. For all courses taken, this chapter looks at their level, subject area, grade earned, and completion status.

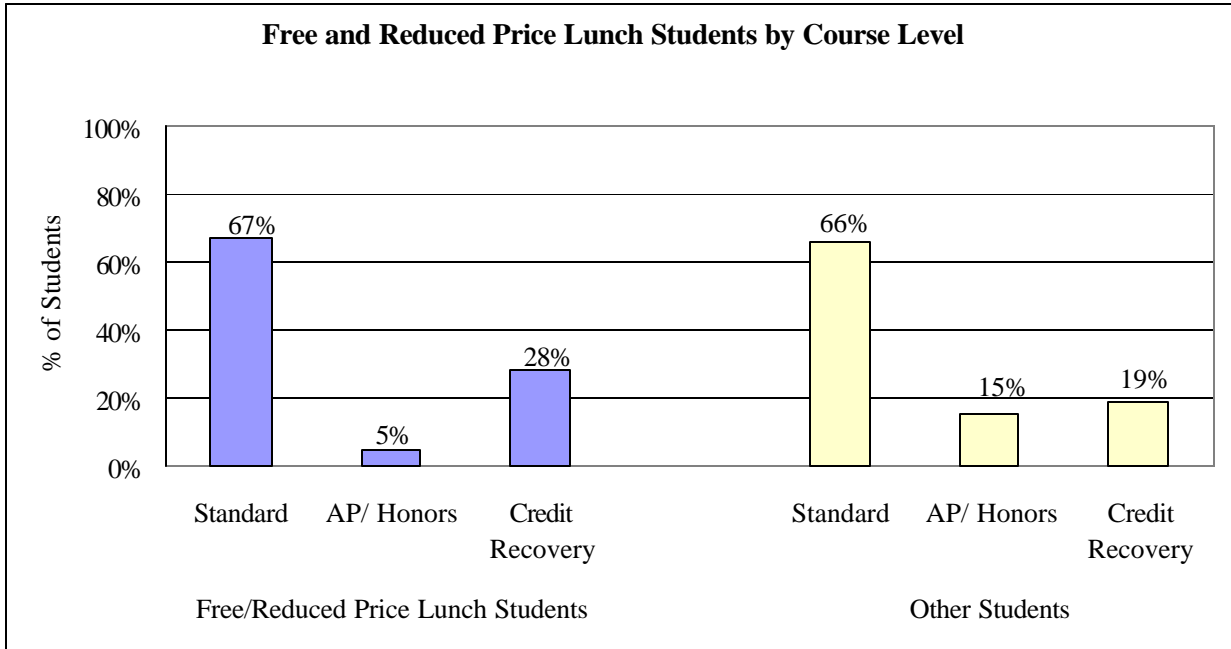
COURSE LEVEL

The majority (66%) of courses were standard, 22 percent were credit recovery, and 12 percent were AP/honors courses.

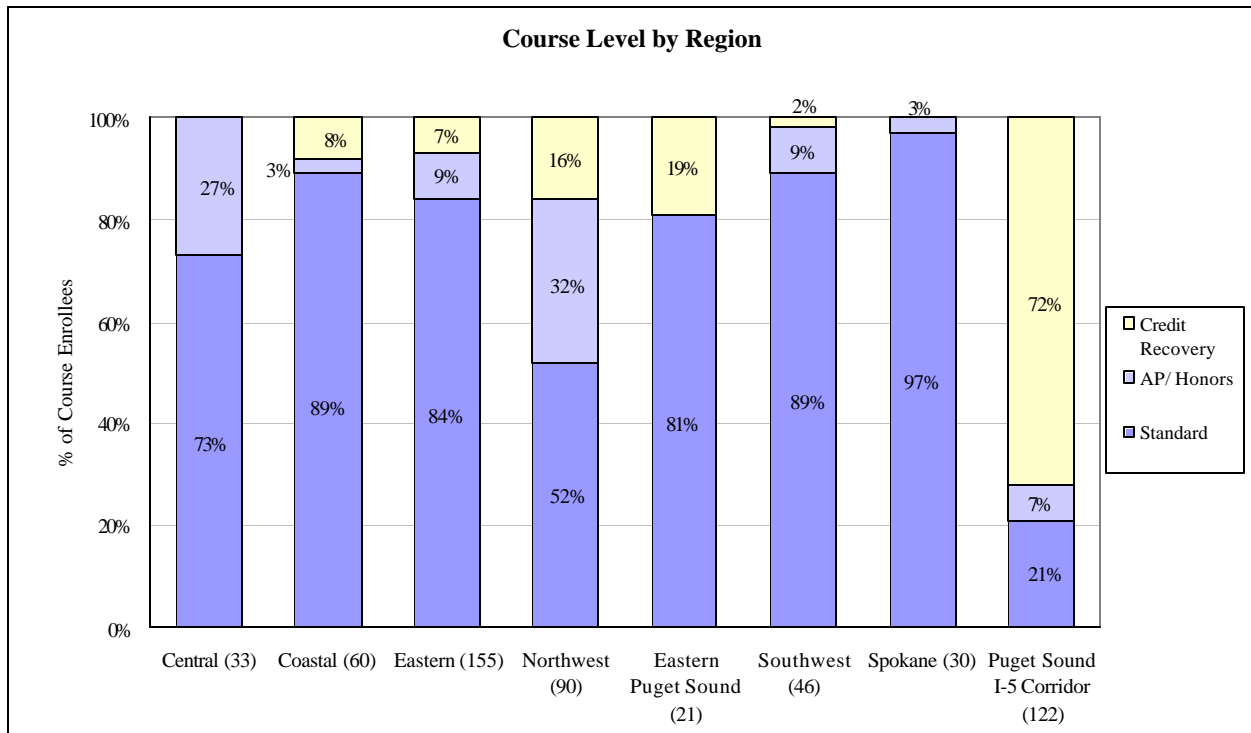


Gender was related to the level of the enrolled course. Males were more likely to take credit recovery courses (27%) than females (17%). Conversely, females were more likely to take standard courses (71%) than males (60%). Both groups were equally likely to take AP or honors courses (12%).

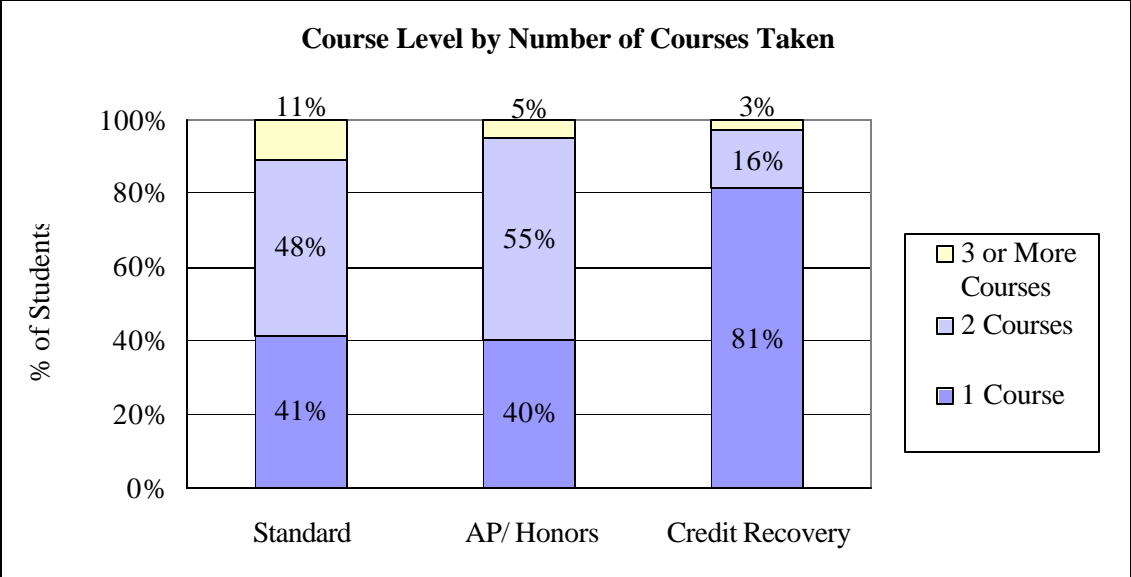
In terms of course configuration, FRPL participation was also related to course level. AP/honors course students were less likely to participate in FRPL (5% compared to 15% of all courses) and credit recovery students were more likely to be FRPL students.



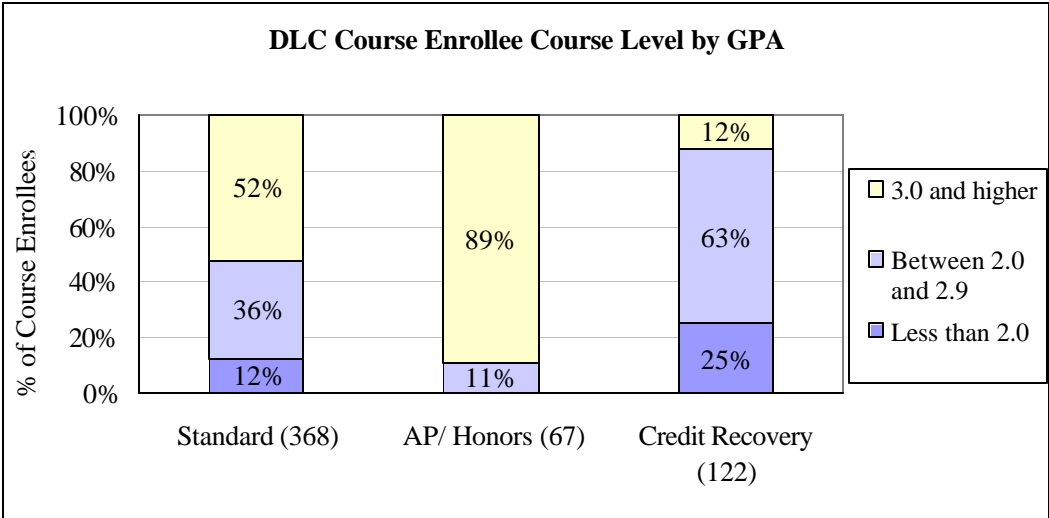
In all regions except the I-5 Corridor, the highest percentage of students were in standard courses. Courses taken by students living in the Northwest (32%) and Central regions (27%) had the highest percentages enrolled in the AP/honors category. The courses taken by districts in the Puget Sound I-5 corridor had the highest percentage of credit recovery students at 72 percent.



The vast majority of students enrolled in credit recovery courses were enrolled in one course. Students who enrolled in AP/honors courses were very likely to be enrolled in two or more courses, probably because most are year-long sequences. Sixty percent of all AP/honors course enrollees took two or more courses.

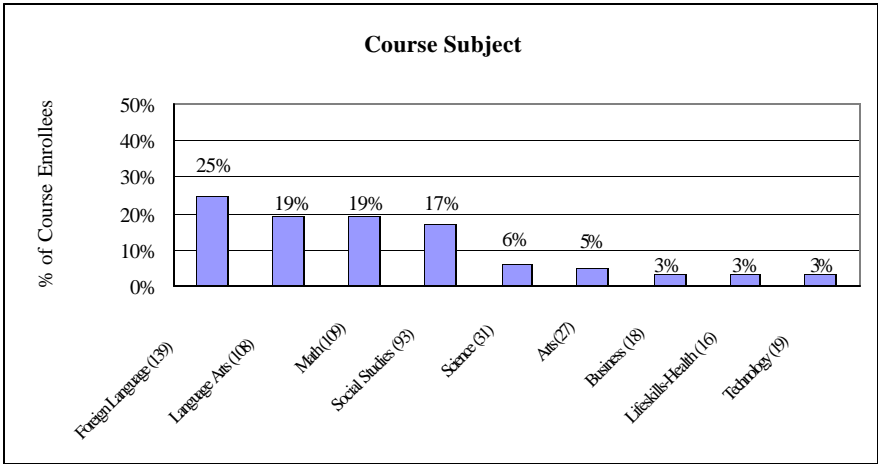


About half of the students enrolled in Standard courses had a GPA of 3.0 or higher. More than one-third of students in Standard courses had a GPA between 2.0 and 2.9. The AP/honors courses were made up mostly of students with cumulative GPAs of 3.0 or higher. Credit recovery courses had a majority (63%) of students with GPAs between 2.0 and 2.9 and one-quarter of the credit recovery students had GPAs of less than 2.0.



COURSE SUBJECT

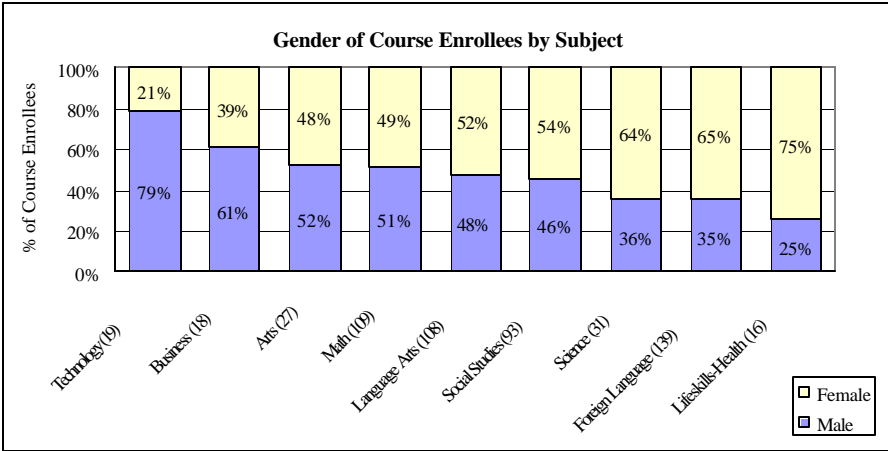
The most popular subjects were foreign language (25%), math (19%), language arts (19%) and social studies (17%). The least popular subjects were science (6%), arts (5%), technology (3%), business (3%) and lifeskills-health (3%). Of the foreign language courses, the most popular was Spanish (34% of foreign language courses taken) followed by German (20%), Japanese (18%), French (17%), and Latin (10%).



Of the math courses, nearly half (47%) were algebra, 16 percent were consumer math courses, 16 percent were geometry courses and 14 percent were calculus courses (all but one calculus course was AP).

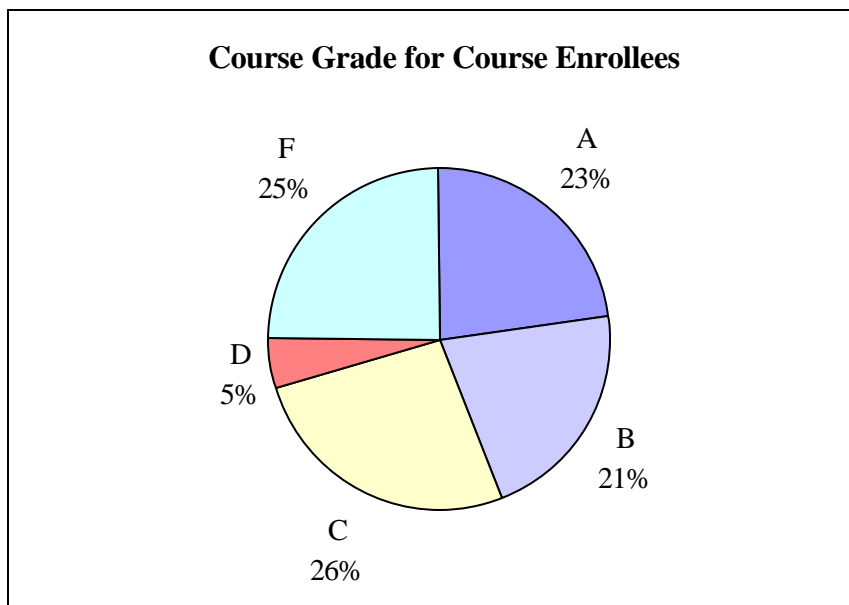
Of the language arts courses, approximately 60 percent appeared to be typical grade-level English (most of which were credit recovery courses) and 19 percent were writing courses (creative writing, composition, poetry writing and screenplay writing).

Gender was related to the subject taken. Technology and business courses were predominately populated by males. A majority of females enrolled in life skills-health, foreign language, and science courses. The rest of the subjects had close to a half and half gender balance.

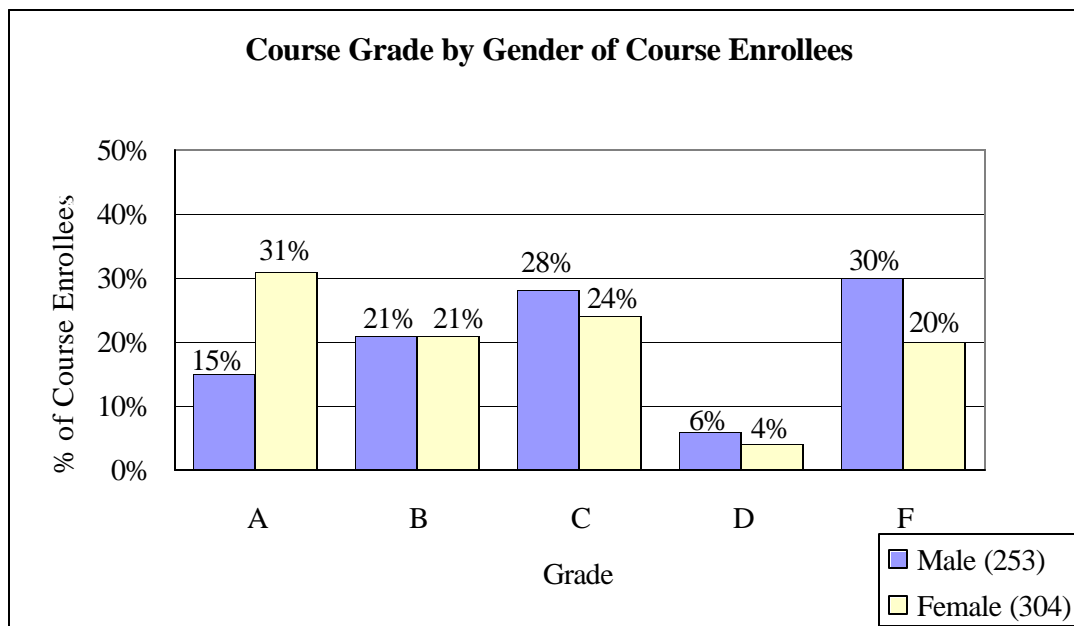


COURSE GRADE

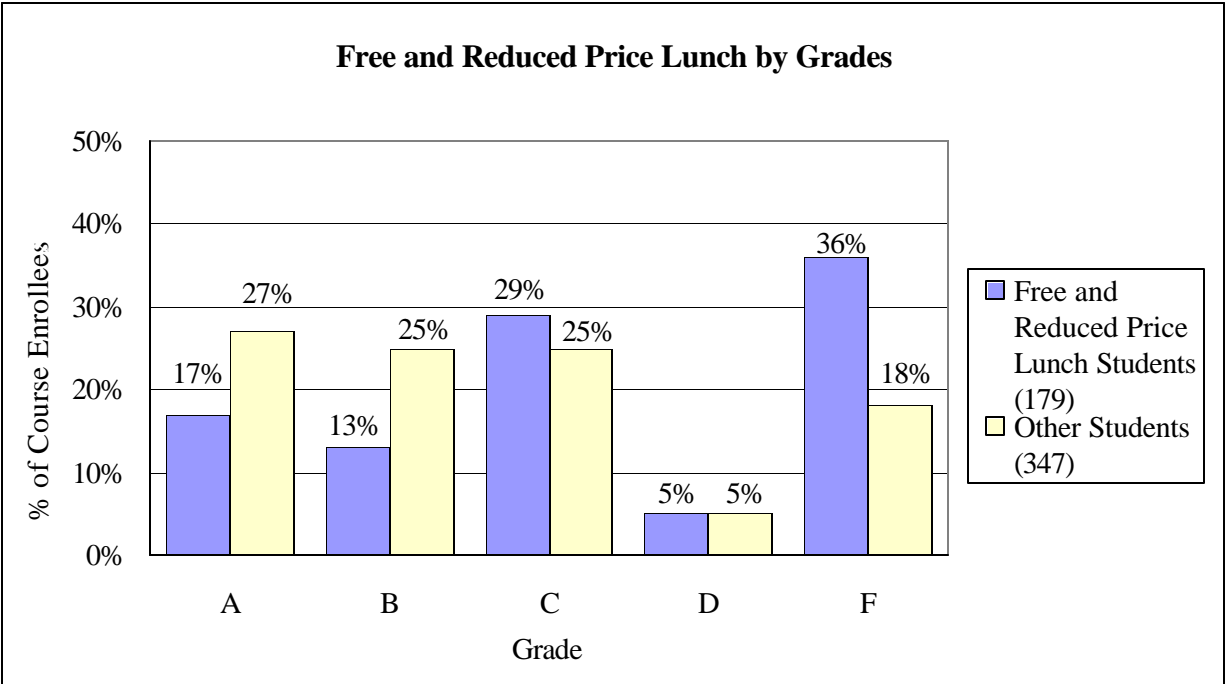
Of all the course grades assigned, A's (23%), B's (21%), C's (26%) and F's (25%) were all similar in proportion. Only 5 percent of the grades were D's.



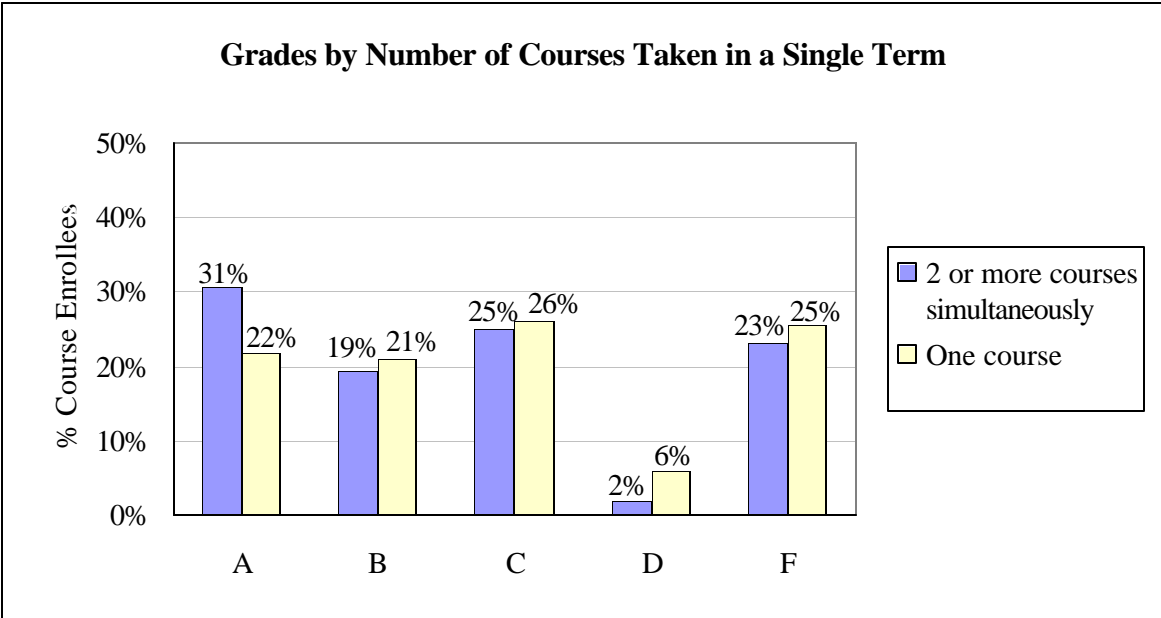
Gender was related to the grade that was earned. Almost a third of the grades earned by females were A's compared with about half that for males (15%). A higher percentage of courses taken by males (30%) than by females (20%) received a grade of F.



FRPL participation was also related to student grades. As stated in an earlier section, FRPL participants were more likely to have a lower cumulative GPA than those not participating in FRPL. Thus it is not surprising that course enrollees participating in FRPL were less likely to earn A and B grades.



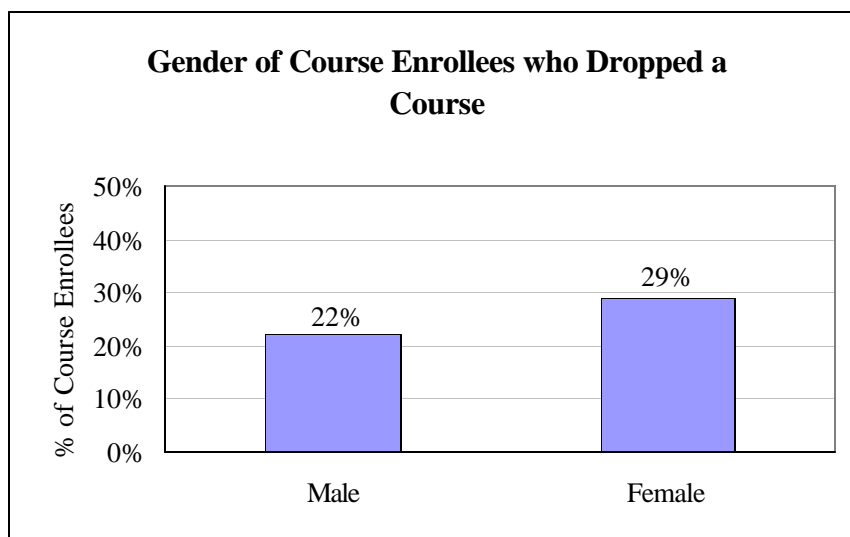
Since students who took more courses tended to enroll in AP/honors, and AP/honors students tended to have better overall GPAs, it is not a surprise that students who took more courses tended to get better grades in those courses.



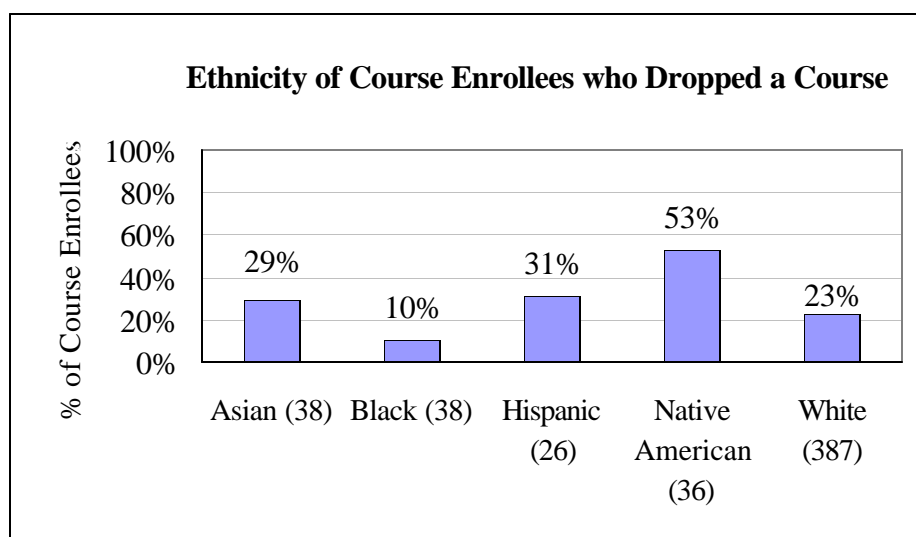
COURSE COMPLETION

Seventy-four percent of all DLC courses taken were completed and 26 percent were dropped. However, as previously mentioned, students had many valid reasons for not completing courses including schedule changes at their local high school. (See Appendix C.)

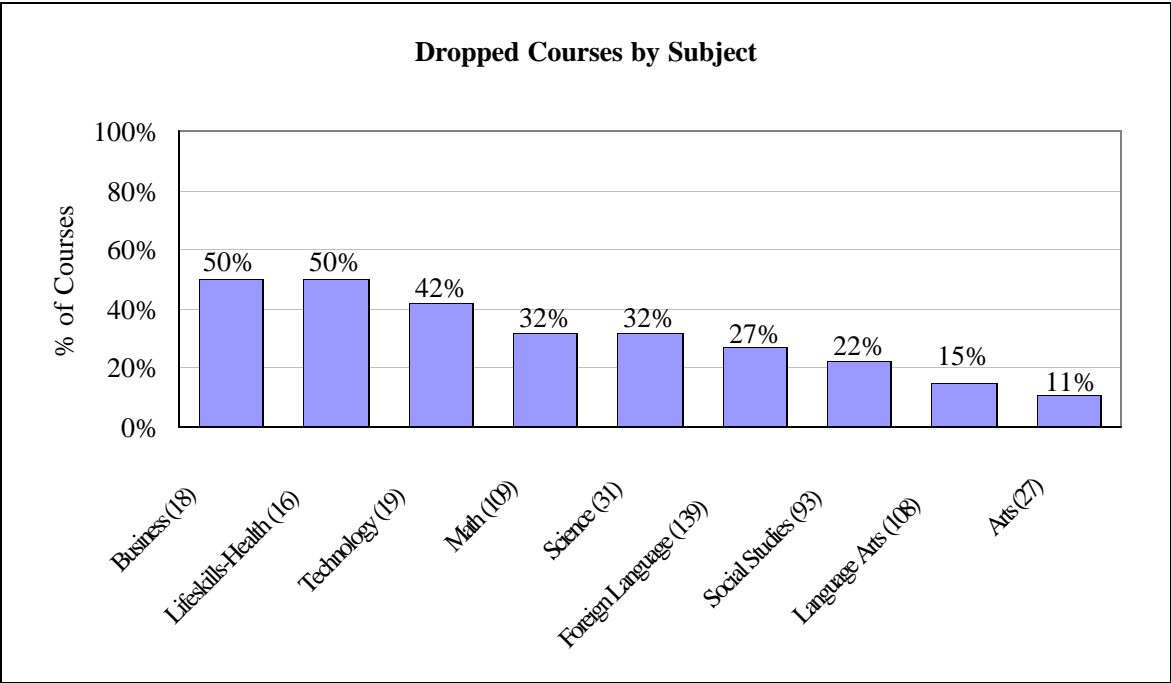
Those who dropped courses were more likely to be females (29%) than males (22%).



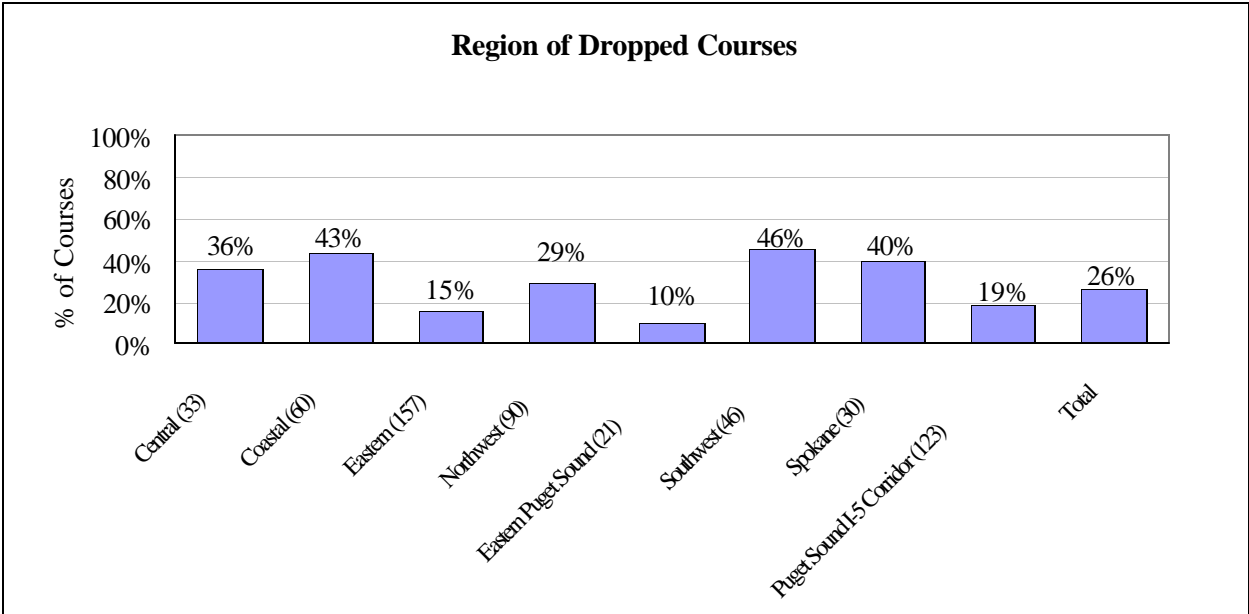
Among courses taken by Black students, only 10 percent were dropped compared to those courses taken by Native American students with 53 percent being dropped.



The course subjects with the highest drop rates were business and lifeskills- health (both at 50%) and technology (42%). The courses with the lowest drop rates were arts (11%), language arts (15%), and social studies (22%).



Courses taken by students living in the Southwest, Coastal, and Spokane regions were most likely to be dropped. Courses taken by students living in Eastern Puget Sound, Eastern Washington, and the Puget Sound I-5 Corridor were least likely to be dropped.



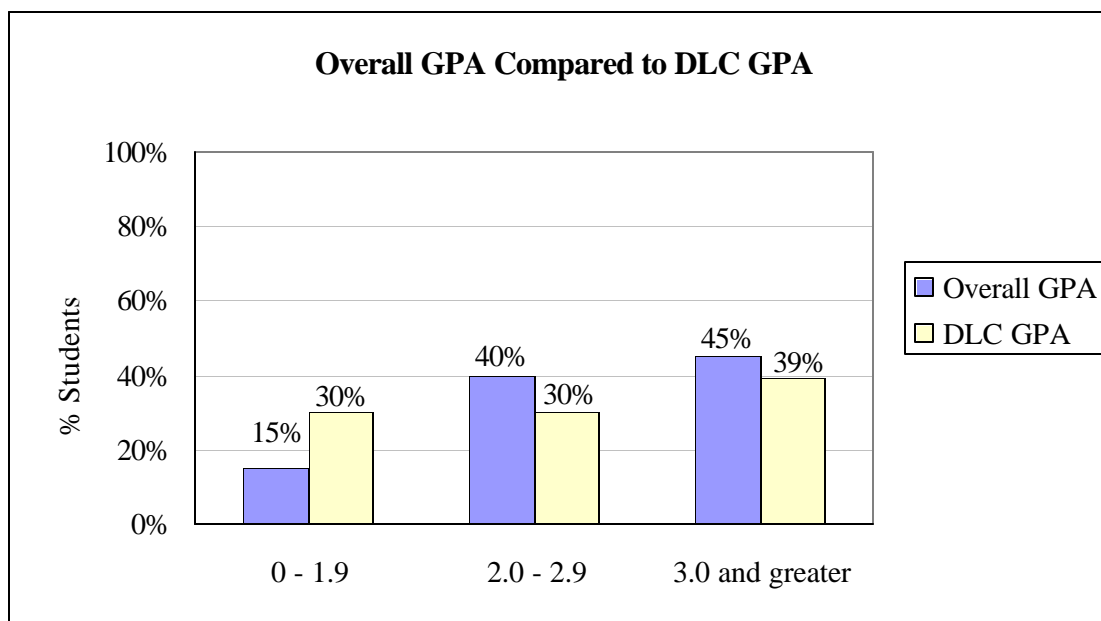
CHAPTER 4: RELATIONSHIP BETWEEN GRADES EARNED AND OVERALL GPA

This chapter explores the relationship between the grade earned in the online course and the student's overall GPA. Comparing grades earned in DLC courses to students' overall GPA can help DLC staff determine whether DLC courses are relatively easy or hard for students.

Among the 410 students who enrolled in a DLC course, 70 percent completed at least one course and earned a grade. This chapter is based on these 286 course completers.

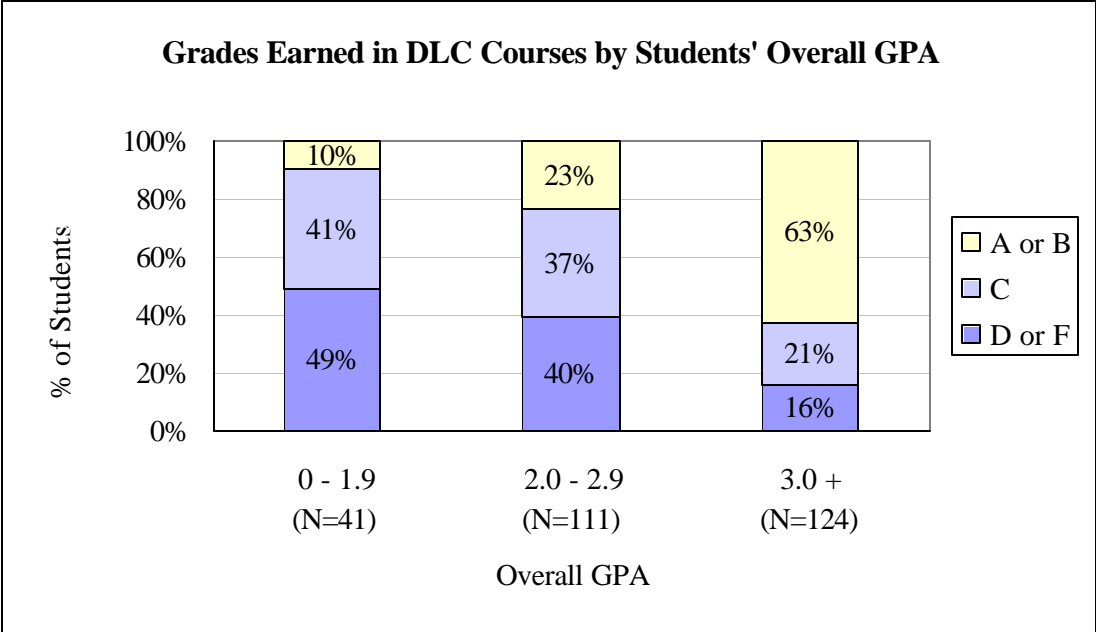
Overall, students who completed DLC courses earned lower grades in their online courses than in their regular courses at school (as reflected in their overall GPA.) Among students who completed at least one course, 45 percent had an overall GPA of 3.0 or higher across all subjects taken in high school, 40 percent had a GPA between 2.0 and 2.9, and 15 percent had a GPA below 2.0.

Focusing just on DLC courses, 39 percent of students had a 3.0 or better GPA, 30 percent had a GPA between 2.0 and 2.9, and 30 percent had a GPA below 2.0.



Another way to look at grades earned is to group students by their overall GPA and look at their grades in online courses. Of the 124 students with an overall GPA of 3.0 or higher, most (63%) earned similarly high grades in a DLC course, some (21%) earned C grades, and a few (16%) earned D and F grades.

Students with average grades have succeeded in DLC courses. Of the (111) students with an overall GPA in the C range (2.0 to 2.9), some (23%) earned A or B grades and 37 percent earned C grades. While almost half of the students who had an overall GPA below 2.0 earned D and F grades, 41 percent earned C grades and 10 percent earned A and B grades.

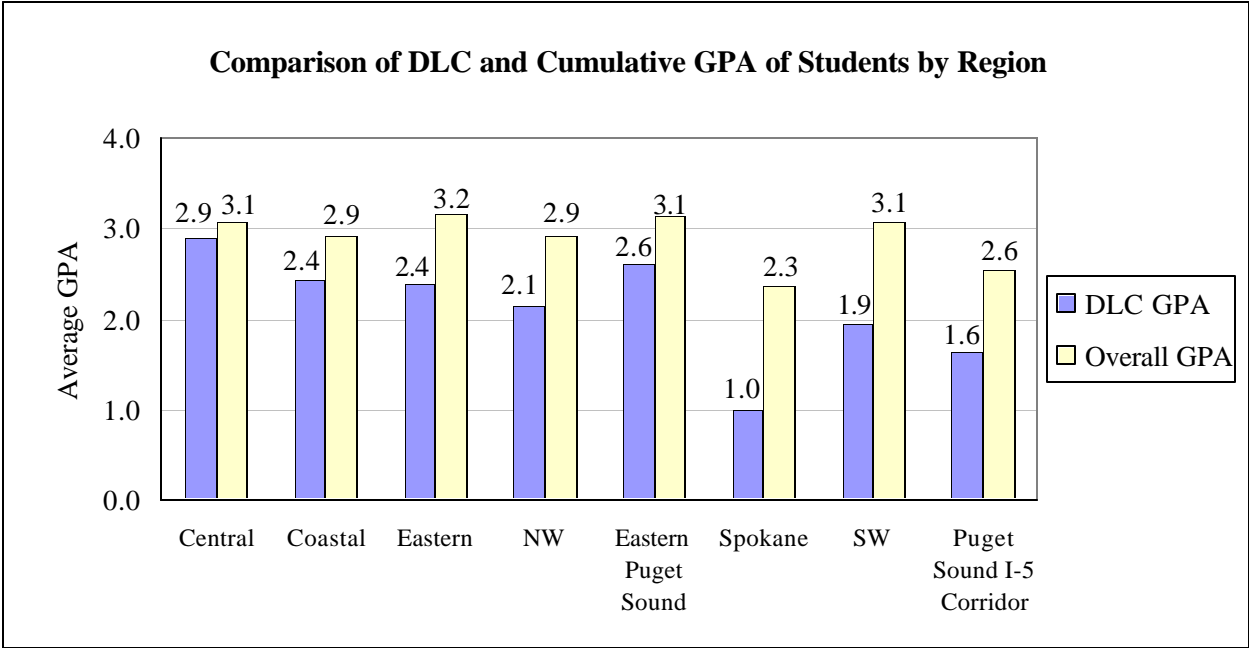


For all students who completed at least one DLC class, their GPA for DLC courses was 2.08 and their GPA in all high school courses combined was 2.88, a 0.80 grade point difference. Almost every sub-group had a statistically significant difference between their overall average GPA and their GPA in DLC courses.⁷ There were no groups for whom the DLC GPA was higher than the overall GPA. However, some groups saw less of a decline than others. The groups with the largest and smallest differences are discussed below.

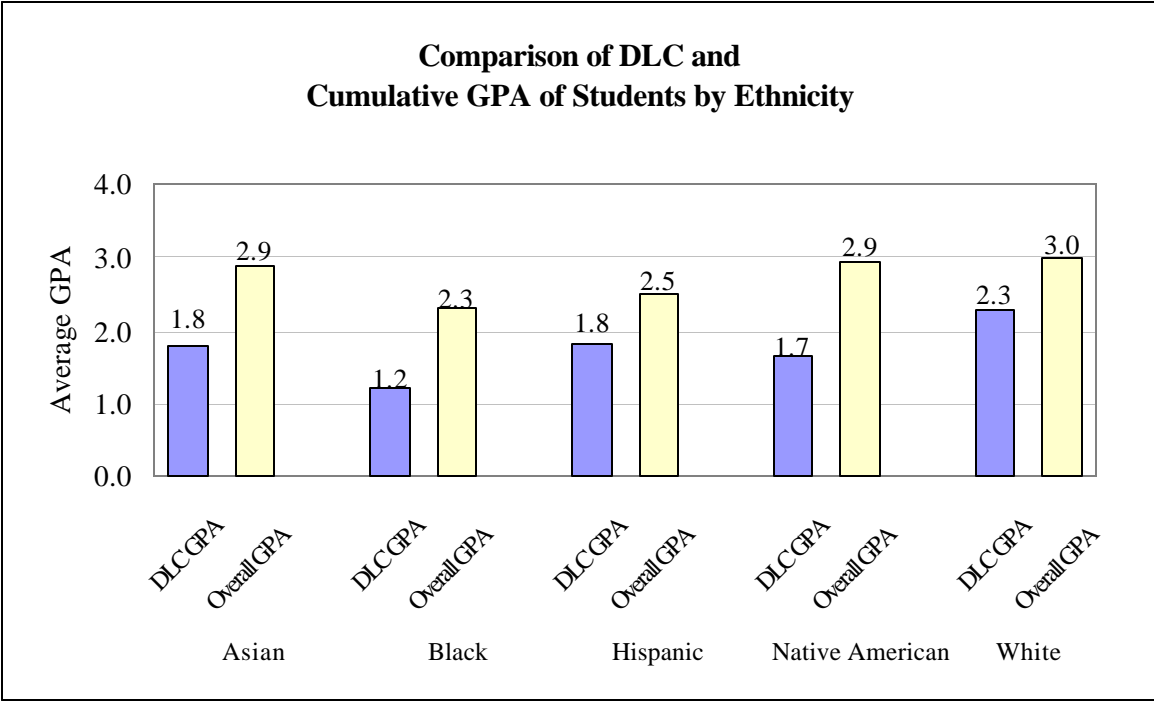
DLC VERSUS OVERALL GRADES BY DEMOGRAPHICS

Students from Central and Coastal Washington saw a difference in GPAs of less than 0.5 grade points. Conversely, students in the Southwest and Spokane regions saw a difference in GPAs of between 1.2 and 1.3 grade points. The DLC GPAs of students from Spokane and the Puget Sound I-5 Corridor were particularly low, having DLC GPAs of 1.00 and 1.63 respectively.

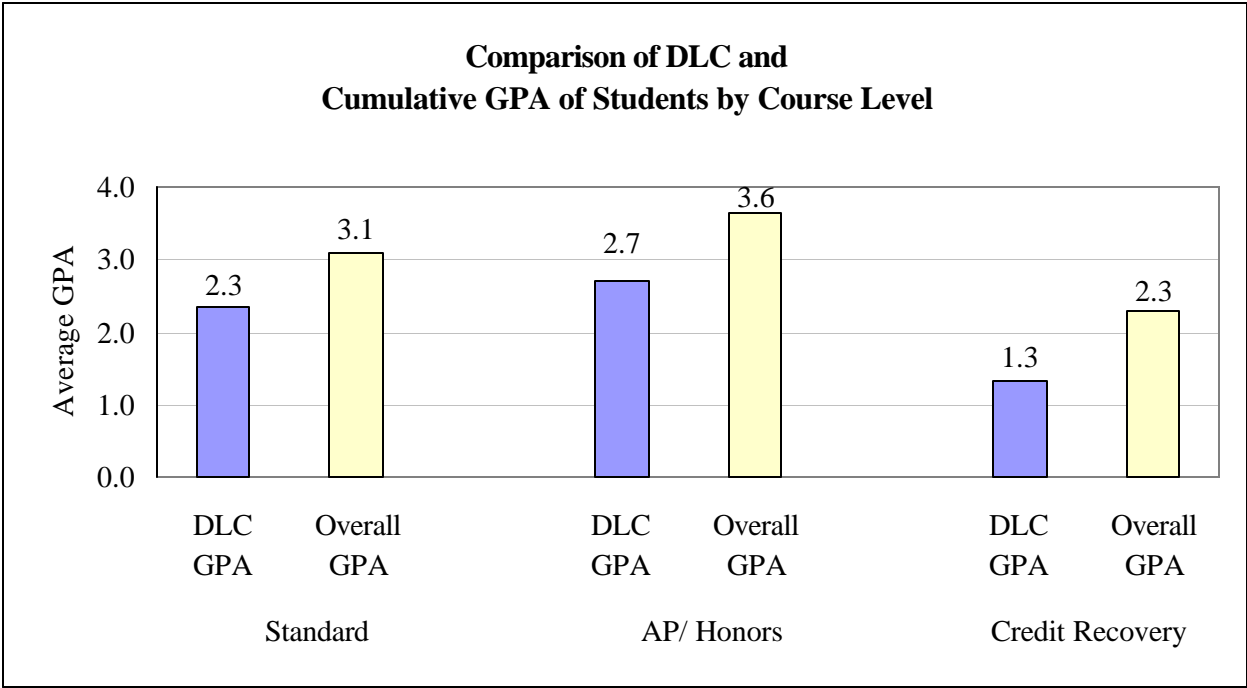
⁷ Please see Appendix D for the average values of all groups.



By ethnicity, Asians, Blacks, and Native Americans also struggled more with online than traditional courses. Each of these ethnicities saw a difference of 1.1 or 1.2 grade points. The DLC GPAs of Black and Native American students were particularly low, with DLC GPAs of 1.20 and 1.67 respectively.

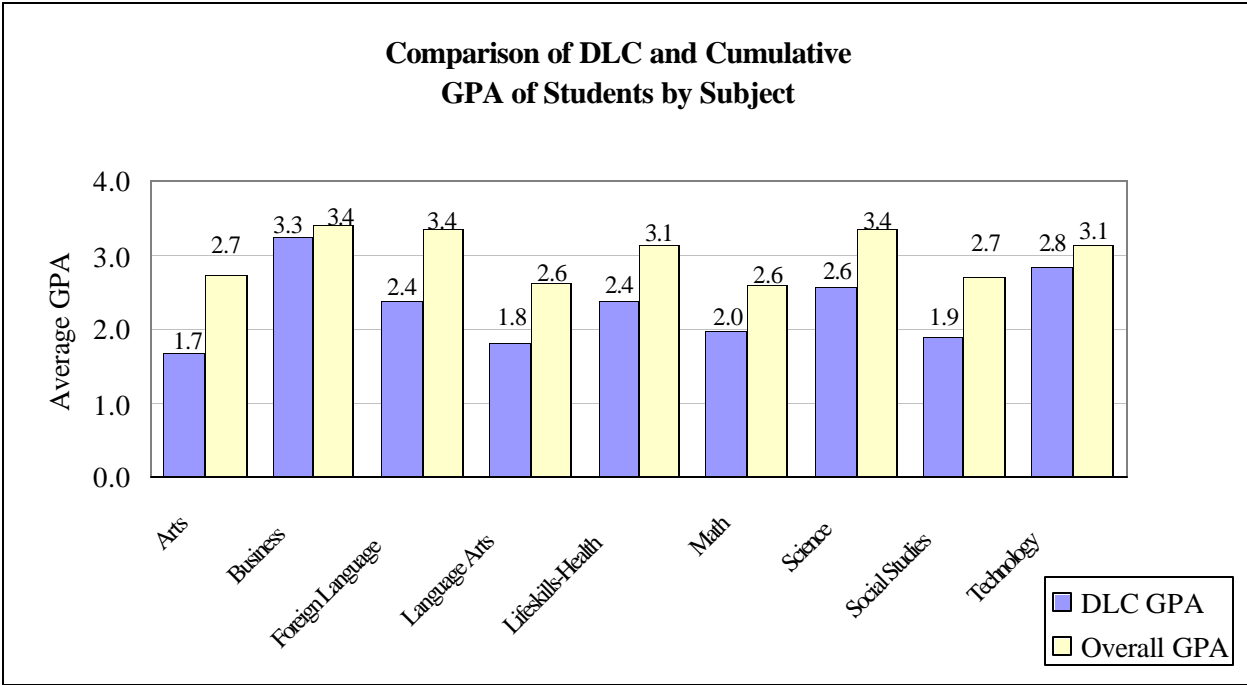


In terms of type of course, students enrolled in Credit Recovery classes had a 1.0 grade point difference between their overall GPA and the DLC GPA. The DLC GPA value was also very low. These students had a GPA in their credit recovery courses of 1.3.



DLC VERSUS OVERALL GRADES BY SUBJECT AREA

On the positive side, students enrolled in Business and Technology courses earned very similar grades in the DLC courses as compared to their other high school grades. Both had DLC GPAs within 0.3 grade points of their overall GPA.



CONCLUSION

The first three sections are based on the 410 students who enrolled in DLC courses in the 2005-2006 school year for whom enrollment and grade data was available.

Are DLC courses being accessed by a diverse range of students or is their use concentrated to particular types of students?

Compared to what one would expect from the participating districts, students who enroll in DLC courses are somewhat more likely to be:

- Female
- Black or White
- High school seniors or juniors
- Students with high academic performance in their prior coursework. However, the majority of students had a C average or lower as their overall GPA in high school
- Located in Eastern Washington, Coastal Washington, or Northwest Washington. (Students from the I-5 Puget Sound corridor were under-represented.)
- Not participating in special education programs
- Not participating in the free and reduced price lunch program

What are the enrollment and completion patterns of students enrolled in DLC courses?

- Over the course of the year, approximately one third of students enrolled in more than one course. In any given term, only 10 percent were enrolled in multiple courses.
- Overall, 70 percent of students completed all their courses and 30 percent dropped at least one course. The more courses a student enrolled in, the more likely they were to drop at least one course. The most frequently cited reason for dropping a course was “change in school schedule or scheduling conflict”.
- The Spokane and Southwest regions had the highest percentage of students who dropped courses and the Eastern Puget Sound region had the lowest percentage of students dropping a course.
- Native American students and Hispanic students were most likely to drop at least one course. Black students had the lowest rate of students dropping a course.

What are the characteristics of students enrolled in the different types of courses?

There are more courses than students since 32 percent of students took more than one course. The 410 DLC enrollees took a total of 560 courses in the 2005-2006 academic year.

- The majority (66%) of courses were standard, 22 percent were credit recovery, and 12 percent were AP/honors courses.
- Males were more likely to take credit recovery courses and females were more likely to take standard courses.
- About half of the students enrolled in standard courses had a GPA of 3.0 and higher. More than one-third of students in standard courses had a GPA between 2.0 and 2.9.
- The most popular subjects were foreign language (25%), math (19%), language arts (19%) and social studies (17%).
- Technology and business courses were predominately populated by males. A majority of females enrolled in life skills-health, foreign language, and science courses.
- Of all the course grades assigned, A's (23%), B's (21%), C's (26%) and F's (25%) were all similar in proportion. Only 5 percent of the grades were D's.
- Seventy-four percent of all DLC courses taken were completed.

What is the relationship between the online course grade earned and overall GPA?

This section is based on 286 students who completed at least one course.

- Students who completed a DLC course earned lower grades in their online courses than in their regular courses at school.
- The average GPA for DLC courses was 2.08 and the average GPA for these same students in their high school courses combined was 2.88. There were no groups for whom the DLC GPA was higher than the overall GPA.
- Groups that had the biggest difference between their online and overall GPA were the following: students in the Southwest and Spokane regions, Asians, Blacks, and Native Americans, and students enrolled in Credit Recovery classes.

Next Steps

Given the interest in who is enrolling and what courses they are taking, the foundation is present for additional research on how DLC courses are working for different kinds of students. If additional research is sought, areas of inquiry may include the following:

- Analyze the factors that contribute to lower grades earned in DLC courses than the students typically earn. Research could compare the experiences of students who are struggling with those who are earning comparable grades.
- Explore issues that determine how students and school staff decide whether to enroll in DLC courses. How did students learn about opportunities at DLC? What is the general satisfaction with DLC education opportunities?
- Follow up on high school graduates who took DLC courses to see how many go to college and are successful. This can be measured both by computing college enrollment rates and by looking at patterns of remediation needs in mathematics and English. The rates on both indicators should be computed for students who enroll in DLC courses and for an appropriate control group.
- Identify the best ways to support students in their learning. What types of support from local teachers or mentors do current students perceive as most beneficial? How can the local teacher or mentor at the school best support the student in an online learning environment? What resources have been most useful to successful students? What types of student mentor support are most helpful? This additional information from students could lead to improved training for students, parents, and teachers who are interested in DLC learning opportunities.

APPENDIX A: EXPLANATION OF COMPARISON GROUP

To understand how the comparison group was created and what it means, consider the following examples:

Example 1

Assume DLC enrolled students from two very different districts and the gender distribution in District A was 50% male and 50% female and the distribution in District B was 25% male and 75% female.

If there were 2 students from district A and 8 students from District B participating in DLC then one would *expect* 1 male and 1 female from District A and 2 male and 6 female from District B. Combined, one would expect 3 males and 7 females from the two districts. This comparison group would be far different from the known statewide distribution of 51% male and 49% female, and also different from the simple average of the two districts, which would be 3.75 males and 6.25 females.

	% Male	% Female	DLC Enrolled	Expected Males	Expected Females
District A	50%	50%	2	1	1
District B	25%	75%	8	2	6
Total			10	3	7

If in looking at the results there were more females enrolled than males, then that should not be surprising given the composition of the participating districts.

Example 2

Put another way, if DLC only enrolled students in the Yakima School District, would we expect the students participating in DLC to look more like the profile of the state as a whole or look more like Yakima District students? In 2005-2006, 46 percent of high school students in the Yakima School District were Hispanic, 47 percent were White, and 7 percent were other ethnicities.

If we found that 73 percent of students who enrolled in DLC were White and 11 percent were Hispanic (like the state averages), this would suggest a problem with the participation of Hispanic students.

Thus, it is important to compare the participants against a real comparison group and not just to state averages.

APPENDIX B: SUPPORTING DATA TABLES

- **Free and Reduced Price Lunch students' overall GPA**

	# of FRPL Students	All Other Students	Total
0-1.9	21	29	50
2.0-2.9	58	80	138
3.0 and greater	35	113	148
Total	114	222	336

- **At least one course dropped by number of courses taken in a term**
(number of students taking a DLC course)

	Course Dropped	No Courses Dropped	Total
One Course	100	270	370
2 or More Courses	24	16	40
Total	124	286	410

- **Gender by course level**
(course enrollees)

	Male	Female	Total
Standard	153	215	368
AP/honors	31	36	67
Credit Recovery	69	53	122
Total	253	304	557

- **Courses competed**
(number of courses)

	Courses
Completed Courses	414
Dropped Courses	146
Total	560

APPENDIX C: REASONS FOR DROPPING COURSES

Reasons students gave for dropping a DLC course (166 students supplied reasons):

- Change in school schedule or scheduling conflict (52%)
- Difficulty in starting and/or navigating the course (15%)
- Student didn't like this style of learning (8%)
- Student no longer enrolled at school (7%)
- Student was unable to manage his/her time for the course (6%)
- Student decided to take course at his/her own school (2%)
- Poor grades in the course (2%)
- Insufficient access to a computer (1%)
- Poor experience with online instructor (1%)
- Missing or late textbook (1%)
- Other: Doesn't want to take another online course (1%)
- Other: Family crisis (1%)
- Other: not ready for a second semester of Japanese (1%)
- Other: Student is taking Algebra 1 at a physical class and it is taking much longer than she expected. Thus, she's unable to take this class and finish it in time. (1%)
- Other: Student mistakenly enrolled in course when it was not necessary (1%)
- Other: Student was never enrolled in 1st semester. (1%)
- Other: waitlisted for 2 classes, 1st choice opened up (1%)

APPENDIX D: DIFFERENCE BETWEEN OVERALL GPA AND GPA IN DLC COURSES

	Overall GPA			GPA in DLC Courses			Diff	Sig
	Mean	N	Std. Dev	Mean	N	Std. Dev		
All Students	2.88	276	0.801	2.08	276	1.435	0.8	***
Arts	2.72	18	0.757	1.67	18	1.749	1.1	***
Business	3.39	8	0.709	3.25	8	1.488	0.1	
Foreign Language	3.36	61	0.650	2.38	61	1.377	1.0	***
Language Arts	2.63	69	0.837	1.83	69	1.386	0.8	***
Lifeskills-Health	3.14	5	0.512	2.40	5	2.191	0.7	
Math	2.60	40	0.738	1.96	40	1.332	0.6	***
Science	3.36	11	0.572	2.56	11	1.332	0.8	
Social Studies	2.71	58	0.769	1.90	58	1.395	0.8	***
Technology	3.14	6	0.593	2.83	6	0.983	0.3	
Male	2.69	134	0.803	1.74	134	1.408	0.9	***
Female	3.06	142	0.757	2.39	142	1.393	0.7	***
Asian	2.88	23	0.730	1.80	23	1.404	1.1	***
Black	2.32	30	0.569	1.20	30	1.186	1.1	0
Hispanic	2.49	11	0.623	1.82	11	1.168	0.7	
Native American	2.92	12	0.867	1.67	12	1.723	1.2	**
White	2.98	199	0.809	2.28	199	1.422	0.7	***
Central	3.07	9	0.663	2.89	9	0.928	0.2	
Coastal	2.92	18	0.874	2.44	18	1.571	0.5	
Eastern	3.16	87	0.745	2.38	87	1.496	0.8	***
Northwest	2.92	39	0.924	2.13	39	1.147	0.8	***
Eastern Puget Sound	3.14	15	0.815	2.60	15	1.549	0.5	**
Spokane	2.35	8	0.909	1.00	8	1.414	1.3	**
Southwest	3.08	9	0.556	1.94	9	1.357	1.1	**
Puget Sound I-5 Corr	2.55	91	0.677	1.63	91	1.354	0.9	***
Special Education	2.57	12	0.432	1.67	12	1.354	0.9	**
Not Special Ed	2.89	264	0.811	2.09	264	1.439	0.8	***
FRPL	2.66	96	0.771	1.71	96	1.417	1.0	***
Not FRPL	2.99	180	0.795	2.27	180	1.410	0.7	***

	CUMGPA			DLC_GPA				
	Mean	N	Std. Dev	Mean	N	Std. Dev	Diff	Sig
Standard	3.07	160	0.774	2.38	160	1.449	0.7	***
AP/honors	3.63	24	0.379	2.95	24	1.017	0.7	***
Credit Recovery	2.34	92	0.589	1.32	92	1.160	1.0	***
1 Course Taken	2.75	182	0.772	1.91	182	1.461	0.8	***
2 Courses Taken	3.14	87	0.819	2.40	87	1.311	0.7	***
3 Courses Taken	3.06	7	0.524	2.28	7	1.712	0.8	
Grade 9	2.98	15	0.986	2.13	15	1.685	0.9	**
Grade 10	2.83	48	0.909	1.70	48	1.567	1.1	***
Grade 11	3.01	96	0.753	2.25	96	1.366	0.8	***
Grade 12	2.78	116	0.762	2.08	116	1.397	0.7	***

Statistical significance was determined using a paired samples t-test.

*** means p-value <.01; ** means p-value<.05