

DEVELOPMENTAL READING STUDENT PROGRESS AND COURSE-TAKING PATTERNS

OFFICE OF PLANNING, RESEARCH AND INSTITUTIONAL EFFECTIVENESS

(SEPTEMBER 2009)

BACKGROUND

Larger and larger numbers of students are entering colleges and universities underprepared for college-level coursework. When community colleges are specifically examined, the numbers are even higher: recent research has shown that as much as 58% of community college students enroll in a developmental course during their college careers (Attewell, Lavin, Domina & Levey, 2006). At the same time, studies of developmental education programs have revealed disappointing or inconclusive results of programs at the community colleges level (Bailey, 2009; Merisotis & Phipps, 2000). In light of these findings and the increased demand for developmental courses, institutions of higher education are increasingly focusing on outcomes of developmental programs, and San Joaquin Delta College is no exception.

Recent research conducted by the Office of Planning, Research and Institutional Effectiveness has shown that up to 85% of students enrolled at the College initially assess at pre-college reading levels. Considering that so many Delta College students require remediation in this area, it is of particular importance to examine the impact of the College's developmental reading programs.

Delta College students who are placed in courses two levels below transfer-level (Level 1) have several means of reaching the next reading level, which serves as a prerequisite for many general education and transfer courses. Based on the San Joaquin Delta College catalog, students have three course-based options for reaching Reading Level 2:

- Complete four 4.5-unit Reading 91 courses (A, B, C, D, E or F)
- Complete both Reading 90 (4 units) and Reading 98 (variable units)
- Complete one-unit Reading 97 courses (A, B, C, D, E, F, G, H or I)

In addition to the above options, students may also retake the reading assessment test in an attempt to place at a higher level. In 2007-2008, all six Reading 91 courses (Reading in Literature, Reading in Health Science, Reading in Science, Reading in World Geography and Culture, Reading in History and Reading in Children's Literature) had a combined annual enrollment of 1,870, and Reading 90 (Introduction to Reading and Writing Skills) had an annual enrollment of just 119. Reading 98 (Individualized Reading Skills), which serves Reading 90 students as well as other students hoping to improve their reading skills, had an annual enrollment of 939 in 2007-2008. A study was undertaken to examine the different reading pathways that ultimately lead to enrollment in and completion of the transfer and degree-applicable English 1A (Written Communications) course, for which Reading Level 2 or Reading Level 3 is a prerequisite. The goals of the study were to (1) examine student course-taking patterns in each pathway, and (2) determine the proportion of students on each pathway that ultimately complete English 79 and 1A.

METHODOLOGY

Student course-taking and completion data were obtained from the College's System 2000 database for students who enrolled in at least one Reading 91 course and for students who enrolled in Reading 98 and Reading 90. Budget data for instructional support were derived from the College's financial database system. Annual 2007-2008 budget data were used to assess course costs; because no students enrolled in a Reading 97 course in 2007-2008, this course-taking pattern was excluded from the study. Course repeat data were obtained for students in each group (Reading 91 and Reading 90/98) to determine the average number of times required for a student to complete a given reading or English course. Initial student enrollment data revealed that relatively few students (less than 100 in five years) enrolled in and completed four Reading 91 courses; thus, this group was divided into the following subgroups: one-course students, two-course students, three-course students and four-course students. Figure 1a illustrates the four Reading 91 pathways to English 1A, and Figure 1b illustrates the Reading 90/98 pathway to English 1A.

Figure 1a. Reading 91 Pathways to English 1A, Written Communications

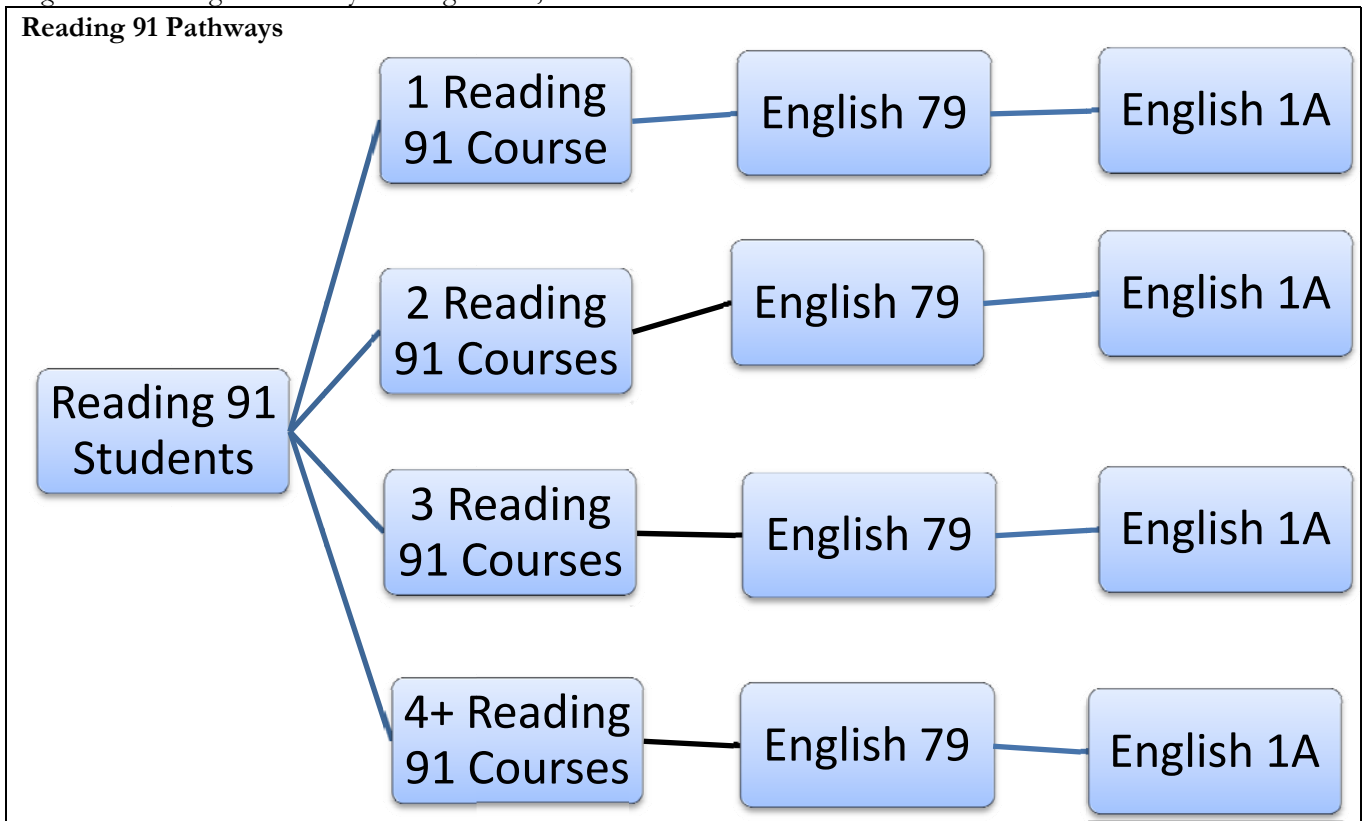
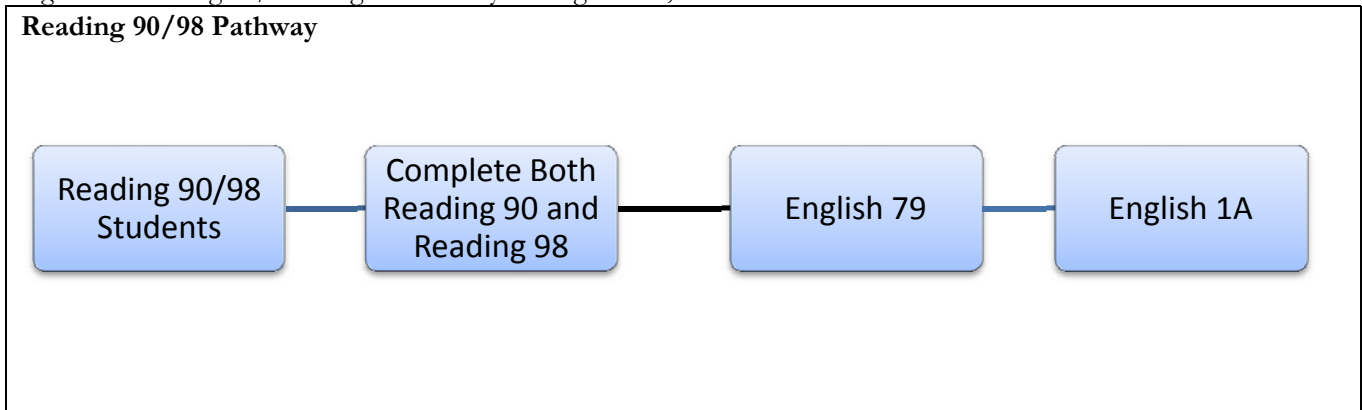
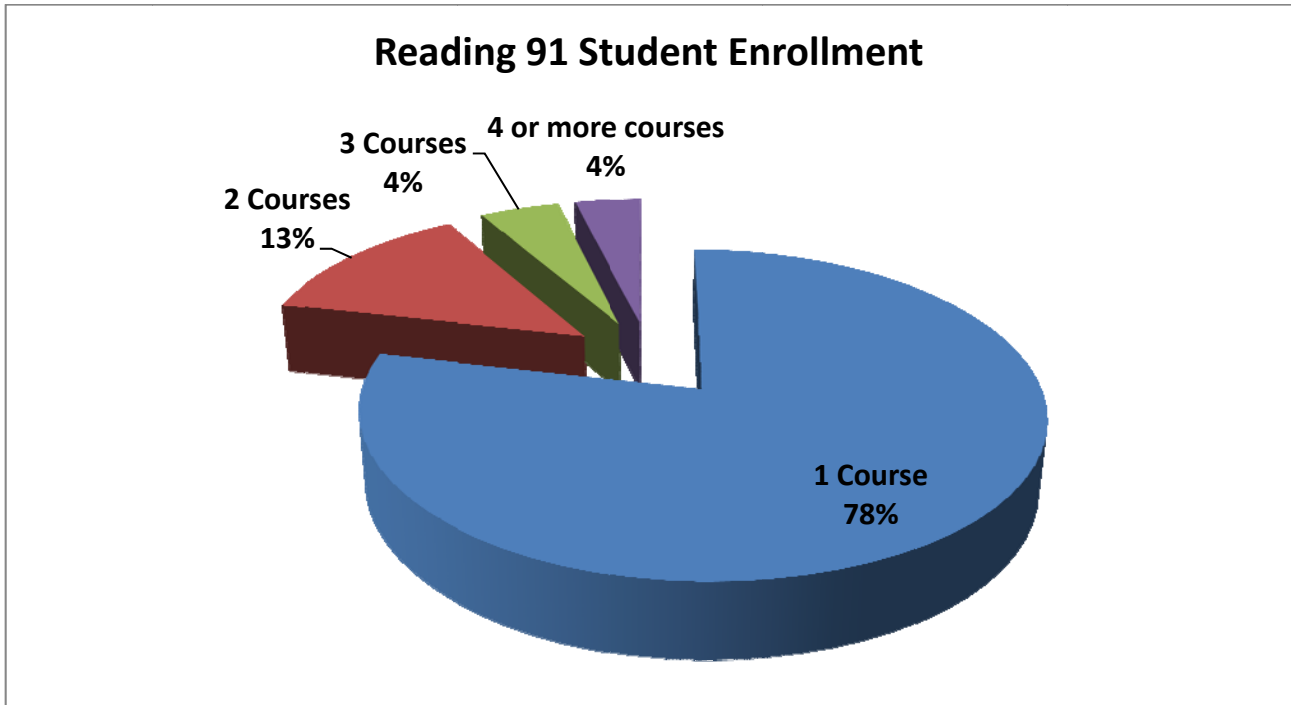


Figure 1b. Reading 90/Reading 98 Pathway to English 1A, Written Communications



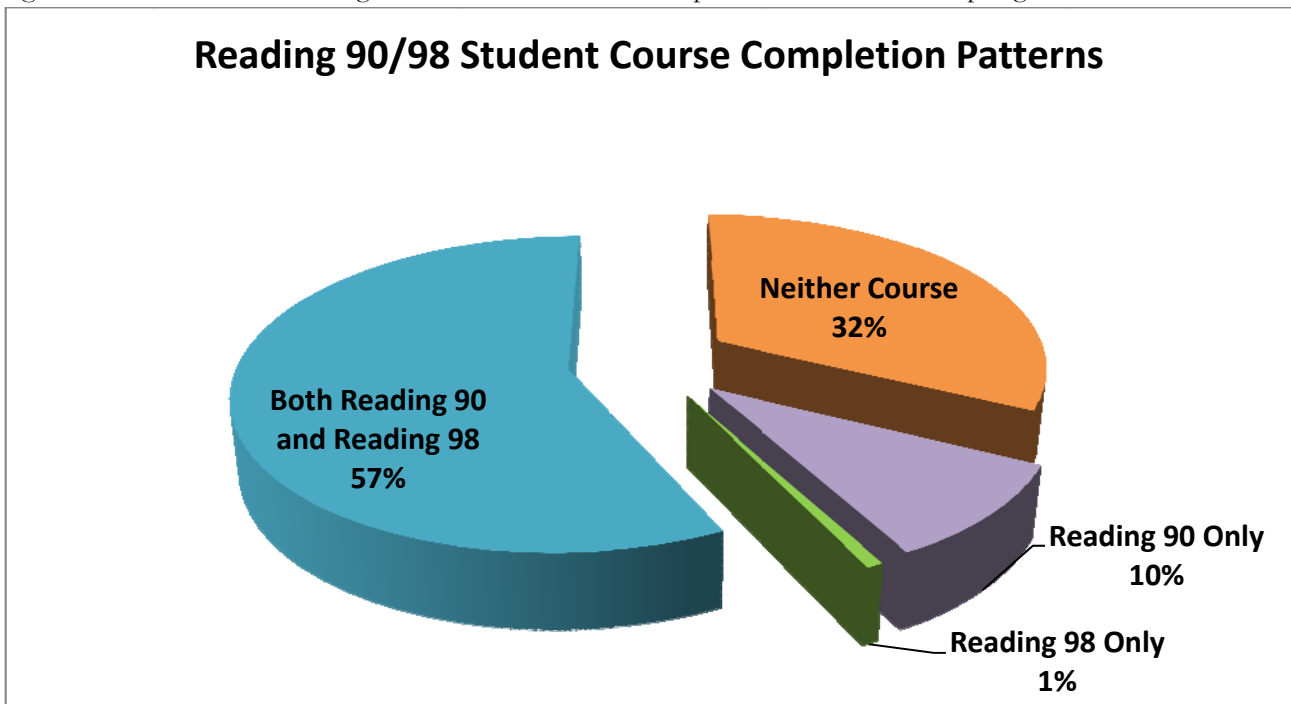
As mentioned previously, few Reading 91 students complete the four Reading 91 courses required to reach Level 2 in reading. Over three in four (78%) Reading 91 students enrolled in just one Reading 91 course. Thirteen percent enrolled in two Reading 91 courses, 4% enrolled in three Reading 91 courses, and just 4% enrolled in four or more courses. Figure 2 illustrates the course enrollment patterns of Reading 91 students. Because very few students (less than 1%) completed more than four Reading 91 courses and only one completed all of the courses he or she attempted, this group of students was excluded from the analysis.

Figure 2. Distribution of Reading 91 Students, Summer 2003-Spring 2008



Among students who enrolled in the Reading 90/Reading 98 combination, over half (57%) completed both courses, but about one third were unsuccessful in both courses. Figure 3 illustrates course completion patterns for Reading 90/98 students.

Figure 3. Distribution of Reading 90/98 Student Course Completion, Summer 2003-Spring 2008



Student enrollment, course attempts and success data were obtained for students in each pathway, and costs were calculated for each course along the pathway to English 1A. Student outcomes and total costs for each pathway were then compared to determine which pathways had the highest completion rates for English 1A. In addition, costs for each pathway were compared to determine which pathways were more cost-effective for students to take en route to English 1A. Cost figures are provided for each pathway for the “Model Student” and “Average Student”. A description of the two cost calculations is provided below.

Cost Calculation: Model Student

The “Model Student” figures provide costs per course for each pathway assuming each student passes the course on his or her first attempt. Cost per enrollment figures were calculated by summing the costs of faculty, staff, materials, supplies and tutoring for the Reading 91 courses or Reading 90 and Reading 98 courses. Shared costs were divided proportional to course FTES in 2007-2008. Instructional costs were also calculated for English 79 and English 1A.

Cost per enrollment was calculated by dividing annual costs by total annual (duplicated) enrollment for each course in 2007-2008 (the most recent year for which data was examined). Cost per FTES figures were calculated by summing the annual costs of each course and dividing it by the annual FTES total for each course. Note that Reading 91 course costs were aggregated across all Reading 91 courses and divided by combined FTES and enrollment in 2007-2008. Reading 98 costs were aggregated across all Reading 98 sections and were divided by annual Reading 98 FTES and course enrollment in 2007-2008.

Cost Calculation: Average Student

The “Average Student” calculation is similar to the “Model Student” calculation but also factors in the number of attempts required for an average student to pass a course. The same calculation employed for the Model Student cost estimates was used for the Average Student cost estimates, but average attempts required to succeed in each course was added as a multiplier for each course’s cost per enrollment and cost per FTES figures.

RESULTS

The results of the analysis are provided on the following pages in the form of student progression/flow charts for each major pathway and sub-pathway to English 1A. Figure 4 illustrates completion rates and average number of repeats for Reading 91 students who enrolled in just one course. Figure 5 illustrates the pathway to English 1A for students who enrolled in two Reading 91 courses. Figure 6 presents the pathway to English 1A for students who enrolled in three Reading 91 courses, and Figure 7 illustrates the pathway for students who enrolled in four Reading 91 courses.

Figure 8 presents the pathway from Reading 90/98 to English 1A. Notes are provided below charts where appropriate, and a summary of costs is provided below each basic reading course pathway.

Reading 91 Pathways to English 1A

✓One-Course Takers

The vast majority of Reading 91 students attempted just one Reading 91 course, and just over half (56%) completed the course and took, on average, just over one attempt (1.05) to do so. Forty-two percent of those students enrolled in English 79, and over 60% eventually passed. On average, these students took 1.27 attempts to complete English 79. About two in three students who passed English 79 went on to enroll in English 1A, and of these, over three in four completed English 1A in an average of 1.13 attempts. Considered in the context of the larger cohort that enrolled in one Reading 91 course, just 7% completed English 1A.

✓Two-Course Takers

Thirteen percent of all Reading 91 students enrolled in two Reading 91 courses. Of those, just over half (53%) completed the two courses in an average of 2.10 attempts. Forty-one percent of the students enrolled in English 79. Of these, 62% completed the course in an average of 1.30 attempts. Nearly three in four of these students enrolled in English 1A, and 80% of them passed in an average of 1.06 attempts. When considered as a proportion of all students who started in this pathway, just 8% passed English 1A.

✓Three-Course Takers

Just 4% of all Reading 91 students enrolled in three Reading 91 courses. Of those, about 40% completed the three courses in an average of 3.17 attempts. Of those, 40% enrolled in English 79, and 43% of these students completed the course in an average of 1.33 attempts. Among those who completed English 79, just six students enrolled in English 1A, and all of them passed the course on their first attempt. Of the 134 students that started in this pathway, just 4% completed English 1A.

✓Four-Course Takers

Three percent of Reading 91 students enrolled in four Reading 91 courses, the catalog requirement for obtaining Reading Level 2. Two in three (66%) completed all four courses in an average of 4.29 attempts. Among those who completed all four courses, 80% enrolled in English 79, and just under half (47%) completed the course in an average of 1.36 attempts. Nearly two in three (64%) of these students enrolled in English 1A, and 88% completed the course on their first attempt. No other students in the group completed English 1A. Among the 100 students who completed four Reading 91 courses, 14% passed English 1A.

Reading 90/98 Pathways to English 1A

Of the 541 students who enrolled in both Reading 90 and Reading 98 between summer 2003 and spring 2008, just over half (57%) passed the two courses, and just 30% of those went on to enroll in English 79, and of those, 47% completed the course in an average of 1.28 attempts. Among those who passed English 79, about two in three (65%) enrolled in English 1A, and 71% passed on their first attempt. No other students in this group completed English 1A. Just 4% of all students in the Reading 90/98 pathway completed English 1A.

CONCLUSIONS AND RECOMMENDATIONS

The present study investigated the course-taking patterns, costs and reading-English course progression of students assessing at Level 1 in reading. Successful completion of English 1A served as the outcome of interest, and students who completed one, two, three or four Reading 91 courses were compared to one another and to students who completed the alternative Reading 90 and Reading 98 pathway. Cost per FTES and cost per enrollment were also compared across all five reading pathways.

When costs are taken into consideration, the most expensive pathways are among those with the lowest percentage of students completing English 1A. The average student's total cost per FTES in the Reading 90/98 pathway is over \$16,000, and the average cost per enrollment is \$1,400; just 4% of students on this pathway complete English 1A. Similarly, only about 4% students on the three-course Reading 91 pathway complete English 1A, and the per-FTES cost for the average student is over \$9,900; the per-enrollment cost is about \$1,200.

Based on the results of the present study, it appears that few students who attempt a Reading 91 course complete the four Reading 91 courses that are required to reach Level 2 in reading. Most students who attempted a Reading 91 course enrolled in just one course, and only a little over half of these students passed the Reading 91 course. Students who completed one Reading 91 course were about as likely to complete English 1A as students who completed two Reading 91 courses, and more likely than students who completed three Reading 91 courses.

Students who completed four Reading 91 courses are the most likely of the four Reading 91 groups to pass English 1A, although this pathway comes at a high cost, and this group of students comprised the smallest proportion of Reading 91 students (less than 4%). Far more students (six times as many) attempted the four different Reading 91 pathways combined than the Reading 90/98 pathway. Among the students who attempted both Reading 90 and Reading 98, over half (57%) complete both courses, but only one in 25 completed English 1A.

Results for the one-course and two-course Reading 91 pathway students were rather similar in terms of student outcomes. Eight percent of students who enrolled in two Reading 91 courses completed English 1A, and 7% of students who enrolled in one Reading 91 course completed English 1A. The similarity in outcomes between the two-course and one-course Reading 91 pathways does not appear to justify the additional cost of the second, third or fourth course. The two-course pathway costs \$7,875 per FTES and about \$1,040 per enrollment for the average student, and the one-course pathway costs \$5,888 per FTES and \$966 for the average student.

The group of students with the highest likelihood of completing English 1A was also the smallest group under investigation. Just 100 students (3%) who attempted a Reading 91 course enrolled in four courses, and 14% (twice the percentage of one-course takers) completed English 1A. When costs are factored into the equation, however, it appears that this small group of students was also one of the most expensive to get through the pathway. The four-course Reading 91 pathway cost over \$12,000 per FTES and about \$1,440 per enrollment for the average student.

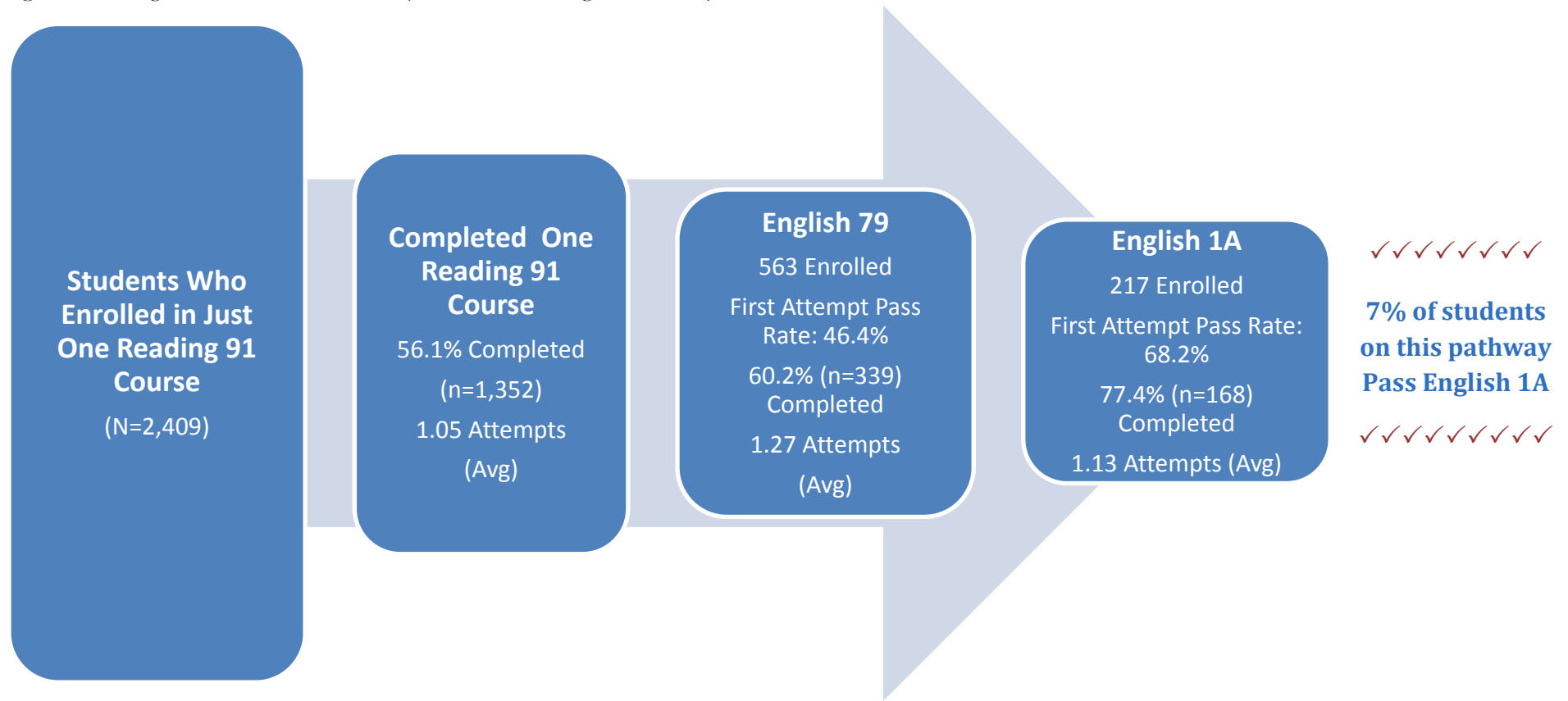
These findings suggest that perhaps the reading sequencing and pathways to Level 2 should be revised to become more efficient and cost-effective in leading students to subsequent English courses. In particular, the data suggest that the four-course requirement for the Reading 91 pathway needs to be reconsidered as an option for Level 1 reading students. The majority of students that attempt this pathway stop taking Reading 91 courses after their first one. Even so, many of these students find their way into English 79 and English 1A by retaking the reading assessment and placing at Level 2. This suggests that scarce resources could be conserved by altering the Reading 91 requirement to a single course in order for students to obtain Level 2.

The Reading 90/98 pathway appears to serve relatively few students compared to the Reading 91 program. In addition, this pathway is particularly costly and produces few students who complete English 1A. In light of these findings, it may be beneficial for students to be offered a single-course reading pathway in lieu of the multiple combinations of pathways explored in the present study.

REFERENCES

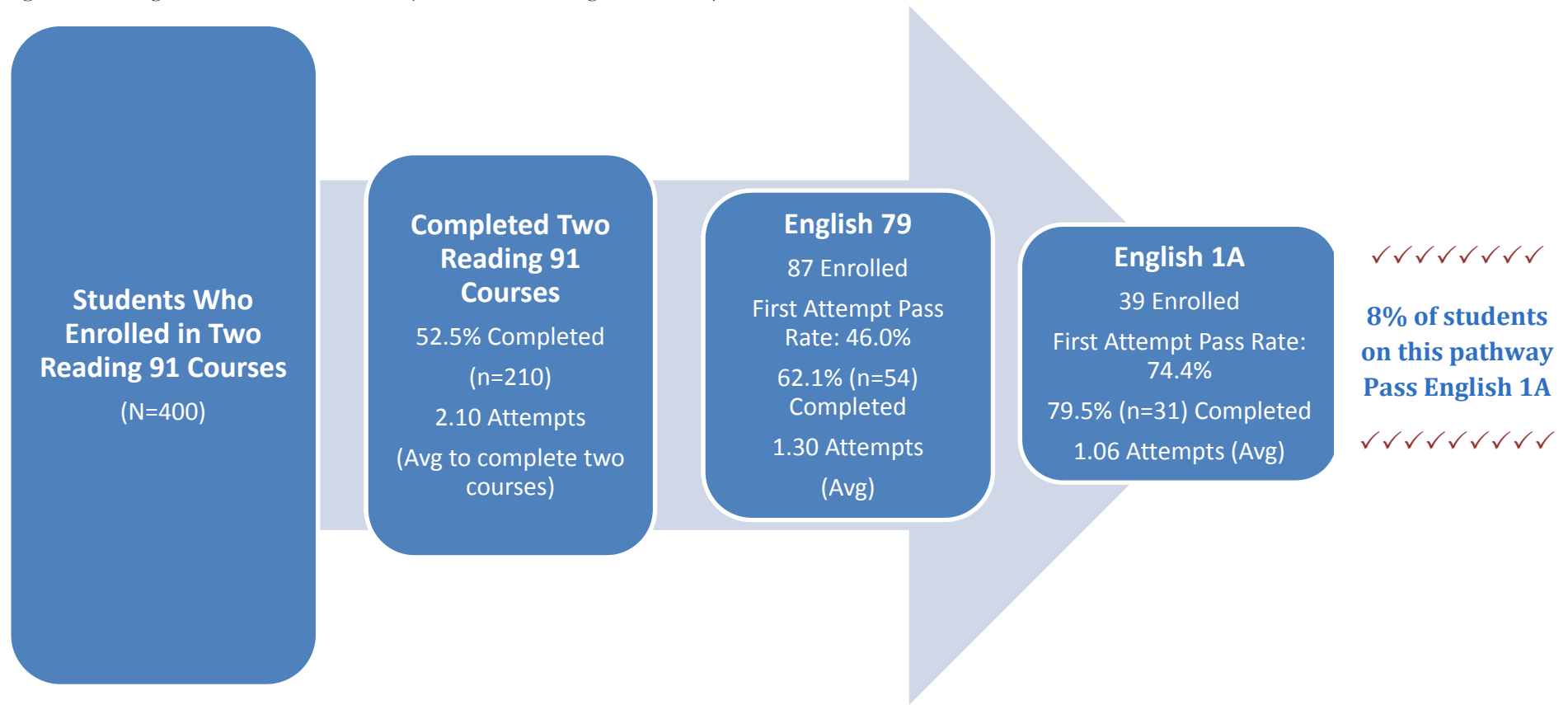
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Figure 4. Reading 91 One-Course Students (78% of All Reading 91 Students)



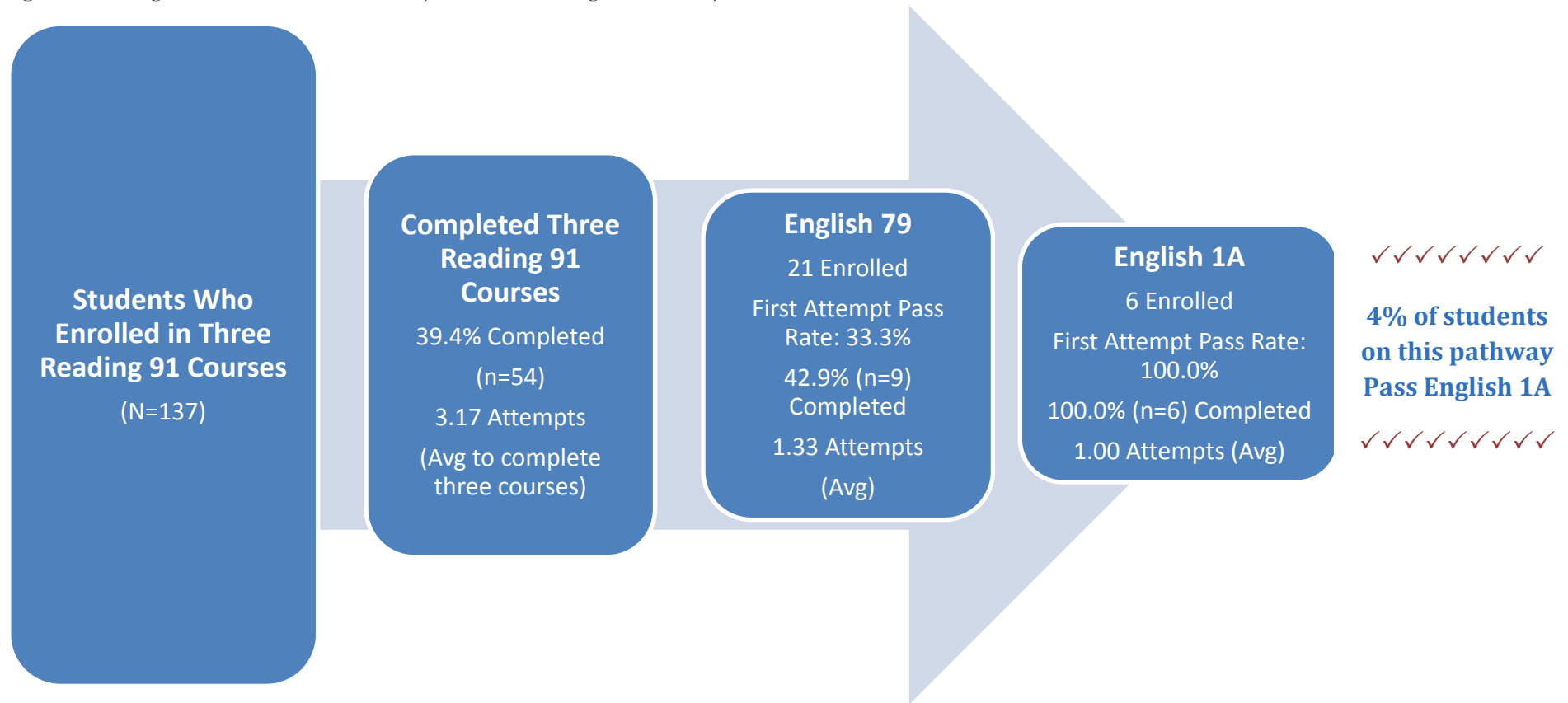
Course	Reading 91 (One Course)	English 79	English 1A	Total Pathway Cost
Model Student (Assumes student passes on his/her first attempt)				
Cost per FTES	\$1,942.75	\$1,708.14	\$1,485.39	\$5,136.27
Cost per Enrollment	\$182.65	\$286.69	\$266.25	\$735.59
Average Student (Costs multiplied by average attempts required to pass course)				
Cost per FTES	\$2,039.89	\$2,169.33	\$1,678.49	\$5,887.71
Cost per Enrollment	\$301.02	\$364.09	\$300.86	\$965.97

Figure 5. Reading 91 Two-Course Students (13% of All Reading 91 Students)



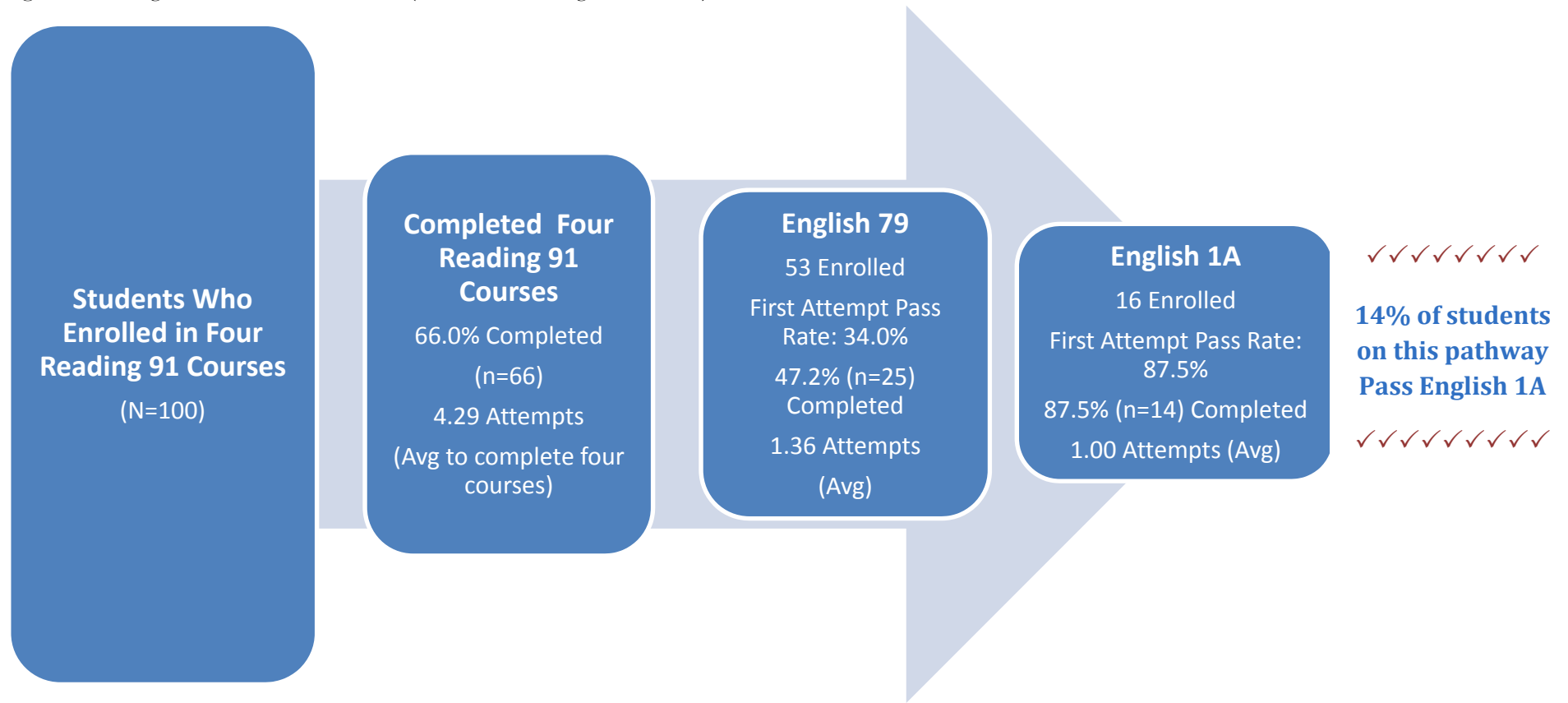
Course	Reading 91 (2 Courses)	English 79	English 1A	Total Pathway Cost
Model Student (Assumes student passes on his/her first attempt)				
Cost per FTES	\$3,885.50	\$1,708.14	\$1,485.39	\$7,079.03
Cost per Enrollment	\$365.31	\$286.69	\$266.25	\$918.24
Average Student (Costs multiplied by average attempts required to pass course)				
Cost per FTES	\$4,079.78	\$2,220.58	\$1,574.51	\$7,874.87
Cost per Enrollment	\$383.57	\$372.69	\$282.22	\$1,038.49

Figure 6. Reading 91 Three-Course Students (4% of All Reading 91 Students)



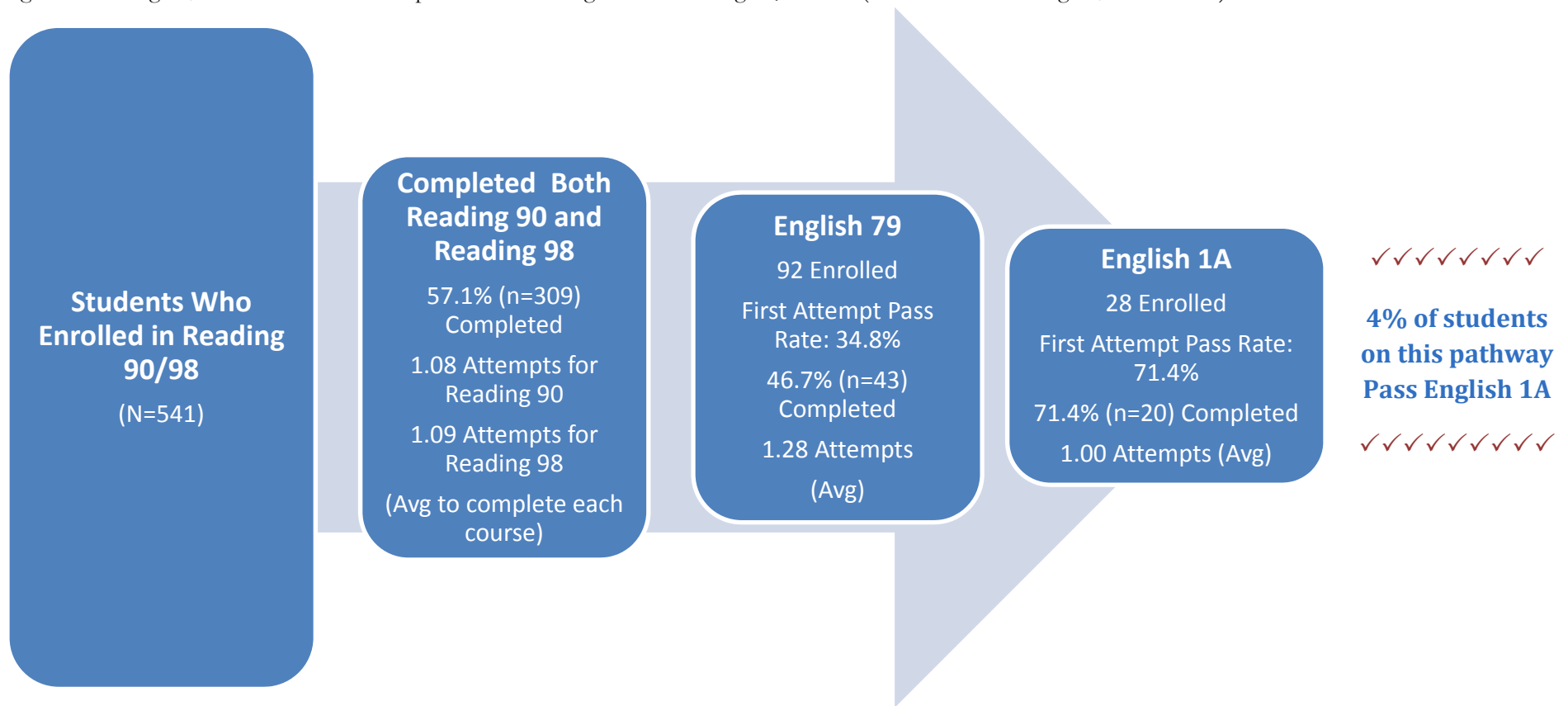
Course	Reading 91 (3 Courses)	English 79	English 1A	Total Pathway Cost
Model Student (Assumes student passes on his/her first attempt)				
Cost per FTES	\$5,828.25	\$1,708.14	\$1,485.39	\$9,021.78
Cost per Enrollment	\$547.96	\$286.69	\$266.25	\$1,100.90
Average Student (Costs multiplied by average attempts required to pass course)				
Cost per FTES	\$6,158.52	\$2,271.82	\$1,485.39	\$9,915.73
Cost per Enrollment	\$579.01	\$381.29	\$266.25	\$1,226.55

Figure 7. Reading 91 Four-Course Students (3% of All Reading 91 Students)



Course	Reading 91 (4 Courses)	English 79	English 1A	Total Pathway Cost
Model Student (Assumes student passes on his/her first attempt)				
Cost per FTES	\$7,771.01	\$1,708.14	\$1,485.39	\$10,964.53
Cost per Enrollment	\$730.62	\$286.69	\$266.25	\$1,283.55
Average Student (Costs multiplied by average attempts required to pass course)				
Cost per FTES	\$8,334.40	\$2,323.07	\$1,485.39	\$12,142.86
Cost per Enrollment	\$783.59	\$389.89	\$266.25	\$1,439.73

Figure 8. Reading 90/98 Students Who Complete Both Reading 90 and Reading 98, N=309 (57.1% of All Reading 90/98 Students)



Course	Reading 90	Reading 98	English 79	English 1A	Total Pathway Cost
Model Student (Assumes student passes on his/her first attempt)					
Cost per FTES	\$3,224.82	\$8,360.02	\$1,708.14	\$1,485.39	\$14,778.35
Cost per Enrollment	\$451.65	\$260.41	\$286.69	\$266.25	\$1,265.01
Average Student (Costs multiplied by average attempts required to pass course)					
Cost per FTES	\$3,353.81	\$9,530.42	\$2,186.41	\$1,485.39	\$16,556.03
Cost per Enrollment	\$469.72	\$296.87	\$366.96	\$266.25	\$1,399.80