UNIVERSITY OF MINNESOTA
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Writing-Enriched Curriculum Results: SERU 2010

Office of Institutional Research

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Executive Summary

This report analyzes differences between the responses of Writing-Enriched Curriculum (WEC) students and non-WEC students to questions on the Student Experience in the Research University survey. It attempts to determine if students participating in the WEC program experience different academic outcomes, as described by survey questions.

There are some differences between WEC and non-WEC students on several survey items, including differences between students at different academic level and within the WEC cohorts.

The findings include:

- *Academic activities*
  - WEC students reported higher frequency in using facts and examples to support their viewpoint, incorporating ideas and concepts from different courses when completing assignments, examining how others gather and interpret data, and reconsidering their own position after assessing the arguments of others
  - WEC students experienced higher gains in understanding their specific field of study over time
- *Faculty support*
  - Higher percentages of WEC students reported that faculty provided prompt and useful feedback on their work
  - Non-WEC students reported that they had more assignments where faculty asked them to write short, ungraded pieces and to write with classmates to complete a group project

Additionally, in examining the five WEC cohorts, which correspond to the timeframe in which the WEC program was instituted for given majors (Appendix B), it was observed that WEC cohort 3 reported higher frequencies on many academic and faculty-related items, while significant differences were found between upper-division WEC and non-WEC students on faculty-related items.

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Introduction

This report analyzes the Student Experience in the Research University survey data to partially examine the educational outcomes of the University of Minnesota Writing-Enriched Curriculum Project. Launched in 2007, the University of Minnesota's Writing-Enriched Curriculum (WEC) Project pilots a process to meaningfully infuse writing and writing instruction into all undergraduate curricula. During a four-year pilot period (2007-2011), the project will engage 22 academic units in developing and implementing customized Undergraduate Writing Plans, eventually working toward a goal of making all University of Minnesota undergraduate degrees "writing-enriched."

In order to learn more about the educational outcomes of the WEC project, the Student Experience in the Research University (SERU) survey results were analyzed to examine differences between students who self-identified a major corresponding to the 22 WEC academic units (Appendix A) versus students who self-identified a major that did not correspond to the 22 WEC academic units.

Additionally, WEC students were further separated into one of five cohorts based on the semester and year in which their academic unit implemented WEC Undergraduate Writing Plans (Appendix B). The questions that frame this study center on analyzing differences between the following groups:

- Students enrolled in WEC majors and students not enrolled in WEC majors (WEC vs. non-WEC)
- WEC cohort students and non-WEC students
- Upper- and lower-division WEC and non-WEC students

Differences are analyzed within WEC and non-WEC students' responses to 13 SERU wildcard writing questions (Appendix C) and 10 additional SERU questions (Appendix D). All significant differences are listed below, with significance occurring at $p<.05$ in all instances.

Student Experience in the Research University Survey

The SERU Survey offers a systematic environmental census scan of the undergraduate experience and an in-depth analysis of the varied types and levels of undergraduate student engagement in major public research universities. All degree seeking undergraduate students enrolled spring semester are included in this web-based survey.

In spring 2010, 28,237 University of Minnesota-Twin Cities undergraduate students were surveyed, with 9,630 students responding (an unofficial response rate of 34%). Additionally, 30% of surveyed students were randomly assigned to a "wildcard" module which in part asked students about their experiences with writing assignments in courses. This report analyzes responses from both the "wildcard" module students (2,920 students) and the entire sample response (9,630 students) groups.

Results

Differences between WEC and Non-WEC Students

Means comparisons were used to determine whether there are significant differences between WEC and non-WEC students. There are a few significant differences between WEC and non-WEC students within the general SERU survey questions and the wildcard writing questions.

General SERU Survey Questions

"Thinking back on the academic year, how often have you done each of the following?"

WEC students reported significantly higher frequency in completing the following tasks (on a scale of 1-6, "never" to "very often"):

- Used facts and examples to support your viewpoint (WEC=5.06, Non-WEC=4.83)
- Incorporated ideas or concepts from different courses when completing assignments (WEC=4.63, Non-WEC=4.43)
- Examined how others gathered and interpreted data and assessed the soundness of their conclusions (WEC=4.24, Non-WEC=4.04)
- Reconsidered your own position on a topic after assessing the arguments of others (WEC=4.18, Non-WEC=4.01) (Appendix E)

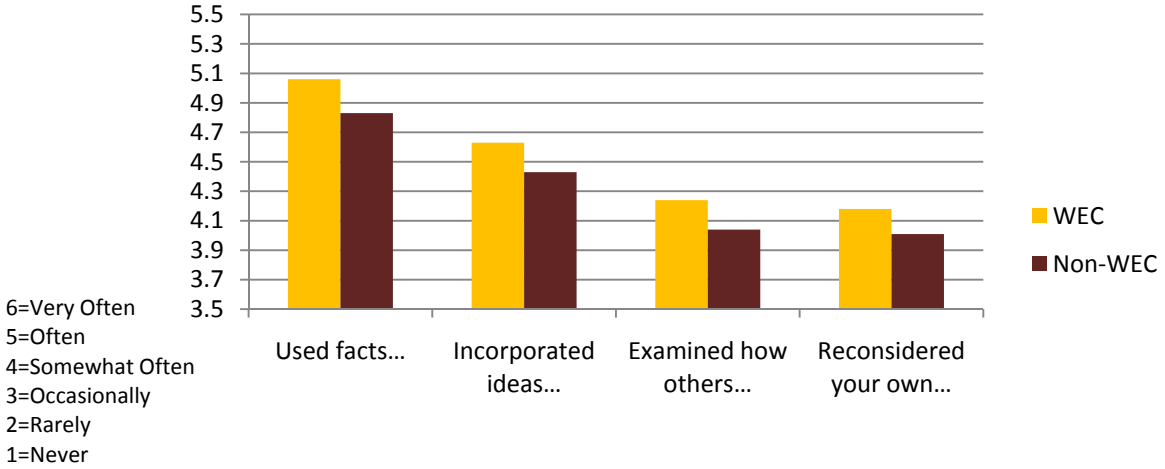

Figure 1. Differences between WEC and Non-WEC students on academic activities.

"Please answer the following questions about your major"

A chi-square test was used to determine whether there is a significant difference between WEC and non-WEC students in regards faculty's feedback and faculty's explanation of plagiarism. WEC students are significantly more likely to report that their faculty provides prompt and useful feedback on their work (83.9% compared to 81.2% non-WEC) (Appendix F). WEC students are also significantly more likely to report that their faculty clearly explains plagiarism and its consequences (96.4% compared to 93.8% non-WEC) (Appendix F).

"Please rate your level of proficiency in the following areas when you started at this campus and now"

There are no significant differences between WEC and non-WEC students in regards to change over time in "ability to be clear and effective when writing" (Appendix G). This is also true when examining the areas of greatest gains between groups (the majority of both groups had either no change or one unit positive gain, but were relatively equal in all levels of change in writing ability over time).

There are significant differences between WEC and non-WEC students in regards to change over time in understanding of a specific field of study: WEC students reported statistically significant greater gains in their understanding of a specific field of study over time, with 30.9% of WEC students reporting two units gained (compared to 25.6% of non-WEC students), and 11% of WEC students reporting three units gained (compared to 9% of non-WEC students) (Appendix H).

Writing-Specific SERU Wildcard Survey Questions

"During this school year, for how many of your writing assignments has your instructor(s) done each of the following?"

There are statistically significant differences between WEC and non-WEC students on the following survey items, with non-WEC students reporting higher frequency in the number of writing assignments in which instructors did the following activities (on a scale of 1-5, "no assignments" to "all assignments"):

- Asked you to do short pieces of writing that he or she did not grade (Non-WEC=2.29, WEC=2.19)
- Asked you to write with classmates to complete a group project (Non-WEC=2.52, WEC=2.40) (Appendix E)

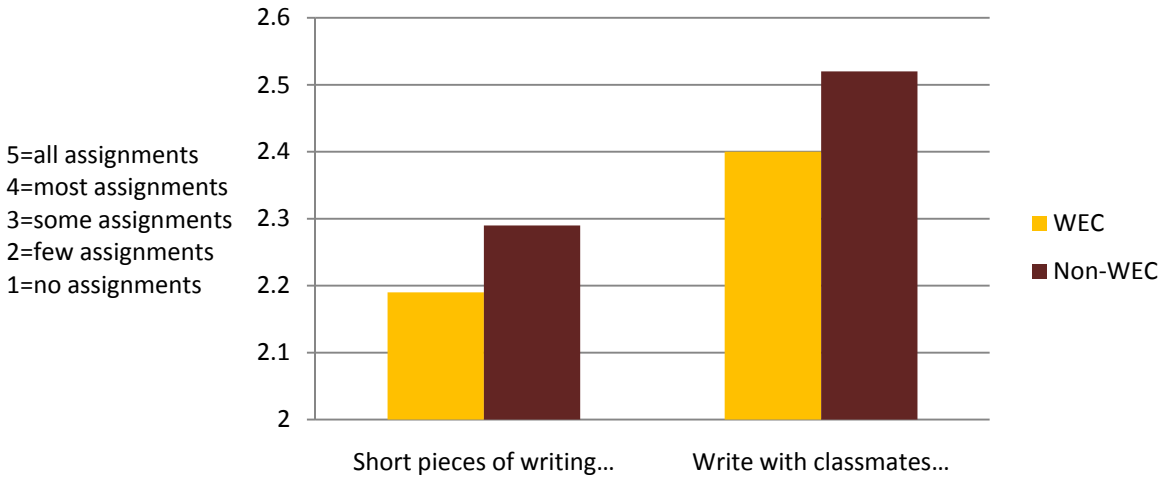

Figure 2. Differences between WEC and Non-WEC students on faculty writing assignments.

Differences between WEC Cohorts and Non-WEC Students

In 2007, the WEC project began to build the foundation for a program that would respond to those needs by collaborating with faculty members to infusing discipline-relevant writing instruction and assignments into undergraduate curricula. By 2008, as the project's third cohort of academic units submitted their Writing Plans, the model had moved beyond its necessary experimentation, and the WEC program had become set in its present form; therefore, differences between the cohorts may be attributed to the different phases in program implementation.

Means comparisons were used to determine whether there are significant differences between WEC cohort groups and non-WEC students. There are a few significant differences between WEC cohorts and non-WEC students within the general SERU survey questions and the wildcard writing questions.

General SERU Survey Questions

"How frequently during the academic year have you done each of the following?

There are two significant differences between the cohorts and non-WEC students with regards to frequency in completing the following tasks during the prior academic year (on a scale of 1-6, "never" to "very often"):

- Extensively revised a paper at least once before submitting it to be graded: cohort 3 (4.18) was significantly larger than cohort 1 (3.80)
- Incorporated ideas or concepts from different courses when completing assignments: cohort 3 (4.95) was significantly larger than non-WEC (4.43) (Appendix I)

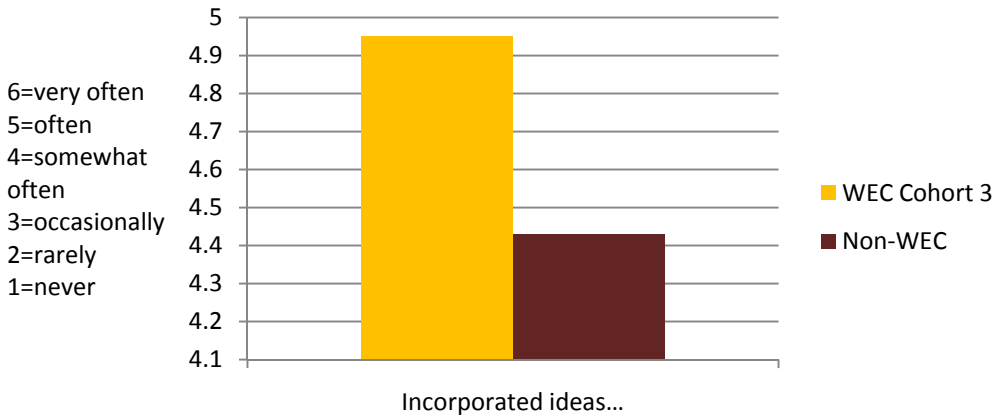

Figure 3. Differences between WEC cohort students and Non-WEC students on academic activities.

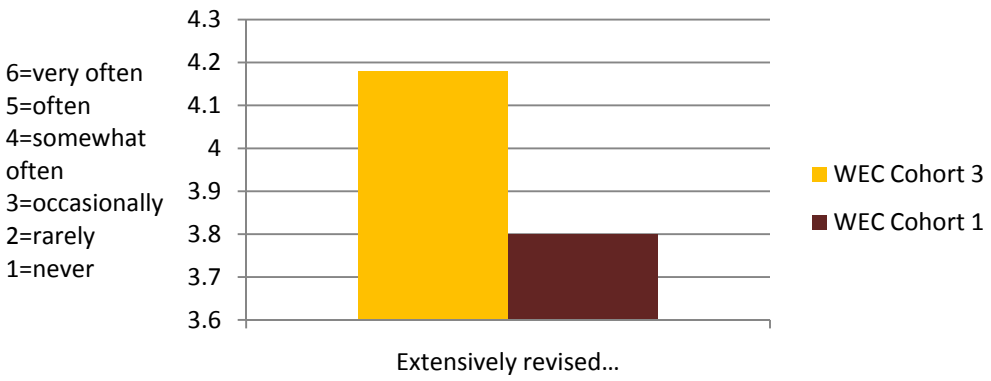

Figure 4. Differences between WEC cohort students and Non-WEC students on writing activities.

"Please answer the following questions about your major"

A chi-square test was used to determine whether there is a significant difference between WEC cohort and non-WEC students in regards faculty's feedback and faculty's explanation of plagiarism. WEC students in cohorts 2 and 5 are significantly more likely to report that their faculty provide prompt and useful feedback on their work than WEC cohort 1 (89.1% and 90.1% compared to 78.1%). Students in WEC cohort 4 (96.6%) were more likely to report that faculty clearly explain plagiarism and its consequences than non-WEC students (93.8%) (Appendix J).

"Please rate your level of proficiency in the following areas when you started at this campus and now"

There was one significant difference between WEC cohort students and non-WEC students in regards to change over time in "ability to be clear and effective when writing" (Appendix K). Cohort 5 reported more instances of two units gained (19.9%) than non-WEC students (11.5%). When examining the areas of greatest gains between groups, the majority of both groups had either no change or one unit positive gain and the groups were relatively equal in all levels of change in writing ability over time.

There are significant differences between WEC cohort and non-WEC students in regards to change over time in their understanding of a specific field of study. Non-WEC students reported significantly larger "no change" responses (24%) as compared to cohort 1 (17%) and cohort 4 (18%). Additionally, students in cohort 3 reported significantly higher instances of "three units gained" (15%) than non-WEC (9%) and cohort 4 (9%) (Appendix L).

Writing-Specific SERU Wildcard Survey Questions

"In the current academic year, across all of your courses, how frequently have you…"

There are three significant differences between the cohorts and non-WEC students with regards to frequency of activities in classes (on a scale of 1-6, "never" to "very often"):

- Encountered writing assignments that have been relevant to your courses: cohort 3 (4.92) was significantly larger than non-WEC (4.48) and cohort 4 (4.33)
- Been offered useful writing instruction as you completed writing assignments: cohort 3 (4.25) was significantly larger than cohort 1 (3.59) and cohort 4 (3.67)

- Understood the criteria instructors used to grade your writing: cohort 3 (4.73) was significantly larger than non-WEC (4.25), cohort 1 (4.14), and cohort 4 (4.27) (Appendix I)

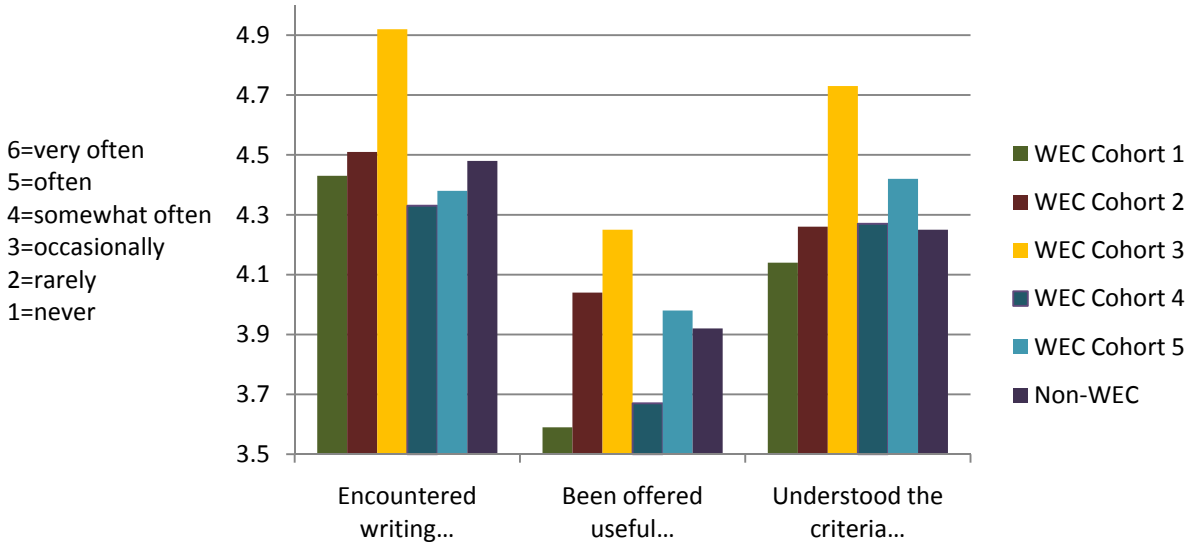

Figure 5. Differences between WEC cohort students and Non-WEC students on writing activities.

"During this school year, for how many of your writing assignments has your instructor(s) done each of the following?"

Additionally, there are three significant differences between the cohorts and non-WEC students with regards to the frequency in which instructors did the following activities (on a scale of 1-5, "no assignments" to "all assignments"):

- Explained in advance what he or she wanted you to learn: non-WEC (3.41), cohort 3 (3.55), and cohort 5 (3.63) were significantly larger than cohort 1 (3.07)
- Asked you to do short pieces of writing that he or she did not grade: non-WEC (2.29) was significantly larger than cohort 1 (1.87)
- Asked you to give feedback to a classmate about a draft or outline that the classmate had written: non-WEC (2.48), cohort 2 (2.55), cohort 3 (2.61), cohort 4 (2.58) and cohort 5 (2.75) were significantly larger than cohort 1 (2.06) (Appendix I)

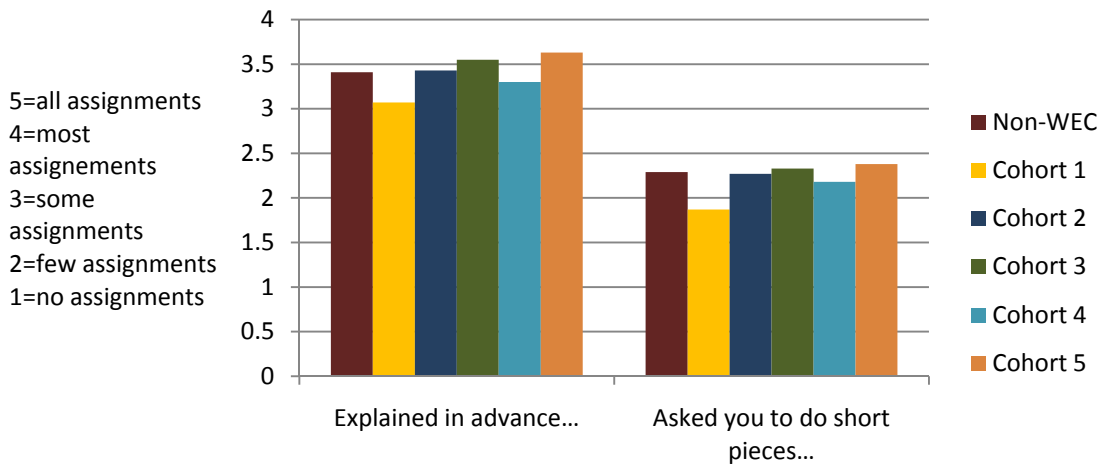

Figure 7. Differences between WEC cohort students and Non-WEC students on faculty writing assignments.

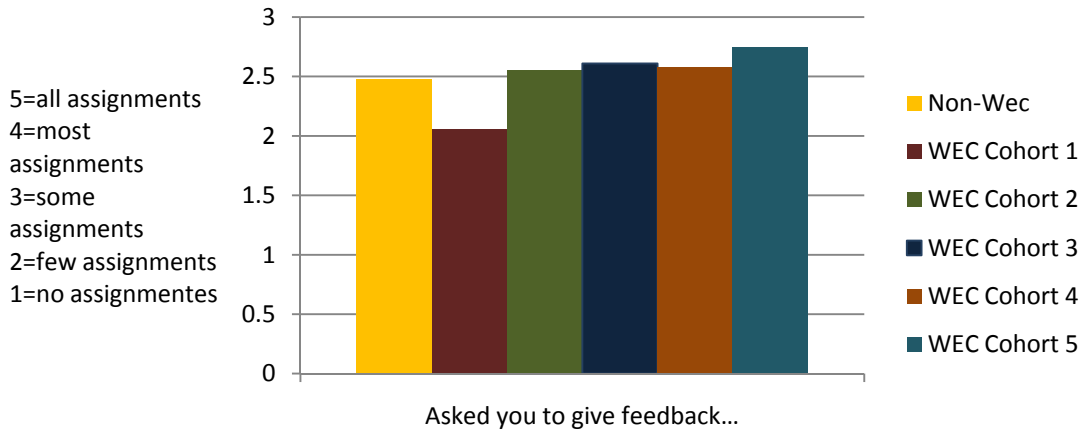

Figure 8. Differences between WEC cohort students and Non-WEC students on faculty writing assignments.

Differences between Upper- and-Lower-Division WEC and Non-WEC Students

Means comparisons were used to determine whether there are significant differences between upper- and lower-division WEC and non-WEC students. There are a few significant differences between WEC cohorts and non-WEC students within the general SERU survey questions and the wildcard writing questions.

General SERU Survey Questions

"Thinking back on the academic year, how often have you done each of the following?"

Upper-division WEC students had significantly higher responses than upper-division non-WEC students in the following questions tasks (on a scale of 1-6, "never" to "very often"):

- Used facts and examples to support your viewpoint (WEC=5.08, non-WEC=4.88)
- Incorporated ideas or concepts from different courses when completing assignments (WEC=4.68, non-WEC=4.55)

- Examined how others gathered and interpreted data and assessed the soundness of their conclusions (WEC=4.25, non-WEC=4.08)
- Reconsidered your own position on a topic after assessing the arguments of others (WEC=4.17, non-WEC=4.02) (Appendix M)

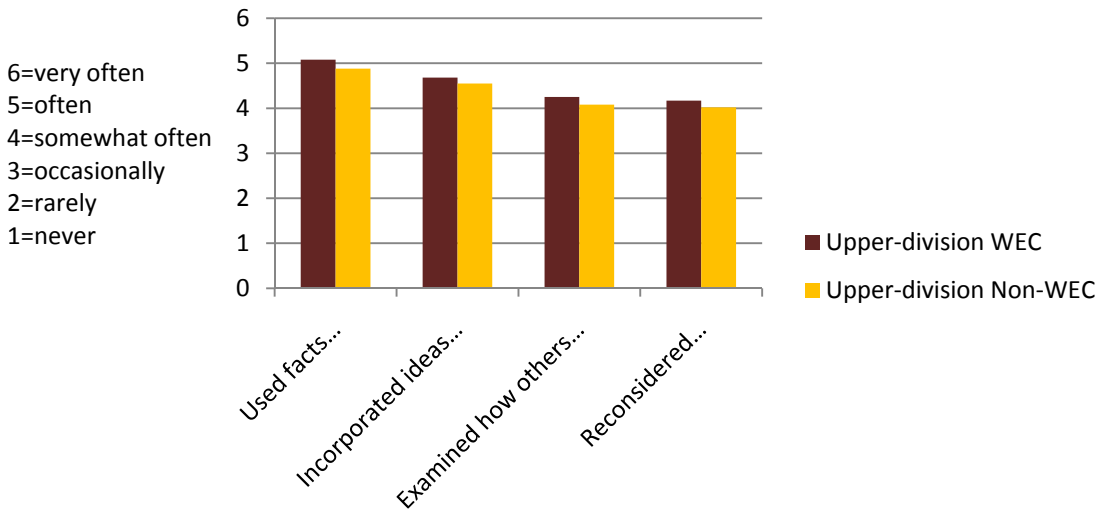

Figure 9. Differences between upper-division WEC students and upper-division Non-WEC students on academic activities.

Additionally, lower-division WEC students had a significantly higher response than lower-division non-WEC students in the following question:

- Used facts and examples to support your viewpoint (WEC=4.98, non-WEC=4.75) (Appendix M)

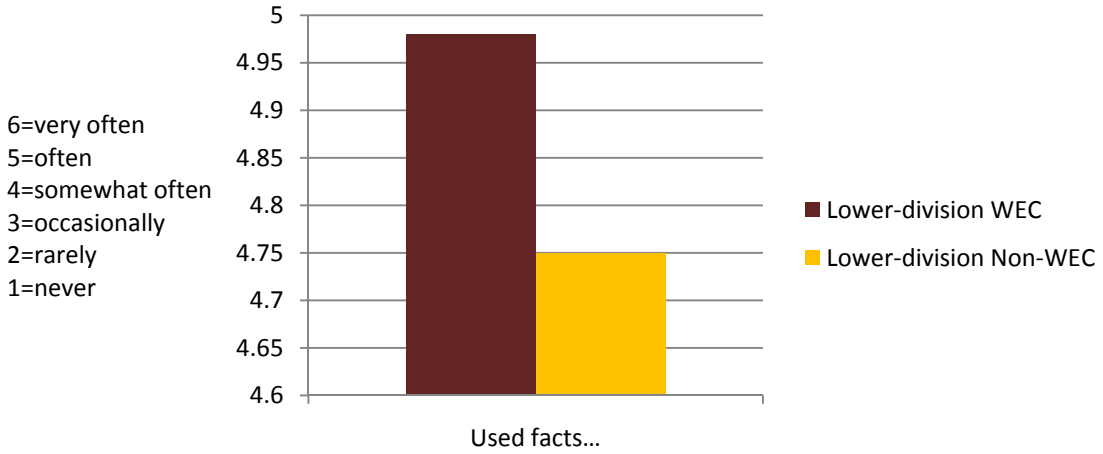

Figure 10. Differences between lower-division WEC students and lower-division Non-WEC students on academic activities.

Writing-Specific SERU Wildcard Survey Questions

"In the current academic year, across all of your courses, how frequently have you…"

There is one significant difference between the lower-division WEC and lower-division non-WEC students (on a scale of 1-6, "never" to "very often"):

- Felt confident in your ability to complete writing assignments successfully (WEC=4.65, non-WEC=4.38) (Appendix M)

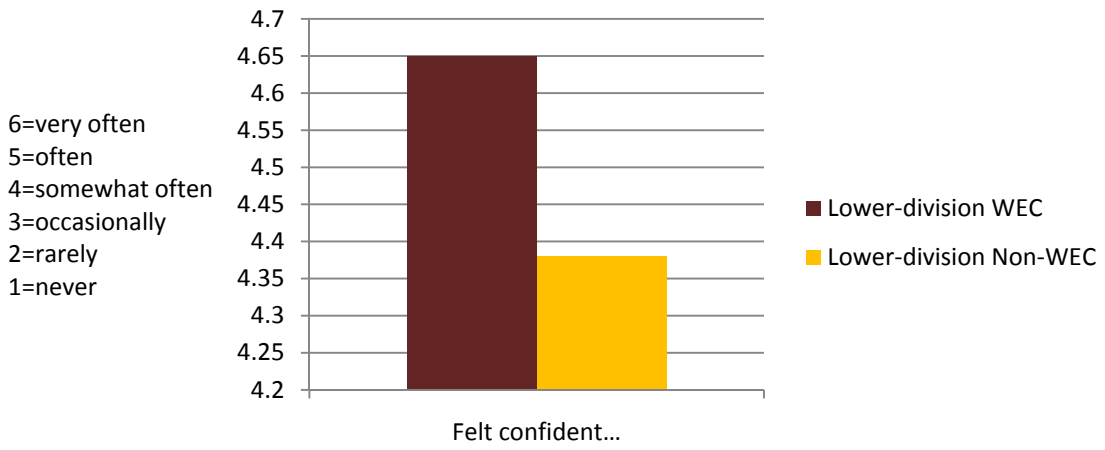

Figure 11. Differences between lower-division WEC students and lower-division Non-WEC students on confidence in ability to complete writing assignments successfully.

"During this school year, for how many of your writing assignments has your instructor(s) done each of the following?"

Additionally, there is one significant difference between upper-division WEC and upper-division non-WEC students (on a scale of 1-5, "no assignments" to "all assignments"):

- Asked you to give feedback to a classmate about a draft or outline that the classmate had written (WEC=2.47, non-WEC=2.31) (Appendix M)

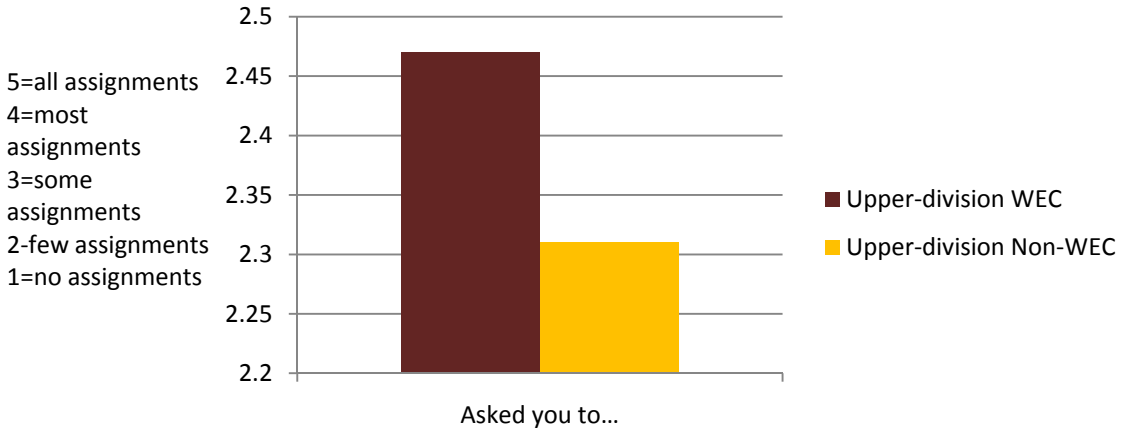

Figure 12. Differences between upper-division WEC students and upper-division Non-WEC students on faculty writing assignments.

Lower-division non-WEC reported significantly more instances than lower-division WEC students in the following question:

- Asked you to write with classmates to complete a group project (non-WEC=2.46, WEC=2.36) (Appendix M)

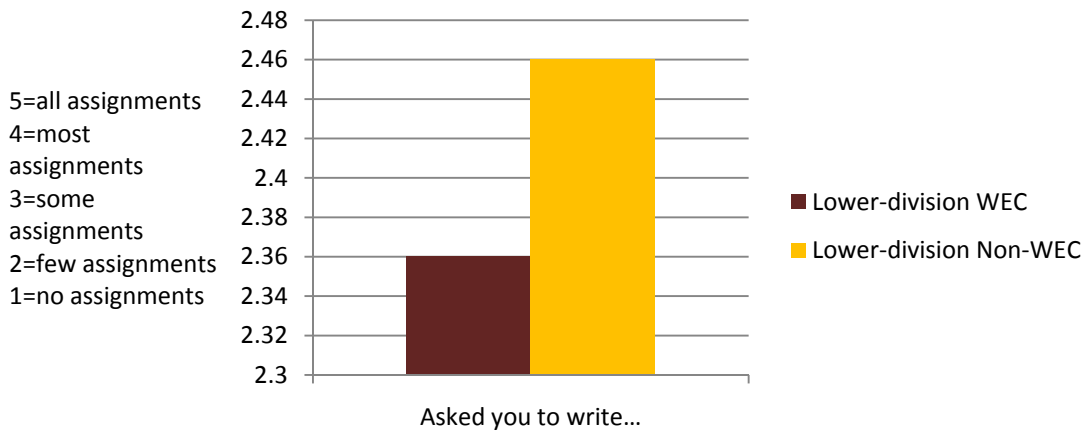

Figure 13. Differences between lower-division WEC students and lower-division Non-WEC students on faculty writing assignments.

Conclusion

There are many statistically significant differences between the students who are likely to have engaged in the Writing-Enriched Curriculum (WEC) and students who were not engaged in WEC. The emerging findings between WEC and non-WEC students can provide a framework within which further study of the effectiveness of the Writing-Enriched Curriculum program on a variety of student outcomes and interactions in the classroom.

Appendix A

Writing-Enriched Curriculum Majors

• Acting • African American Studies • Apparel Design • Biochemistry • Biology • Dance • Ecology, Evolution, and Behavior • Genetics and Cell Biology • Geography • Graphic Design • History	• Horticulture • Housing Studies • Interior Design • Kinesiology • Lower Division College of Biological Sciences • Mechanical Engineering • Neuroscience • Nursing • Plant Biology • Political Science • Pre-Apparel Design	• Pre-Graphic Design • Pre-Interior Design • Recreation, Park, and Leisure Studies • Retail Merchandising • Spanish Studies • Spanish and Portuguese Studies • Sport Management • Theatre Arts • Urban Studies

Appendix B

Writing-Enriched Curriculum Cohorts

Cohort 1 (Spring 2007*): Mechanical Engineering; Political Science

Cohort 2 (Fall 2007): History; Horticultural; Housing Studies; Interior Design; Apparel Design; Pre-Graphic Design; Pre-Interior Design; and Retail Merchandising

Cohort 3 (Spring 2008): Geography; Spanish and Portuguese Studies; Spanish Studies; and Ecology, Evolution, and Behavior

Cohort 4 (Fall 2008): Acting; Dance; Theatre Arts; Biochemistry; Biology; Genetics and Cell Biology; Plant Biology; Microbiology; Lower Division College of Biological Sciences; and Neuroscience

Cohort 5 (Fall 2009): African American and African Studies; Kinesiology; Sport Management; and Recreation, Park, and Leisure Studies

*The semester and year corresponds with the implementation of the WEC curriculum. For example, for cohort 1, Fall 2007 represents the implementation of phase one of the WEC curriculum, while for cohort 2, Spring 2008 corresponds to the implementation of phase one of the WEC curriculum.

Appendix C

SERU Wildcard Writing Questions

In the current academic year, across all of your courses, how frequently have you…	**Never**	**Rarely**	**Occasionally**	**Somewhat Often**	**Often**	**Very Often**
Encountered writing assignments that have been relevant to your courses?						
Been offered useful writing instruction as you completed writing assignments?						
Found that writing activities and assignments helped you to think critically and/or creatively about course content?						
Understood the criteria instructors used to grade your writing?						
Felt confident in your ability to complete writing assignments successfully?						

During this school year, for how many of your writing assignments has your instructor(s) done each of the following?	**No Assignments**	**Few Assignments**	**Some Assignments**	**Most Assignments**	**All Assignments**
Provided clear instructions describing what he or she wanted you to do.					
Explained in advance what he or she wanted you to learn.					
Explained in advance the criteria that he or she would use to grade your assignment.					
Provided a sample of a completed assignment written by the instructor or student.					
Asked you to do short pieces of wiring that he or she did not grade.					
Asked you to give feedback to a classmate about a draft or outline the classmate had written.					
Asked you to write with classmates to complete a group project.					
Asked you to address a real or imagined audience such as your classmates, a politician, non-experts, etc.					

Appendix D

Additional SERU Survey Questions

Please rate your level of proficiency in the following areas when you started at this campus and now.	**When you started here**						**Current ability level**					
	Very poor	**Poor**	**Fair**	**Good**	**Very Good**	**Excellent**	**Very poor**	**Poor**	**Fair**	**Good**	**Very Good**	**Excellent**
Ability to be clear and effective when writing												
Understanding of a specific field of study												

How frequently during the academic year have you done each of the following?	**Never**	**Rarely**	**Occasionally**	**Somewhat Often**	**Often**	**Very Often**
Extensively revised a paper at least once before submitting it to be graded.						

How frequently have you engaged in these activities so far this academic year?	**Never**	**Rarely**	**Occasionally**	**Somewhat Often**	**Often**	**Very Often**
Talked with an instructor outside of class about issues and concepts derived from a course.						

Thinking back on the academic year, how often have you done each of the following?	**Never**	**Rarely**	**Occasionally**	**Somewhat Often**	**Often**	**Very Often**
Used facts and examples to support your viewpoint.						
Incorporated ideas and concepts from different courses when completing assignments.						
Examined how others gathered and interpreted data and assessed the soundness of their conclusions.						
Reconsidered your own position on a topic after assessing the arguments of others.						

Please answer the following questions about your major.	**Yes**	**No**
Do faculty clearly explain what constitutes plagiarism and its consequences?		
Do faculty provide prompt and useful feedback on student work?		

Appendix E

WEC and non-WEC Student Comparison on SERU Survey Responses

Non-WEC v. WEC Student Comparison**	Non-WEC(n=2256)	WEC(n=664)
	Mean	Mean
How frequently during this academic year have you done each of the following? (0-6, "never" to "very often")		
Extensively revised a paper at least once before submitting it to be graded	3.80	3.85
How frequently have you engaged in these activities so far this academic year? (0-6, "never" to "very often")		
Talked with the instructor outside of class about issues and concepts derived from a course	2.76	2.84
Thinking back on this academic year, how often have you done each of the following? (0-6, "never" to "very often")		
Used facts and examples to support your viewpoint	4.83	5.06*
Incorporated ideas or concepts from different courses when completing assignments	4.43	4.63*
Examined how others gathered and interpreted data and assessed the soundness of their conclusions	4.04	4.24*
Reconsidered your own position on a topic after assessing the arguments of others	4.01	4.18*
In the current academic year, across all of your courses, how frequently have you… (0-6, "never" to "very often")		
Encountered writing assignments that have been relevant to your courses?	4.48	4.46
Been offered useful writing instruction as you completed writing assignments?	3.93	3.85
Found that writing activities and assignments helped you to think critically and/or creatively about course content?	4.08	4.02
Understood the criteria instructors used to grade your writing?	4.25	4.29
Felt confident in your ability to complete writing assignments successfully?	4.55	4.61
During this school year, for how many of your writing assignments has your instructor(s) done each of the following? (0-5, "no assignments" to "all assignments")		
Provided clear instructions describing what he or she wanted you to do	3.79	3.79
Explained in advance what he or she wanted you to learn	3.41	3.35
Explained in advance the criteria he or she would use to grade your assignment	3.60	3.64
Provided a sample of a completed assignment written by the instructor or a student	2.46	2.43
Asked you to do short pieces of writing that he or she did not grade	2.29*	2.19
Asked you to give feedback to a classmate about a draft or outline the classmate had written	2.48	2.51
Asked you to write with classmates to complete a group project	2.52*	2.40
Asked you to address a real or imagined audience such as your classmates, a politician, non-experts, etc.	2.39	2.33

* Results are based on two-sided tests assuming equal variances with significance level 0.05. For each significant pair, the category with larger mean is highlighted in yellow. ** WEC participation based on primary major as of Spring 2010.

Appendix F

WEC and Non-WEC Student Responses Regarding Faculty

		WEC			
		Non-WEC		WEC	
		Count	Column N %	Count	Column N %
Do faculty clearly explain what constitutes plagiarism and its consequences?	Yes	6289	93.8%	1752	96.4%
	No	414	6.2%	65	3.6%

		WEC			
		Non-WEC		WEC	
		Count	Column N %	Count	Column N %
Do faculty provide prompt and useful feedback on student work?	Yes	5412	81.2%	1512	83.9%
	No	1250	18.8%	290	16.1%

Appendix G

WEC and Non-WEC Students' Responses to

"Ability to be Clear and Effective when Writing"

Self-Assessment of "Ability to be Clear and Effective When Writing"		**Non-WEC**		**WEC**	
		Count	**Column N %**	**Count**	**Column N %**
Ability to be clear and effective when writing - When you started here	Very poor	45	1%	9	0%
	Poor	342	5%	78	4%
	Fair	1611	24%	440	24%
	Good	2608	39%	728	40%
	Very good	1662	25%	452	25%
	Excellent	481	7%	124	7%
Ability to be clear and effective when writing - Current ability level	Very poor	5	0%	1	0%
	Poor	64	1%	12	1%
	Fair	489	7%	112	6%
	Good	2183	33%	571	32%
	Very good	2893	43%	825	46%
	Excellent	1022	15%	291	16%

Areas of Largest Self-Assessment Gains in "Ability to be Clear and Effective When Writing"	**Non-WEC (n=6677)**		**WEC (n=1804)**	
	Count	**Column N %***	**Count**	**Column N %***
Poor to Fair	123	1.8%	27	1.5%
Fair to Good	861	12.9%	231	12.8%
Fair to Very Good	405	6.1%	124	6.9%
Good to Good	1026	15.4%	258	14.4%
Good to Very Good	1247	18.7%	369	20.4%
Very Good to Very Good	1172	17.5%	297	16.4%
Very Good to Excellent	347	5.1%	93	5.1%
Excellent to Excellent	396	5.9%	93	5.1%

**Percentages do not equal 100 because not all values are represented; only a sample number of responses are listed to demonstrate equality between WEC and non-WEC groups.*

Self-Assessment Gains or Losses in "Ability to be Clear and Effective When Writing"	**Non-WEC (n=6637)**		**WEC (n=1806)**	
	Count	**Column N %**	**Count**	**Column N %**
No changes	2843	43%	711	39%
One unit positive gain	2589	39%	722	40%
Two units positive gain	766	12%	238	13%
Three units positive gain	119	2%	38	2%
Four units positive gain	9	0%	1	0%
Five units positive gain	1	0%	0	0%
One unit loss	230	3%	77	4%
Two units loss	65	1%	14	1%
Three units loss	9	0%	4	0%
Four units loss	3	0%	1	0%
Five units loss	3	0%	0	0%

Appendix H

WEC and Non-WEC Students Responses to

"Understanding of a Specific Field of Study"

Self-Assessment of "Understanding of a specific field of study"		**Non-WEC**		**WEC**	
		Count	**Column N %**	**Count**	**Column N %**
Understanding of a specific field of study - When you started here	Very poor	106	1.6%	20	1.1%
	Poor	867	13.0%	223	12.4%
	Fair	2499	37.4%	647	35.9%
	Good	2393	35.9%	709	39.4%
	Very good	670	10.0%	167	9.3%
	Excellent	138	2.1%	35	1.9%
Understanding of a specific field of study - Current ability level	Very poor	14	0.2%	0	0.0%
	Poor	60	0.9%	6	0.3%
	Fair	426	6.5%	55	3.1%
	Good	2044	31.1%	449	25.2%
	Very good	3051	46.4%	910	51.0%
	Excellent	979	14.9%	365	20.4%

Self-Assessment Gains or Losses in "Understanding of a Specific Field of Study"	**Non-WEC**		**WEC**	
	Count	**Column N %**	**Count**	**Column N %**
Five Units Loss	3	0.0%	0	0.0%
Four Units Loss	1	0.0%	0	0.0%
Three Units Loss	6	0.1%	3	0.2%
Two Units Loss	13	0.2%	6	0.3%
One Unit Loss	82	1.3%	12	0.7%
No change	1573	24.0%	319	18.0%
One Unit Gain	2457	37.5%	646	36.4%
Two Units Gained	1676	25.6%	548	30.9%
Three Units Gained	591	9.0%	196	11.0%
Four Units Gained	131	2.0%	42	2.4%
Five Units Gained	12	0.2%	4	0.2%

Appendix I

WEC Cohort Comparison

WEC Cohort Comparison**	**Non-WEC (n=2260)**	**Cohort 1 (n=120)**	**Cohort 2 (n=128)**	**Cohort 3 (n=96)**	**Cohort 4 (n=204)**	**Cohort 5 (n=56)**
	Mean	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**
How frequently during this academic year have you done each of the following? (0-6, "never" to "very often")						
Extensively revised a paper at least once before submitting it to be graded	3.80	3.56	3.74	4.18*(with Cohort 1)	3.90	3.84
How frequently have you engaged in these activities so far this academic year? (0-6, "never" to "very often")						
Talked with the instructor outside of class about issues and concepts derived from a course	2.76	2.67	2.85	3.00	2.94	2.78
Thinking back on this academic year, how often have you done each of the following? (0-6, "never" to "very often")						
Used facts and examples to support your viewpoint	4.83	5.06	4.98	5.13	5.06	5.02
Incorporated ideas or concepts from different courses when completing assignments	4.43	4.58	4.53	4.95* (with Non-WEC)	4.59	4.84
Examined how others gathered and interpreted data and assessed the soundness of their conclusions	4.04	4.01	4.24	4.35	4.30	4.24
Reconsidered your own position on a topic after assessing the arguments of others	4.01	4.12	4.07	4.26	4.23	4.22
In the current academic year, across all of your courses, how frequently have you… (0-6, "never" to "very often")						
Encountered writing assignments that have been relevant to your courses?	4.48	4.43	4.51	4.92* (with Non-WEC and Cohort 4)	4.33	4.38
Been offered useful writing instruction as you completed writing assignments?	3.92	3.59	4.04	4.25* (with Cohorts 1, 4)	3.67	3.98
Found that writing activities and assignments helped you to think critically and/or creatively about course content?	4.08	3.93	3.94	4.31	3.99	4.06
Understood the criteria instructors used to grade your writing?	4.25	4.14	4.26	4.73* (with Non-WEC, Cohorts 1, 4)	4.27	4.42
Felt confident in your ability to complete writing assignments successfully?	4.55	4.69	4.69	4.61	4.63	4.60

WEC Cohort Comparison**	Non-WEC (n=2260)	Cohort 1 (n=120)	Cohort 2 (n=128)	Cohort 3 (n=96)	Cohort 4 (n=204)	Cohort 5 (n=56)
	Mean	**Mean**	**Mean**	**Mean**	**Mean**	**Mean**
During this school year, for how many of your writing assignments has your instructor(s) done each of the following? (0-5, "no assignments" to "all assignments")						
Provided clear instructions describing what he or she wanted you to do	3.79	3.75	3.82	3.93	3.73	3.88
Explained in advance what he or she wanted you to learn	3.41* (with Cohort 1)	3.07	3.43	3.55* (with Cohort 1)	3.30	3.63* (with Cohort 1)
Explained in advance the criteria he or she would use to grade your assignment	3.60	3.51	3.60	3.86	3.58	3.85
Provided a sample of a completed assignment written by the instructor or a student	2.46	2.13	2.40	2.51	2.49	2.64
Asked you to do short pieces of writing that he or she did not grade	2.29* (with Cohort 1)	1.87	2.27	2.33	2.18	2.38
Asked you to give feedback to a classmate about a draft or outline the classmate had written	2.48* (with Cohort 1)	2.06	2.55* (with Cohort 1)	2.61* (with Cohort 1)	2.58* (with Cohort 1)	2.75* (with Cohort 1)
Asked you to write with classmates to complete a group project	2.52	2.23	2.30	2.62	2.38	2.57
Asked you to address a real or imagined audience such as your classmates, a politician, non-experts, etc.	2.39	2.07	2.32	2.47	2.37	2.42

* Results are based on two-sided tests assuming equal variances with significance level 0.05. For each significant pair, the category with larger mean is highlighted in yellow.

** Cohort determined by the year WEC programming began for students' majors.

*** WEC participation based on primary major as of Spring 2010.

Appendix J

WEC Cohorts and Non-WEC Student Responses Regarding Faculty

	Do faculty clearly explain what constitutes plagiarism and its consequences?			
	Yes		No	
	Count	Row N %	Count	Row N %
Non-WEC	6289	93.8%	414	6.2%
WEC	365	95.3%	18	4.7%
Cohort 2	265	95.3%	13	4.7%
Cohort 3	288	97.6%	7	2.4%
Cohort 4	684	96.6%	24	3.4%
Cohort 5	150	98.0%	3	2.0%

	Do faculty provide prompt and useful feedback on student work?			
	Yes		No	
	Count	Row N %	Count	Row N %
Non-WEC	5412	81.2%	1250	18.8%
WEC	296	78.1%	83	21.9%
Cohort 2	244	89.1%	30	10.9%
Cohort 3	255	86.7%	39	13.3%
Cohort 4	580	82.5%	123	17.5%
Cohort 5	137	90.1%	15	9.9%

Appendix K

WEC Cohort and Non-WEC Students' Responses to

"Ability to be Clear and Effective when Writing"

		WEC											
		Non-WEC		Cohort 1		Cohort 2		Cohort 3		Cohort 4		Cohort 5	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Ability to be clear and effective when writing - When you started here	Very poor	45	0.7%	0	0.0%	2	0.7%	1	0.3%	6	0.8%	0	0.0%
	Poor	342	5.1%	14	3.6%	13	4.6%	13	4.4%	33	4.6%	5	3.2%
	Fair	1611	23.9%	104	27.1%	67	23.8%	63	21.5%	156	21.8%	50	31.8%
	Good	2608	38.6%	149	38.8%	112	39.9%	126	43.0%	277	38.7%	64	40.8%
	Very good	1662	24.6%	92	24.0%	68	24.2%	74	25.3%	183	25.6%	35	22.3%
	Excellent	481	7.1%	25	6.5%	19	6.8%	16	5.5%	61	8.5%	3	1.9%
Ability to be clear and effective when writing - Current ability level	Very poor	5	0.1%	0	0.0%	1	0.4%	0	0.0%	0	0.0%	0	0.0%
	Poor	64	1.0%	3	0.8%	2	0.7%	1	0.3%	6	0.9%	0	0.0%
	Fair	489	7.3%	29	7.6%	8	2.9%	17	5.9%	49	7.0%	9	5.8%
	Good	2183	32.8%	130	34.1%	96	34.3%	77	26.6%	225	31.9%	43	27.6%
	Very good	2893	43.5%	155	40.7%	124	44.3%	149	51.4%	315	44.7%	82	52.6%
	Excellent	1022	15.4%	64	16.8%	49	17.5%	46	15.9%	110	15.6%	22	14.1%

	Non-WEC		Cohort 1		Cohort 2		Cohort 3		Cohort 4		Cohort 5	
	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %	Count	Column N %
Five units loss	3	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Four units loss	3	0%	0	0%	0	0%	0	0%	1	0%	0	0%
Three units loss	9	0%	0	0%	1	0%	0	0%	3	0%	0	0%
Two units loss	65	1%	4	1%	1	0%	4	1%	4	1%	1	1%
One unit loss	230	3%	21	6%	13	5%	8	3%	34	5%	1	1%
No changes	2843	43%	155	41%	102	37%	107	37%	294	42%	53	34%
One unit positive gain	2589	39%	142	37%	114	41%	124	43%	275	39%	67	43%
Two units positive gain	766	12%	48	13%	39	14%	39	13%	81	12%	31	20%

Three units positive gain	119	2%	9	2%	9	3%	7	2%	10	1%	3	2%
Four units positive gain	9	0%	0	0%	0	0%	1	0%	0	0%	0	0%
Five units positive gain	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%

Appendix L

WEC Cohort and Non-WEC Students' Responses to

"Understanding of a Specific Field of Study"

		WEC											
		Non-WEC		Cohort 1		Cohort 2		Cohort 3		Cohort 4		Cohort 5	
		Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Understanding of a specific field of study - When you started here	**Very poor**	106	2%	4	1%	3	1%	8	3%	4	1%	1	1%
	Poor	867	13%	53	14%	39	14%	45	16%	68	10%	18	12%
	Fair	2499	37%	147	39%	100	36%	91	31%	246	35%	63	41%
	Good	2393	36%	139	37%	95	35%	110	38%	302	43%	63	41%
	Very good	670	10%	30	8%	31	11%	28	10%	70	10%	8	5%
	Excellent	138	2%	5	1%	7	3%	8	3%	15	2%	0	0%
Understanding of a specific field of study - Current ability level	**Very poor**	14	0%	0	0%	0	0%	0	0%	0	0%	0	0%
	Poor	60	1%	1	0%	2	1%	2	1%	1	0%	0	0%
	Fair	426	6%	12	3%	11	4%	6	2%	21	3%	5	3%
	Good	2044	31%	98	26%	62	23%	64	22%	187	27%	38	25%
	Very good	3051	46%	185	49%	142	52%	159	55%	348	50%	76	50%
	Excellent	979	15%	79	21%	56	21%	57	20%	140	20%	33	22%

	Non-WEC		Cohort 1		Cohort 2		Cohort 3		Cohort 4		Cohort 5	
	Count	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**	**Count**	**%**
Five Units Loss	3	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Four Units Loss	1	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Three Units Loss	6	0%	1	0%	0	0%	0	0%	2	0%	0	0%
Two Units Loss	13	0%	2	1%	2	1%	1	0%	1	0%	0	0%
One Unit Loss	82	1%	4	1%	0	0%	1	0%	7	1%	0	0%
No change	1573	24%	63	17%	52	19%	52	18%	127	18%	25	17%
One Unit Gain	2457	38%	119	32%	97	36%	103	36%	276	40%	51	34%

Two Units Gained	1676	26%	126	34%	82	30%	78	27%	212	31%	50	33%
Three Units Gained	591	9%	43	12%	30	11%	43	15%	59	9%	21	14%
Four Units Gained	131	2%	14	4%	7	3%	9	3%	9	1%	3	2%
Five Units Gained	12	0%	1	0%	1	0%	1	0%	1	0%	0	0%

Appendix M

Academic Level and WEC Comparison

Level and WEC Status Comparison**	**Lower division**		**Upper division**	
	Not WEC	**WEC**	**Not WEC**	**WEC**
	Mean (n=669)	**Mean (n=267)**	**Mean (n=1587)**	**Mean (n=397)**
How frequently during this academic year have you done each of the following? (0-6, "never" to "very often")				
Extensively revised a paper at least once before submitting it to be graded	3.89	4.09	3.76	3.79
How frequently have you engaged in these activities so far this academic year? (0-6, "never" to "very often")				
Talked with the instructor outside of class about issues and concepts derived from a course	2.67	2.73	2.81	2.87
Thinking back on this academic year, how often have you done each of the following? (0-6, "never" to "very often")				
Used facts and examples to support your viewpoint	4.75	4.98*	4.88	5.08*
Incorporated ideas or concepts from different courses when completing assignments	4.21	4.41	4.55	4.68*
Examined how others gathered and interpreted data and assessed the soundness of their conclusions	3.96	4.19	4.08	4.25*
Reconsidered your own position on a topic after assessing the arguments of others	3.99	4.21	4.02	4.17*
In the current academic year, across all of your courses, how frequently have you… (0-6, "never" to "very often")				
Encountered writing assignments that have been relevant to your courses?	4.42	4.40	4.52	4.47
Been offered useful writing instruction as you completed writing assignments?	3.93	4.02	3.92	3.82
Found that writing activities and assignments helped you to think critically and/or creatively about course content?	4.03	4.14	4.10	3.99
Understood the criteria instructors used to grade your writing?	4.23	4.29	4.26	4.29
Felt confident in your ability to complete writing assignments successfully?	4.38	4.65*	4.65	4.60
During this school year, for how many of your writing assignments has your instructor(s) done each of the following? (0-5, "no assignments" to "all assignments")				
Provided clear instructions describing what he or she wanted you to do	3.82	3.85	3.78	3.78
Explained in advance what he or she wanted you to learn	3.40	3.44	3.41	3.33
Explained in advance the criteria he or she would use to grade your assignment	3.63	3.78	3.58	3.61
Provided a sample of a completed assignment written by the instructor or a student	2.55	2.57	2.41	2.39
Asked you to do short pieces of writing that he or she did not grade	2.53	2.37	2.17	2.15

Asked you to give feedback to a classmate about a draft or outline the classmate had written	2.81	2.68	2.31	2.47*
Asked you to write with classmates to complete a group project	2.46*	2.36	2.55	2.41
Asked you to address a real or imagined audience such as your classmates, a politician, non-experts, etc.	2.48	2.35	2.34	2.32

* Results are based on two-sided tests assuming equal variances with significance level 0.05. For each significant pair, the category with larger mean is highlighted in yellow.

** Class level as of Spring 2010, lower division defined as freshmen/sophomore and upper division defined as junior/senior status as of Spring 2010,

*** WEC participation based on primary major as of Spring 2010.