Using a Comparative Study to Determine the Efficacy of a College Reading Strategy Course

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# Table of Contents

Abstract ................................................................................................................................. 3

Introduction of the Study ....................................................................................................... 4
  Background .......................................................................................................................... 4
  Problem .............................................................................................................................. 7

Literature Review ................................................................................................................ 8

Purpose .............................................................................................................................. 11

Goals and objectives .......................................................................................................... 12

Limits .................................................................................................................................. 12

Population .......................................................................................................................... 13

Importance of study ........................................................................................................... 13

Procedure of the study ...................................................................................................... 14

Results of the study ........................................................................................................... 15
  Objective #1 .................................................................................................................... 15
  Objective #2 .................................................................................................................... 16
  Objective #3 .................................................................................................................... 18
  Objective #4 .................................................................................................................... 21
  Objective #5 .................................................................................................................... 22

Conclusions and Recommendations .................................................................................. 23
  Findings ........................................................................................................................... 23
  Recommendations ........................................................................................................... 24

References ......................................................................................................................... 26

Appendices ......................................................................................................................... 29
Abstract

The objective of the higher level developmental reading course at the University of Southern Indiana, GENS 151: Applied Content Reading, is to help students improve their comprehension of college-level material by learning active reading skills and by applying and transferring study/reading strategies to academic disciplines. Although students may be placed into GENS 151, they are not required to take it. To determine the efficacy of the GENS 151 course, a retrospective comparative study between students who took their GENS 151 placement and those who did not and their success in a reading intensive University Core Curriculum course was conducted. Six semesters of grades were reviewed. Of the 39 students who placed into and completed GENS 151 successfully (C or better) and either co-enrolled in BIOL 105 or took it the following semester, 24 (62%) earned a C or better in BIOL 105 and were considered successful and 15 (38%) were considered unsuccessful. In comparison, of the 44 students who placed into GENS 151 but did not enroll in GENS 151, only 22 (50%) were considered to have completed BIOL 105 successfully and 22 (50%) did not. The results suggest that the study/reading strategies learned in GENS 151 may contribute to subsequent academic success in courses where the ability to read successfully impacts the final grade.
Introduction of the Study

Background

The University of Southern Indiana is a mid-western four-year comprehensive university located in Evansville, Indiana, with about 10,000 students. A young university, USI began as a regional campus of Indiana State University in September 1965. In July, 1985, the University of Southern Indiana became a separate state university and is one of five state universities in Indiana conferring baccalaureate and higher degrees. There are five academic colleges: College of Business, College of Liberal Arts, College of Nursing and Health Professions, Pott College of Science and Engineering, and the Bower-Suhrheinrich College of Education and Human Services. In addition, students undecided about their major are advised through University Division. University Division houses Academic Skills and University Division Advising. In addition to the requirements of their major, students who attend the University of Southern Indiana are required to complete a minimum of 50 hours in the University Core Curriculum (UCC). The overall goals of the UCC are to promote critical thinking through analyzing and critically evaluating information and to process information through locating, gathering, and researching information.

Academic Skills began offering learning assistance to USI students in 1983 through writing and math tutoring with two services – the Writing Workshop and Math Clinic. In 1989, a learning specialist was hired to offer reading and study skills tutoring through the newly established Learning Center. General studies courses in developmental math (GENS 097), English (GENS 098), and reading (GENS 099) were also offered. In 1989, USI took part in a U.S. Department of Education survey of American Colleges and Universities which dealt with developmental education. According to the statistics in the Academic Skills Annual Reports, the
national percent for completion rate for developmental coursework in reading in 1989 was 77%. USI’s completion rate in reading was 81%. Over the next six years, USI’s reading completion rate averaged 79%. In 1995, the U. S. Department of Education updated the survey and determined the national completion rate to be 82%. USI’s reading completion rate was 69%.

Since 1999, Academic Skills has offered two optional general studies reading courses to help prepare students for college level reading: GENS 099 and GENS 151. The goal for students enrolled in GENS 099 (Strategies for College Reading) is to improve their vocabulary and their literal and critical comprehension skills. This three-hour course does not count towards graduation, but does count towards full-time status for financial aid purposes and is graded on a Developmental Pass/Developmental No-Pass basis. To pass the course, students must receive an 80% or above on the course assessments. Students are encouraged not to enroll in a reading-intensive class while taking this course. Typically, students enrolled in this course score below the 12th grade reading level on the Nelson-Denny Reading Comprehension Test. 85% of the students who completed the course during the 2007-2008 academic year successfully passed the course at 80% or above.

The second reading course, GENS 151 (Applied Content Reading), was originally offered through the College of Education. In 1999, supervision for the course was transferred to Academic Skills. Despite name and supervisory changes since 1999, the objective of GENS 151 has remained the same: to help students improve their textbook reading comprehension by learning and applying strategies and techniques needed to read and understand college-level textbook material successfully. Additionally, students are encouraged to become strategic learners and readers. This three-hour credit course does count towards graduation as a general elective credit. Students receive a grade and are considered successful if they obtain an A, B, or C.
Students are encouraged to enroll in a UCC course (i.e. history, sociology, biology, political science) as a companion for immediate transfer an application of reading strategies. Students enrolled in this course typically score 12th grade or above on the Nelson-Denny Reading Comprehension Test. Of the students who completed the course during the 2007-2008 academic year, 72% earned a C or better.

In 2006, the Reading Specialist position was created and supervision of both GENS 099 and GENS 151 became the responsibility of this specialist. Having both courses under one supervisor allowed for coordination of curriculum, systematic data collection and the opportunity to study the effectiveness of current placement measures.

Since the inception of developmental reading courses at USI, assessment of the reading skills of incoming freshmen has been mandatory, but students have not been required to take their placement. Students have been placed into the courses through the use of various placement measures such as the Degrees of Reading Power (DRP), the Accuplacer Reading Comprehension test, and then by the use of a matrix which placed students based on their high school GPA, SAT and ACT scores respectively. In 2008, students were placed using a new procedure: use of the students SAT Reading (SATR) score or ACT Reading (ACTR) score. The Accuplacer Reading Comprehension test is given to students without an SATR or ACTR score or to challenge their placement. Students in the reading courses are also given the Nelson Denny Reading Comprehension test the first week of class to further fine tune their placement.

As a result of the effectiveness of the new placement measure, as well as a growing concern on campus that students are underprepared for college-level reading, reading placements will, for the first time, become mandatory for incoming freshmen in fall 2009.
Problem

Evaluation of the effectiveness of the developmental courses at USI has been ongoing since 1989. Quantitative data regarding completion rates, number of students enrolled, number of sections offered, and the levels of preparedness for math, English, and reading are recorded annually. In the reading program, qualitative data is also gathered through the use of anonymous surveys to determine student satisfaction with the course.

In the survey for the GENS 151 course, students are asked if they have applied any of the techniques learned in the class to other subjects and, if so, what and how. Each semester, the majority of the students’ answers indicate that they are transferring the reading/study strategies practiced in the course to their other content courses such as chemistry, math, history, and biology. Students also complete a Survey of Textbook Reading Strategies at the beginning of the course and again at the end and then evaluate the differences in their scores. Again, the majority of students indicate that their awareness and use of reading strategies is far stronger at the end of the course than it was at the beginning. The percentage of students who take GENS 151 and complete it successfully (C or better) has averaged 72% over the last three years.

Although students SEEM to be learning and transferring the strategies to college-level courses, research data has not been collected to determine the effect successful completion of GENS 151 has on student performance in subsequent reading intensive courses such as those in our University Core Curriculum. With the advent of mandatory reading placements, the necessity to determine the efficacy of the GENS 151 course is needed.
Literature Review

Ongoing evaluation is necessary to the vitality and the longevity of academic programs. Maxwell (1997) states that the purpose of evaluation, “should be to help people and programs improve, and it is a necessary tool for managerial decision-making” (p. 308). A program cannot improve unless there is direct awareness of the effectiveness of a program and its outcomes. Furthermore, Casazza and Silverman (1996) suggest that the key to a program’s success is a “disciplined approach to program evaluation” (p. 84).

Although researchers have noted that evaluation is essential (Simpson, Stahl, & Francis, 2004; Gerlaugh, Thompson, Boylan, & Davis, 2007), evaluation of developmental programs in a systematic way has not always been the norm. Boylan (2002) found that developmental programs that conduct “regular and systematic evaluation” are more successful than programs that do it intermittently or not at all. In addition to systematic evaluation, Boylan, Bonham, White, and George (2000) posit that evaluation should be multi-faceted and include data at three levels: primary (i.e. number of courses and students), secondary (i.e. short-term outcomes such as course completion rates, grades and semester-to-semester retention), and tertiary (i.e. long-term outcomes such as grade point averages and graduation rates).

To better improve the systematic gathering of data for evaluating developmental programs, an “industry standard” has evolved. The following quantitative criteria, as stated in the *Criteria for Program Evaluation* document on the National Center for Developmental Education web site (Boylan & Bonham, 2008a), includes:

1. How many students participated in the program/courses?
2. How many hours of tutoring were offered?
3. How many sections of developmental courses were offered?
4. What % of the students who entered the course stayed for the entire term?
5. What % of those who stayed the entire term earned a C or better?
6. What were the g-scores for those taking the course or receiving tutoring?
7. How many of those who participated in the course/program remained for one semester?
8. What % of those who passed the lowest level developmental course took and passed the next level developmental course?
9. What % of those who passed the highest level developmental course took and passed the next level curriculum course in that subject?
10. What % of those who took one or more developmental courses were retained from fall to fall?
11. What % of those who took one or more developmental courses graduated within 2,3,4,5,6 years?

Boylan and Bonham (2008b) recommend that, “particular attention be paid to the criteria of grades in follow-up courses, course completion rates, and ‘serendipitous benefits.’ If a reading and study strategy program is designed to improve student performance, its effectiveness can be best measured by assessing the grades students receive in subsequent reading-oriented courses. If students who complete the program tend to do well in later courses requiring advanced reading skills, the program has accomplished its objective” (p. 397). And Smittle (2003) concurs that, “One measure of a successful developmental education program is the success of the students in subsequent courses” (p. 5).

While researchers agree that consistent, seamless transitions between the exit standards of developmental courses and the requirements for college-level courses is a key element of successful developmental programs (Boylan, 2008a; McCabe, 2003; Roueche & Roueche, 1999), research on the effectiveness of college reading courses on subsequent student academic performance has revealed contradictory results (Bickley, Morris, & Anderson, 2001). Cox, Friesner, & Khayum (2003) found that students who enter college underprepared to read at the college level and who take and pass a reading skills course experienced greater long-term success in college than those students who either did not take or pass such a course. The results of a study by Illich, Hagan, & McCallister (2004) indicated that students who passed their remedial courses were generally successful in their college-level courses.
On the other hand, Gebelt, Parilis, Kramer & Wilson (1996) found that many postsecondary skills-development courses taught strategies in isolation and failed to emphasize transfer of skills to actual coursework. They contend that, “It is the degree to which students use the skills that determines their achievement” (p. 2). Simpson (2002) suggested that many reading program evaluation studies have overlooked questions which address the transfer and modification of strategies to discipline-specific tasks. McGrath & Hamer (2007) concur that it is not enough that students may learn strategies in a reading course. “Unless students transfer the strategies – successfully adapt and use the strategies gained in the reading class in content area courses and beyond - the reading course is of little use” (p. 11).

The research suggests that student learning is increased by linking reading courses to discipline-specific courses whereby the effectiveness of strategic reading is more immediate and explicit (Eanes, 1990; Simpson & Rush, 2003) or by pairing a stand-alone strategic reading course to a reading-intensive core course which allows for guided practice and transfer of skills (Caverly, Nicholson & Radcliffe, 2004). Developmental reading courses that use specific content-area reading skills and whose reading specialists interact closely with discipline-specific faculty improve student learning according to Cox et al (2003, pg. 191). Additionally, content-area instructors who teach strategies such as utilizing study guides and graphic organizers, and who discuss the differences between literal and inferential meaning in the course textbooks (Bickley et al, 2001; Brothen & Wambach, 2000) found that students increased their success in the course as they relied less on surface reading.

In summary, an evaluation of a developmental program must include systematic and multifaceted collection of data for a number of criteria. In order to determine the effectiveness of a developmental course, it is necessary to exam the grades in follow-up courses. Unless it can be
proven that the successful completion of a developmental reading course has an effect on student performance in reading intensive courses, the developmental course has been of little value. Learning improves when students directly transfer and adapt reading strategies to content level courses.

**Purpose**

While the reading program at the University of Southern Indiana has collected quantitative data at the primary level for several years, a gap in data collection exists for one very important criteria: *The percent of those students who passed the highest level developmental course who also took and passed the next level curriculum course in that subject.* This suggests that the first course impacts the student performance (grade) of the second course and thus substantiates the efficacy of the first course.

How effective is the GENS 151 course? Are students transferring and applying the study/reading strategies taught in GENS 151? Students have self-reported that they are using the strategies and that this has impacted their grade in a reading-intensive Core Curriculum course, but quantitative data has not been collected. Therefore, the purpose of this study was to do a comparative study of students who took and were successful in their GENS 151 reading placement and passed a reading intensive course with students who did not take their reading placement but took the same reading intensive course. Since USI students are required to take a minimum of 50 hours of the University Core Curriculum, the target course used for comparison will be selected from one of the Core courses.
Statement of Goals and Objectives

After determining the criteria to be measured, the following goals helped shape the procedure:

1) To meet with Institutional Research to determine a possible target course for use in comparison groups based on enrollment figures.

2) To select a target course based on the following criteria:
   - Determine whether or not a course is reading intensive through examination of the syllabus and exam.
   - Determine the readability of text to be 13\textsuperscript{th} grade level

3) To conduct a retrospective comparative study by collecting quantitative data that will show success (C or better) in the following student groups:
   - Students who placed into and took GENS 151 and the target course within two semesters
   - Students who placed into and didn’t take GENS 151 but took the target course within two semesters

4) To determine if the current delivery method and curriculum of the GENS 151 course is having a positive impact on the students who take it.

5) To establish a baseline for regular and systematic research and evaluation in order to determine whether the educational goals and needs of the students are being met.

Limits

The population used in this retrospective comparative study was limited to six semesters of data of students who took the same University Core Curriculum course and either placed into and completed GENS 151 successfully (C or better) or who placed into GENS 151 and did not take it. The GENS 151 course and the Core course were taken either simultaneously or subsequently. Fall freshmen cohorts (students who entered the University as freshmen and completed both fall and spring semesters) of the academic years 2005/2006, 2006/2007 and 2007/2008 were selected for the study.
Population

From a population of all freshmen students enrolled in the university over three academic years, a sub-population of 83 freshmen were identified as fitting the criteria for the study. Thirty-nine (39) students placed into and completed GENS 151 successfully (C or better) and either co-enrolled in BIOL 105 or took it in the following spring semester. Forty-four (44) students placed into GENS 151, did enroll in it, but took BIOL 105 within the fall or spring semesters of their freshman year.

Importance of Study

In achieving the goals set forth, there will be several benefits to conducting this practicum. To order to determine if the study/reading strategies learned in GENS 151 are transferred for use in a reading intensive course, the research states that it is necessary to look at a college level course which requires college level reading. If student performance in that course is greater for students who take a study/reading strategy course (GENS 151) than for those who do not, then this suggests that the curriculum in GENS 151 course is valuable and is having an effect on student performance. Secondly, the results of the research will be the basis for ongoing instructional design of the course which may include alternative delivery options. The findings of this study, along with a review of current research, may indicate that other delivery options may prove more successful in transference of study/reading strategies. Third, a model for evaluation of developmental coursework will be established. Although the reading courses are currently evaluated using numerous quantitative criteria, a procedure for evaluating the effectiveness of the course outside the reading program has not been initiated. A review of literature states the importance of collecting data that is regular, systematic and multifaceted. And, finally, numerous
serendipitous benefits may be discovered such as learning that courses traditionally deemed “reading intensive” may not be so at all.

**Procedure of the Study**

The first step of this study was to determine a possible target course for use in the comparison groups based on enrollment figures. Instructional Research was contacted to produce data for three groups:

- Students who placed into and successfully completed GENS 151 and their enrollment in one of the University Core Curriculum courses
- Students who placed into and did not successfully complete GENS 151 and their enrollment in one of the University Core Curriculum courses
- Students who placed into GENS 151 and did not enroll in 151 and their enrollment in one of the University Core Curriculum courses

From this data, it was determined that two courses fit the criteria and had enough subjects to produce an adequate sampling. The faculty supervisors of both courses were contacted to determine whether the course would be considered “reading intensive” through examination of the syllabus and supporting documents, and through conversations about the format of the tests and reading assignments for the students. A course would be considered reading intensive if successful reading is necessary to succeed in the course (i.e. course assessments require successful reading of the textbook; students are tested over material from the textbook). In order to determine the readability level of the textbook, sample paragraphs were analyzed using the Dale-Chall Readability formula.
Finally, a statistical analysis was performed on the quantitative data compiled from Institutional Research to determine if the study/reading strategies learned in GENS 151 had a positive impact on student performance in the Core Curriculum course. Data from six semesters was gathered for students who placed into and took GENS 151 and the target course within two semesters and students who placed into and didn’t take GENS 151 but took the target course within two semesters. In order to conduct this research project in a timely fashion, data was gathered retrospectively for three academic years between 2005 and 2007.

Results of the Study

Objective #1

To meet with Institutional Research to determine a possible target course for use in comparison groups based on enrollment figures.

Result

The Institutional Research department provided a list of all students who completed GENS 151 or were placed into GENS 151 and their enrollment in University Core Curriculum courses during Fall 2007/Spring 2008 as a means of determining which courses were more popular with freshmen. The data contained University Core Curriculum (UCC) course enrollments for those students who enrolled in GENS 151 and successfully completed it; UCC course enrollments for those students who enrolled in GENS 151 and did not successfully complete the course; and UCC course enrollments for students who placed into 151 but did not take it.

Of the 690 students who placed into GENS 151 that academic year, 9% enrolled in History 102: The United States Since 1865 (HIST 102) and 4% enrolled in Biology 105: Biology of Human Concern (BIOL 105). Both of these courses are part of the “C” category entitled “The
*World: Enhancement of Cultural and Natural Awareness.* Students are required to select 26 to 27 hours from this category and it consists of courses deemed to be “reading intensive.” Further inspection of enrollments in the “C” category showed that 36% (249) of students placing into GENS 151 took courses from this category. Of those, 24% took HIST 102 and 10% took BIOL 105.

**Objective #2**

To select a target course based on the following criteria:

- Determine whether or not a course is reading intensive through examination of the syllabus and exam.
- Determine the readability of text to be 13th grade level

**Result**

According to Dr. Hunter Boylan, a course can be considered reading intensive if 60-80% of the exams for the course are based on having read the textbook (Boylan, personal communication, July 2008). A student’s ability to read a textbook successfully, then, will impact his/her academic performance in the course. In order to determine this, it required asking the instructors about the curriculum for the course and examining the course syllabus.

Research was first conducted on the HIST 102 course since more GENS 151 students enroll in this course than the BIOL 105 course. The department chair was contacted to ascertain the history faculty’s reading expectations of their students and to borrow a copy of the textbook used in HIST 102 to determine its readability level. The department chair shared a policy statement that addresses basic requirements for reading and writing in history courses. The intent
of the policy is to provide students with basic guidelines for history courses. All first-year level courses, including HIST 102, use a required textbook. Faculty can choose from one of three selected by a committee. Instructors also use a variety of supplementary materials. Assigned readings are typically 50 pages per week.

Several of the HIST 102 instructors were contacted since the department chair does not teach this course. Several forwarded syllabi for inspection. Because the HIST 102 instructors have the prerogative to design their own course within the basic established guidelines, there were inconsistencies in the types of assignments and assessments, the type of textbook used, and the depth to which students are assessed about what they have read. Some instructors do not provide specific reading assignments each week while others do not schedule reading assignments at all. In contrast, some instructors assign readings that will be covered in the exam and use reading quizzes throughout the term. Besides exams, students may have been assessed through writing responses, book reviews, and an interview project. Too many variables among the different instructors’ course requirements made it difficult to determine how much successful reading impacts student performance in HIST 102.

Next, the supervisor for the BIOL 105 course was contacted. Instead of various textbooks and syllabi used among the different sections of the course, one common syllabus and one common textbook is used. Students are assigned weekly readings in their textbook and are given study guides to prepare for tests. The study guides are based on their readings in the textbook. Students are expected to be prepared for the lecture and the lab each week by reading the assigned course materials, completing the study guide and answering the questions in the lab manual. Assessments include four exams, one comprehensive final, and three lab practicals. Although each instructor may emphasize different topics, the common syllabus was designed to ensure that
instructors cover the same material. Since this course could be considered “reading intensive”, the research proceeded with an examination of the textbook.

To determine if the readability level of the BIOL 105 textbook was at least the 13th grade level, the Dale-Chall Readability Formula was used. This formula is based on two factors that most efficiently predict the difficulty of text – vocabulary and sentence length (Gunning, p. 175). A text sample of 100-150 words from *Human Biology* was analyzed (see Appendix C). The average sentence length and percent of difficult words was computed and inserted into an equation. The raw score was adjusted to a grade-level score. The passage selected was found to have a raw score of 9.66146, which fell within the 13th – 15th grade level.

Based upon an analysis of the syllabi and textbook, it was determined that the BIOL 105 course met the criteria and would be a good fit as the target course for the comparative study. The disparity in types of assessments used among the different sections of the HIST 102 course would make it difficult to determine how much successful reading impacts student performance.

**Objective #3**

To conduct a retrospective comparative study by collecting quantitative data that will show success (C or better) in the following student groups:

- Students who placed into and took GENS 151 and the target course within two semesters
- Students who placed into and didn’t take GENS 151 but took the target course within two semesters
Result

The Institutional Research department researched BIOL 105 and six semesters of data was collected. Freshmen cohorts who entered the university and completed both fall and spring semesters from the following three academic years were included in the comparative analysis: fall 2005/spring 2006; fall 2006/spring 2007; fall 2007/spring 2008. Students who placed into and completed GENS 151 successfully (C or better) and either co-enrolled in BIOL 105 or took it in the spring semester and their success in BIOL 105 were compared to students from the same cohort who placed into but did not enroll in GENS 151 and their success in BIOL 105 (see Figure 1). Of the 39 students who placed into and completed GENS 151 successfully (C or better) and either co-enrolled in BIOL 105 or took it the following semester, 24 (62%) earned a C or better in BIOL 105 and were considered successful and 15 (38%) were considered unsuccessful. In comparison, of the 44 students who placed into GENS 151 but did not enroll in GENS 151, only 22 (50%) were considered to have completed BIOL 105 successfully and 22 (50%) did not.
### GENS 151 and BIOL 105 Comparative Study

#### Fall 2005, Fall 2006, Fall 2007 Freshmen Cohorts

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<thead>
<tr>
<th>BIOL 105</th>
<th>Successful (C or Better)</th>
<th>Unsuccessful/Withdrawn</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Fall Freshmen Cohorts who placed into and completed GENS 151 successfully (C or better) and either co-enrolled in BIOL 105 or took it in the spring semester and their success in BIOL 105</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2005/Spring 2006 (n=13)</td>
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<td>6</td>
</tr>
<tr>
<td>Fall 2006/Spring 2007 (n=13)</td>
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<td>8</td>
</tr>
<tr>
<td>Fall 2007/Spring 2008 (n=13)</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total (n=39)</strong></td>
<td>24 (62%)</td>
<td>15 (38%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BIOL 105</th>
<th>Successful (C or Better)</th>
<th>Unsuccessful/Withdrawn</th>
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</thead>
<tbody>
<tr>
<td><strong>Fall Freshmen Cohorts who placed into 151 but did not enroll in 151 and their success in BIOL 105</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fall 2005/Spring 2006 (n=22)</td>
<td>10</td>
<td>12</td>
</tr>
<tr>
<td>Fall 2006/Spring 2007 (n=11)</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Fall 2007/Spring 2008 (n=11)</td>
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</tr>
<tr>
<td><strong>Total (n=44)</strong></td>
<td>22 (50%)</td>
<td>22 (50%)</td>
</tr>
</tbody>
</table>

Compiled by Lori Saxby from Institutional Research data supplied by Jacob Williams
February 6, 2009
Source: Cognos Report/University Division/Lori Saxby GENS 151 and BIOL 105 Request/Fall 2005, Fall 2006, Fall 2007 GENS151 and BIOL 105 Comparative Study - jdw – 020609
Objective #4

To determine if the current delivery method and curriculum of the GENS 151 course is having a positive impact on the students who take it.

Result

In addition to active reading skills such as determining main and implied ideas, vocabulary strategies, and critical reading skills, GENS 151 students learn and practice various strategies for reading and organizing textbook material successfully. Direct application of reading skills and strategies to discipline specific textbook reading is encouraged. Pre-reading strategies such as activating background knowledge and using previewing and questioning techniques, during reading strategies such as annotating and marking and taking notes using the Cornell note taking system, and after reading strategies such as the use of graphic organizers to reduce information are practiced throughout the semester. Students who took both GENS 151 and BIOL 105 were more successful than students who had not taken GENS 151. Since the intent of the GENS 151 course is to provide students with knowledge and practice of study/reading strategies that are to be transferred to college-level courses, a “reading intensive” course that requires students to read successfully would indicate whether or not these strategies were employed. Since the data analyzed students who either took BIOL 105 concurrently or in the subsequent semester, the results indicate that short-term transferability of strategies had occurred. As reported earlier, many students self-report that they are using the strategies in their college-level core classes, but the results of this study confirm the positive impact such strategies are having on their academic performance and indicate that the current reading delivery is working.
**Objective #5**

To establish a baseline for regular and systematic research and evaluation in order to determine whether the educational goals and needs of the students are being met.

**Result**

Prior to this study, baseline data for determining the efficacy of the GENS 151 course had not been established. With the successful completion of this practicum, three years of outcomes measures have been obtained and analyzed and will form the baseline for comparing future outcomes. This data will become part of the regular and systematic research for the GENS 151 course and will be used to ascertain whether or not the needs of the students required to take the course are being met.

The data collected in this study, which covered the three academic years of 2005, 2006 and 2007, will benefit the evaluation of the reading program in another way. Beginning in Fall 2008, a new reading placement measure was implemented. The data collected is for the time period up to this point. The large amount of data collected for this study will be helpful in conducting future studies.
Conclusions and Recommendations

Findings

The director of our division, Michael Broshears, has shared on many occasions that he believes the goal of developmental education is to prepare students to be successful in college level courses (Broshears, personal communications, Fall 2008). The results of this study indicate this.

Of the 39 students who placed into and completed GEN 151 successfully (C or better) and either co-enrolled in BIOL 105 or took it the following semester, 24 (62%) earned a C or better in BIOL 105 and were considered successful and 15 (38%) were considered unsuccessful. In comparison, of the 44 students who placed into GENS 151 but did not enroll in GENS 151, only 22 (50%) were considered to have completed BIOL 105 successfully and 22 (50%) did not.

In order to be successful in college, students must be able to read, comprehend, synthesize, and process large amounts of information. The curriculum taught in GENS 151 is designed to prepare students with strategies needed to read textbook material successfully and to make decisions about their learning. Based on the results of this comparative study, it would appear that GENS 151 students are better prepared for this type of academic task. Therefore, the current delivery method and curriculum of the GENS 151 course is having a positive impact on the students who take it.

In BIOL 105, a student must be able to read and comprehend the text material as four exams, a comprehensive final and lab practicals are based on this material. This course can be considered reading intensive and served as an appropriate target course for this study. In contrast, the grades for students in some of the sections of HIST 102 relied heavily on knowledge of
textbook material and others did not. In addition, the variation in writing assignments allowed for inconsistent outcomes. This serendipitous finding will provide GENS 151 instructors with additional information to share with students on how best to prepare for and be successful in the HIST 102 course.

Uncovering the criteria for evaluating the reading program will help guide future collection of data. The baseline data gathered will be used to make decisions about the ongoing needs of the students.

Recommendations

In summary, the comparative study provided data that supports the efficacy of the GENS 151: Applied Content Reading course at the University of Southern Indiana. However, after researching best practices for reading programs and reviewing the results of the study, further recommendations in the area of research, course delivery, and program support will help to sustain and improve the course (and reading program) in the years to come. The following recommendations include:

Research:

- Work closely with Institutional Research to design an ongoing, systematic evaluation plan.
  Develop an evaluation plan that includes quantitative data for each criteria of the “industry standard.”
- Increase collection of data on all three levels: primary, secondary and tertiary.
- Look closely at the UCC courses in the “C” category for evidence of reading intensiveness; revisit the HIST 102 course by looking at one instructor’s course so that the variables are controlled.
• Evaluate short term transfer vs. long-term transfer of the reading strategies.

Course Delivery:
• Look into developing paired and linked reading courses with discipline-specific courses as alternative delivery options which will encourage guided practice and transfer of skills.

Program Support:
• Continue the dialogue started with this research project with faculty teaching the Core courses to promote confidence in the reading program. Utilize the opportunity to determine the instructor’s reading expectations of his/her students and to serve as a resource, if needed, to offer suggestions for effective reading strategies.
• Develop an advisory board to ensure the seamless transition between the exit standards of the developmental reading course and the requirements for the college-level courses in the University Core Curriculum.
References


Appendices

A. Letters of Impact

B. BIOL 105 Syllabus

C. BIOL Textbook Readability Formula
Appendix A: Letters of Impact
April 24, 2009

To the Kellogg Institute:

Reading Specialist Lori Saxby has asked that I write a letter detailing the impact on our campus of her participation in the Kellogg Institute, and it is my pleasure to do so.

Lori has been a key player in our efforts to improve the quality of developmental education. One of the most important initiatives coming out of our Presidential Task Force on Enrollment and Retention was to carefully examine best practices in developmental programs around the country, and to try to implement some improvements to our placement systems, core delivery, and requirements for students.

The timing of Lori’s participation in the institute was perfect, for almost immediately after her return to USI, she joined our team in retreat at New Harmony, Indiana, where we worked to find consensus on our next steps. It seemed she was channeling Hunter Boylan at times, which was great, and her input really helped shape the directions we chose. She had learned much about best practices at the institute, and was able to bring the literature and data to bear as she made her case for various recommendations. In large part because of her, we have moved to required placement for all students placing into developmental reading, a greater reliance on structured learning assistance in addition to our supplemental instruction, and we have greatly improved how we will place our developmental students.

Lori is an invaluable member of our division, and her experience with Kellogg has only increased her expertise and value. She is a creative thinker, and now she has learned much more about the efforts that work other places. I cannot recommend the Institute enough for other institutions, if Lori’s experience is any indicator. Thanks very much for enabling her to attend last summer.

Sincerely,

Brian D. Posler, PhD
Assistant Provost for Undergraduate Studies
University of Southern Indiana
8600 University Blvd.
Evansville, IN 47712
(812) 465-7020
April 24, 2009

Kellogg Institute:

It is my pleasure to write a letter of impact for Lori Saxby, Reading Specialist at the University of Southern Indiana. Lori attended the Kellogg Institute this past summer (2008) and is completing a practicum required by your program as part of her work assignment on USI’s campus.

Lori has worked full-time in University Division since 1999, and has performed various roles in Academic Skills in that time. In her current role as Academic Skills’ Reading Specialist, she oversees all aspects of the development reading program. In this role, she has provided leadership, personal commitment to quality service to students and colleagues, and a strong professional work ethic. These qualities have been invaluable to the success of our office and are important dimensions of the quality programs and services we value in Academic Skills and University Division. Her attendance at the Institute and subsequent work on her practicum reinforces my belief that her work at the Institute was an invaluable part of her professional life and a boon to the efforts University Division and USI have made to improve the quality of developmental education.

Lori’s project has served as an affirmation for us moving in the direction of making reading placements mandatory on our campus. While her project was a comparative study focusing on participation/non-participation in the second course of the developmental reading sequence and subsequent success in ONE particular Core Curriculum course, Lori has used her practicum as a catalyst to examine the reading load of some of our more popular University Core Courses on campus, which will aid us in assisting students more effectively in the developmental reading sequence. Finally, as a result of her study and her participation in the Institute, Lori continues to develop strong academic support structures for students needing developing reading (Structured Learning Assistance) and has spent significant time examining/improving the curriculum for developmental reading.

Lori speaks volumes about the impact this Institute has had on her professional life, and I have been more than satisfied with the amount of expertise and ideas that she has brought back to campus. I will elaborate on points contained in this letter should you deem it appropriate. I can be reached at (812) 465-7097 or e-mailed at mbroshears@usi.edu.

Thank you.

Sincerely,

Michael “Brody” Broshears
Director, University Division
Appendix B: BIOL 105 Syllabus
This course meets the requirements for a C3 Course. Through this course a number of UCC objectives will be emphasized. You will have an introduction to scientific methods, biological and chemical principles as they apply to the human body. Fundamental characteristics and processes of living organisms such as organic molecules, cell structure, tissues, system and organ systems, genetics and inheritance will be discussed. Information discussed in lecture and laboratory will be applied to understand current issues, problems, health watch and advances in medical science in an attempt to gain new understandings and knowledge. This course has a laboratory component that will allow you to understand and practice the scientific method and reinforce concepts introduced in lecture with hands-on experience. You will be expected to participate in discussion of lab results. You will be expected to use proper English and spelling does count!

Lecture Schedule

<table>
<thead>
<tr>
<th>Week of</th>
<th>Read Chapters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/12-</td>
<td>Human Perspective 1</td>
</tr>
<tr>
<td><strong>Part I: Human Organization</strong></td>
<td>Chemistry of Life 2</td>
</tr>
<tr>
<td></td>
<td>Cell Structure and Function 3</td>
</tr>
<tr>
<td></td>
<td>Organization and Regulation 4</td>
</tr>
<tr>
<td><strong>2/8-Test 1</strong></td>
<td>Cardiovascular System: Heart and Blood Vessels 5</td>
</tr>
<tr>
<td></td>
<td>Cardiovascular System: Blood 6</td>
</tr>
<tr>
<td></td>
<td>Digestive System and Nutrition 8</td>
</tr>
<tr>
<td></td>
<td>Respiratory System 9</td>
</tr>
<tr>
<td></td>
<td>Urinary System and Excretion 10</td>
</tr>
<tr>
<td><strong>3/1 Test 2</strong></td>
<td><strong>Part III Movement and Support</strong></td>
</tr>
<tr>
<td></td>
<td>Skeletal System 11</td>
</tr>
<tr>
<td></td>
<td>Muscular System 12</td>
</tr>
<tr>
<td><strong>Part IV Integration and Coordination</strong></td>
<td>Nervous System 13</td>
</tr>
<tr>
<td></td>
<td>Senses 14</td>
</tr>
<tr>
<td><strong>4/5 Test 3</strong></td>
<td><strong>Part V Reproduction in Humans</strong></td>
</tr>
<tr>
<td></td>
<td>Reproductive System 16</td>
</tr>
<tr>
<td></td>
<td>Sexually Transmitted Disease</td>
</tr>
<tr>
<td></td>
<td>Development and Aging 17</td>
</tr>
<tr>
<td><strong>4/26 Test 4</strong></td>
<td>May</td>
</tr>
<tr>
<td></td>
<td><strong>COMPREHENSIVE FINAL TEST</strong></td>
</tr>
</tbody>
</table>
**Laboratory Schedule**

*Read* the listed Exercise and complete the Activities (*as much as possible from reading*) *in pencil* before coming to the lab. Check Blackboard for possible Pre-Lab Assignments. *(Caution: There may be a Quiz at the beginning of any lab, so come prepared)*

<table>
<thead>
<tr>
<th>Week of</th>
<th>Exercise</th>
<th>Exercise</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/11</td>
<td>Scientific Method</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Lab Safety and Lab Orientation</td>
<td></td>
</tr>
<tr>
<td>1/18</td>
<td>Metric Measurement and Microscopy</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Monday Lab will not meet. Monday Instructors may give assignment in lieu of lab All other labs meet as usual.</td>
<td></td>
</tr>
<tr>
<td>1/25</td>
<td>Chemical Composition of Cells</td>
<td>3</td>
</tr>
<tr>
<td>2/1</td>
<td>Cell Structure and Function</td>
<td>4</td>
</tr>
<tr>
<td>2/8</td>
<td>Human Body Tissues</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>Basic Mammalian Anatomy</td>
<td>6</td>
</tr>
<tr>
<td>2/15</td>
<td>Practical 1 (50 points)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>First grading of lab manual</td>
<td></td>
</tr>
<tr>
<td>2/22</td>
<td>Cardiovascular System</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Features of the Cardiovascular System</td>
<td>8</td>
</tr>
<tr>
<td>3/1</td>
<td>Chemical Aspects of Digestion</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td>Homework: Energy Requirements and Ideal Weight</td>
<td>10</td>
</tr>
<tr>
<td>3/15</td>
<td>Homeostasis</td>
<td>12</td>
</tr>
<tr>
<td>3/22</td>
<td>Practical 2 (50 points)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Second grading of lab manual</td>
<td></td>
</tr>
<tr>
<td>3/29</td>
<td>Musculoskeletal System</td>
<td>13</td>
</tr>
<tr>
<td>4/5</td>
<td>Teacher’s Choice</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Friday Lab will not meet. Instructor’s choice for other labs.</td>
<td></td>
</tr>
<tr>
<td>4/12</td>
<td>Nervous System and Senses</td>
<td>14</td>
</tr>
<tr>
<td>4/19</td>
<td>Reproductive System</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>Human Development</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>STDs Inserted</td>
<td></td>
</tr>
<tr>
<td>4/26</td>
<td>Practical 3 (Comprehensive) 100 points</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Final grading of lab manuals. (The lab manuals will be retained following this grading).</td>
<td></td>
</tr>
</tbody>
</table>
Appendix C: Readability Formula
Dale-Chall Readability Formula

http://rfptemplates.technologyevaluation.com/Dale-Chall-list-of-3000-Simple-Words

100-150 word passage used to determine reading grade score for BIOL 105 textbook

**Dale-Chall Readability Formula**

<table>
<thead>
<tr>
<th>RGS: Reading Grade Score</th>
<th>DS: Dale Score (Percent of words not on Dale-Chall list of 3,000 common words) = 32%</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASL: Average Sentence Length = 19.6</td>
<td>Number of words (137) divided by the number of sentences (7)</td>
</tr>
<tr>
<td>RGS = (0.1579 x DS) + (0.0496 x ASL) + 3.6365</td>
<td>RGS= 9.66146 which falls between the 13th to 15th grade level</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dale-Chall Reading Grade Score (RGS) conversion to Grade Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reading Grade Score</strong></td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>9.0 – 9.9</td>
</tr>
<tr>
<td>10+</td>
</tr>
</tbody>
</table>

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Stroke, Heart Attack, and Aneurysm

Stroke, heart attack, and aneurysm are associated with hypertension and atherosclerosis. A cerebrovascular accident (CVA), also called a stroke, often results when a small cranial arteriole bursts or is blocked by an embolus. A lack of oxygen causes a portion of the brain to die, and paralysis or death can result. A person is sometimes forewarned of a stroke by a feeling of numbness in the hands or the face, difficulty in speaking, or temporary blindness in one eye.

A myocardial infarction (MI), also called a heart attack, occurs when a portion of the heart muscle dies due to a lack of oxygen. If a coronary artery becomes partially blocked, the individual may then suffer from angina pectoris, characterized by a radiating pain in the left arm. Nitroglycerin or related drugs dilate blood vessels and help relieve the pain.