Assessment Mini-Grant Final Report 2013-14

Using the Technology in the Classroom to Improve Students' Learning Outcomes:

Assessment of MyWritingLab Software in Online and Traditional

Undergraduate Classes in Criminology

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Abstract

Although written communications are crucial in every aspect of careers in criminology and criminal justice, writing skills are difficult to teach and learn. The instructors are likely to be overwhelmed by grading and providing feedback on writing assignments, and students tend to avoid enrolling in writing-intensive classes due to a lack of confidence in their writing abilities. This study assessed an alternative method to teach writing skills by examining the effectiveness of the MyWritingLab (MWL) software, which was used in upper-division Criminology classes. The students who were enrolled in two sections (the online and traditional lecture classes) were asked to complete the practice modules of the writing software. Then, the study assessed the advancement of their writing skills by examining the pre- and post- scores generated by the software. The students' demographics and academic background will be used to control the outcomes. In addition, with feedback from students by conducting a focus group and a survey, the study evaluated if students feel more confident about their writing ability after using the software.

Key Findings

- The students using the MWL improved an average 2.69 points from pre-test to post-test, and the difference was statistically significant. However, the degree of improvement was marginal compared to what was previously reported.

- The students were progressively improving their writing skills. The average mastery score of senior students (83.39) was 6.8 points higher than that of sophomore students and 5.01 points higher than that of junior students.

- Cumulative GPA was statistically related to the degree of progress and the overall mastery score.

- The majority of the students (58%) felt that the MWL helped them improve their writing in the class.

- The students felt that the most useful function of the MWL was Pearson Tutor Services, followed by the Write Click and Learning/Grammar modules.

- The higher incompletion rate was observed in the online class. Overall, 46% of the online students were not able to finish the modules by the due date compared to 12% of the traditional class students.

- Many expressed that the MWL practice was too time-consuming and repetitive and that it should be implemented in an English class or a W class rather than a discipline-related class.

- The sub-analysis indicated that female students in the online class had the lowest completion rate. Also, female students were less likely to feel that their writing was improved using the MWL.

  The students for whom English is a second language were more likely to agree that the MWL improved their writing, but the actual level of progress was less than that of native English speakers.

- Although the sample size was limited and further analysis is necessary, there were some differences observed among ethnic groups. A higher percentage of African-American students failed to complete the program. Asian students had the highest completion rate but showed the least progress in learning. White students showed the most progress using the MWL.

Table of Contents

Tables

Figures

Purpose and Background

The fields of criminology, criminal justice, and victimology require a wide variety of skills. Professionals and practitioners in these fields need to understand the evolving laws, guidelines, and policies applicable to their respective cases, make tough ethical decisions in challenging circumstances, and, as public servants, properly communicate with victims and citizens (Pollock, 2012). Above all, written communications are crucial in every aspect of their careers. Police officers are required to write reports on a regular basis; victim advocates continually apply for grants to sustain their programs; and proper documentation is needed in prisons and jails to help maintain safety of the facility and determine the restrictions and placement of inmates. To cite Schroeder, Grohe, and Pogue (2008), "Criminal justice professionals must write well if the field is to be accepted as a credible and reliable profession" (p. 433).

Even though criminal justice scholars and educators have recognized the importance of writing, teaching skillful and articulate writing is not an easy task. Of course, this is not limited to the criminology discipline, and there is growing concern about students' writing skills in colleges and universities throughout the United States. According to a survey conducted by the National Commission on Writing in America's Schools and Colleges, more than half of the papers written by first-year college students contained writing errors and those students failed to analyze their arguments (Pfeiffer & Ferree, 2006). The report also found that poor organization, mechanical errors, and plagiarism are common writing problems among college students (Pfeifer & Ferree, 2006). Issues of writing are not limited to undergraduate students. Poor writing is also found at the graduate and Ph.D. levels (Gibbons & Farr, 1998).

Although educators recognize the need for articulate writing in criminology disciplines, practical solutions to remedy the problem have not been well explored. Writing skills are difficult to teach and to learn. Studies indicate that instructors are reluctant to address the issue because they tend to believe that the English Department has the responsibility to teach writing (Blowers & Donohue, 1994); they feel that they lack proper training and teaching skills (Gray, 2006); they are afraid of negative student ratings if they give writing assignments (Boice, 1990); and they do not have time to grade writing assignments and provide feedback. This is particularly true for tenure-track faculty who are required to do considerable non-instructional work such as conducting research and publishing articles (Blowers & Donohue, 1994). Furthermore, students tend to avoid enrolling in writing-intensive classes because they lack confidence in their writing abilities (Blowers & Donohue, 1994) and such classes require too much work (Boice, 1990).

One possible solution to address the problem would be the use of writing software in the classroom. The MyWritingLab (MWL) software has been used in various courses at universities across the United States and has shown positive outcomes in students' writing. For example, a report from California State University, Bakersfield (Brummett & Hughes, 2011), indicates that students using the MWL improved an average 23 points from pre-test to post-test in just four weeks. Benefits for the instructors are also notable as they can use class time more productively,

monitor students' progress more closely, and provide immediate assistance when students need help.

Research Questions

This proposed project aims to assess students' writing outcomes in criminology and will address the following research questions:

- Is there a statistically significant difference in students' pre- and post-assessment scores among those who used the MWL software in criminology classes?
- Who is more or less likely to gain the skills from using the software? Would gender, ethnicity, and the class format affect learning outcomes?
- Do students feel more confident about their writing ability after using the software and would students like to have the software for other classes?

Limitations

Note that the original proposal indicated a comparison of the actual writing samples of the previous semester and the current semester in the same section with the same assignment would be done to assess the impact of the software on writing. The ultimate outcome should be measured in such a way; however, the grade of the final products did not show any significant difference. There were some well-written papers and some poorly written ones regardless of usage of the software. Indeed, there were many outside factors affecting the quality of the papers and for that reason a comparison of the papers was excluded from the analysis.

Sample

A total of 100 students were enrolled in Criminology 100 (50 fully online and 50 traditional class students) in Spring 2014. As Table 1 shows, the ethnic distribution of the overall sample was 60% Hispanic, 16% Caucasian, 12% Asian, 6% African American, and 6% other groups. Overall, gender was equally divided (51% males and 49% females). A majority of the students were juniors.

When comparing the characteristics of the online and traditional class students, the online class had more female students (60% for the online and 38% for the traditional class). A majority of the traditional class students were juniors (60%). However, there was no statistically significant difference in terms of the cumulative GPA relative to gender or online or traditional class status.

Table 1
Characteristics of the Students

	Total N (%)	Online N (%)	Traditional N (%)
Ethnicity			
Hispanic	60 (60)	29 (58)	31 (62)
White	16 (16)	6 (12)	10 (20)
Asian	12 (12)	8 (16)	4 (8)
African American	6 (6)	3 (6)	3 (6)
Others	6 (6)	4 (8)	2 (4)
Gender			
Male	51 (51)	20 (40)	31 (62)
Female	49 (49)	30 (60)	19 (38)
Academic Level			
Sophomore	25 (25)	18 (36)	7 (14)
Junior	53 (53)	23 (46)	30 (60)
Senior	22 (22)	9 (18)	13 (26)
Average cumulative GPA	2.91	2.95	2.88
Male	2.90		
Female	2.92		
Hispanic	2.86		
White	3.08		
Asian	2.79		
African American	2.93		
Others	3.17		

Protocols

Prior to the study, the IRB was submitted to the Criminology Department and approved by the Department IRB Committee with a minimal risk level. At the beginning of the semester, the instructor and her graduate assistant held a mandatory session for both online and traditional class students at the computer lab to explain the software, the due date, and the point allocation for the assignments. Then, the informed consent form was given to and signed by the students (see Appendix A). At the end of the meeting, a pre-diagnostic test was taken.

The students were given approximately two months to complete a series of practice modules. Each module had a review of particular writing skills and a short comprehension test. After the completion of all modules, the students were asked to complete a post-test. The progress of the practice was monitored by the graduate assistant, and several reminder e-mails were sent to the students who were behind schedule. Any questions related to the software were answered by the graduate assistant. Furthermore, the instructor set up a Q&A section on the Blackboard where the students could find common questions related to the software. The assignments and allocation of the points were the same for both online and traditional classes.

After the due date, each individual student's background information was linked to the pre- and post-test score. In addition, the focus group and the online survey were administered to get feedback from the students.

Findings From the MWL Software

Completion of the Program

Approximately 30% of the students failed to complete the program by the due date. As shown in Table 2, fewer online students completed the program than the traditional students and further analysis indicated that the group with the lowest completion rate was females in the online class.

Table 2
Completion of the Program by Gender

	Completed N (%)	Not Completed N (%)
Online	**27 (54)**	**23 (46)**
Male	15 (75)	5 (25)
Female	12 (40)	18 (60)
Traditional	**42 (88)**	**6 (12)**
Male	26 (84)	5 (16)
Female	15 (95)	1 (5)
Total	68 (68)	32 (32)

Although the sample size of some ethnic groups is limited, the data indicated that Whites and Asians were more likely to complete the program, whereas African Americans had a higher incompletion rate.

Table 3
Completion of the Program by Ethnicity

	Completed N (%)	Not Completed N (%)
Hispanic	42 (70)	18 (30)
White	13 (81)	3 (19)
Asian	10 (83)	2 (17)
African American	2 (33)	4 (66)
Others	4 (67)	2 (33)
Total	68 (68)	32 (32)

There was a statistically significant difference between the cumulative GPA for those who completed the program and those who did not. The average GPA for those who completed the program was 3.01, whereas the GPA for those who did not complete the program was 2.68.

Table 4

Average GPA for Those Who Completed and Did Not Complete the Program

	Average Cumulative GPA	Std. Deviation
Completed	3.01	.497
Not completed	2.68	.493

t (98) = 3.024, $p < .05$

Mastery Level of the Program

There was a statistically significant difference between the pre- and post-test scores for those who completed the program. The average post-test score was 2.69 points higher than the average pre-test score. However, the level of improvement was marginal compared to what was previously reported.
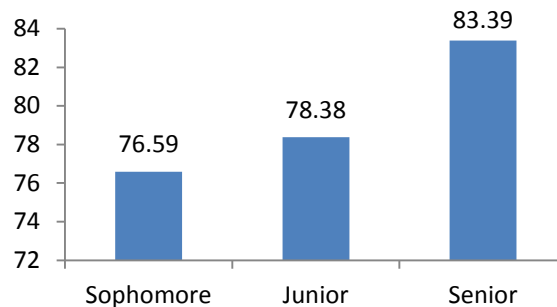
Table 5

Average Pre- and Post-Test Scores for Those Who Completed the Program

	Average Score	Std. Deviation
Pre-test	72.67	8.76
Post-test	75.36	11.61

t (69) = 2.32, $p < .05$

The analysis of the overall mastery score by academic level indicated that the students were progressively improving their writing skills.

Figure 1

Average Mastery Score by Academic Level

The correlation coefficient analysis indicated that there was a positive relationship between the cumulative GPA and overall mastery score of the students ($r = .59$ $p < .05$). Also, the degree of progress (i.e., post-test score minus pre-test score) was significantly related to the cumulative GPA ($r = .30$, $p < .05$). In other words, those students with a higher GPA were more likely to

receive a higher mastery score and gain more writing skills from the software than those who had a lower GPA.

The analysis of ethnicity indicated that Asian students were less likely to gain skills from the program than other ethnic groups.

Table 6
Mastery of the Program by Ethnicity

	Average Overall Mastery Score	Average Degree of Progress
Hispanic	77.94	3.27
White	82.22	3.53
Asian	75.10	-.05
African American	87.05	2.70
Others	89.80	2.97

The analysis of language status indicated that students for whom English is a second language were less likely to gain skills from the program than native English speakers, but the difference was not statistically significant.

Table 7
Average Degree of Progress by English Proficiency

	Average Score	Std. Deviation
English as a second language	1.8	8.29
Native English speaker	4.3	9.56

$t(64) = 1.1, p > .05$

Findings From the Focus Group

In addition to the data analysis, a focus group meeting was conducted after the completion of the assignment. Four students (two from the traditional class and two from the online class) participated in the discussion.

Overall Usage of the Software in Improving Writing

Overall, the majority agreed that the software had a positive effect on their writing. One student felt that the quality of writing has been marginalized and commented that "in high school, the teacher would have given it back with no grade until I corrected the grammar and punctuation. Now you look on the discussion boards and it's more like a text message than a college assignment and I figure, 'well no one else is taking the time and they are not losing points, it's more about getting it turned in rather than the quality.'"

Therefore, the participants all agreed that the software was helpful for them to review some basic writing skills (e.g., grammar, punctuation), note the strengths and weaknesses in their writing, and increase awareness of mistakes made regularly in their writing.

However, one student indicated that this software should be used in Eng 5A or Eng 10 or even in an upper-division writing class (W class). It seems that students do not have a connection of gaining discipline-related knowledge and quality of writing. One student commented that he/she "kept thinking 'what does this have to do with Criminology.'"

The students had some issues with Pearson Tutor Services in not receiving prompt feedback, and some of the feedback was not so helpful.

Suggestions From the Students

1. Need more flexible options

    Some students like animations and others like written explanations. Still others had no preference. It seems that the students have different learning patterns and preferences, and it would be nice if the students could have a variety of options.

    Some extra practice questions before taking the pre-test or more opportunities to retake the tests.

2. Need better instructions/schedules

    Meet with online students halfway through the program to help them and make sure that they are on track or see if they have questions.

    The discussion board for the online questions was helpful.

   Modules should be broken into sections and have specific due dates and not be due all at once.

Findings From the Survey

A total of 90 students responded to the online survey on the MWL software regarding their opinions about the usefulness and advancement of their writing skills by using the software. The students were also provided an opportunity to make open-ended comments about the reasons why they felt the software was useful or not.

Among the various functions in the software, the students found the Pearson Tutor Services the most useful (44%), followed by the Write Click (31%) and Learning Path/Grammar modules (31%). The comments indicated that they appreciated the prompt and useful feedback from the tutors. Some students mentioned that they would like to use the tutor service for other classes in

the future. They also noted that Write Click was helpful with reviewing their grammar and that it detected mistakes that a word processor spell check would not detect.

Figure 2

*Students' Opinions About the Most Useful Function in the MWL*
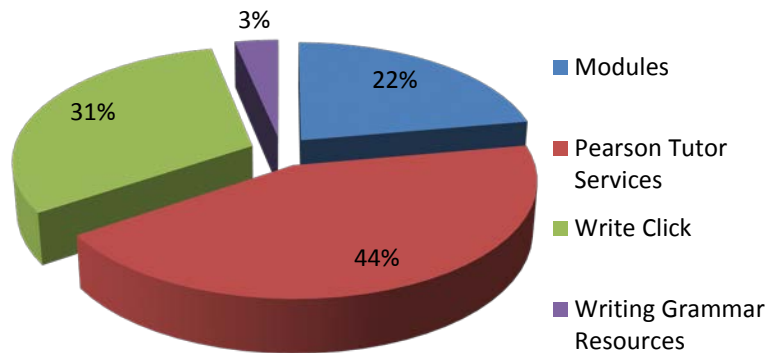
However, the students were less favorable toward the Learning/Grammar module as it was "too time consuming," had "too many activities," a "waste of time," "difficult to navigate," "very repetitive," and "focusing on too much definitions and writing forms." Some mentioned that such practice should be addressed in English classes but not a Criminology class.

Regarding the students' opinions about their improvement of writing in this class, the majority of students (58%) indicated that the software definitely or somewhat helped them improve their writing. Reasons that they feel this way included the writing exercises during the semester gave them a better understanding of grammar, made them pay more attention to punctuation and mechanics, and made them aware of their common mistakes.

In contrast, 42% of the students noted that the software did not help them improve their writing. Some students mentioned that they just tried to finish the models rather than learning. Quite a few students noted that they felt that the modules were unnecessary as they already know proper English and how to write.

Figure 3

Students' Opinions About Their Improvement of Writing by Using the MWL
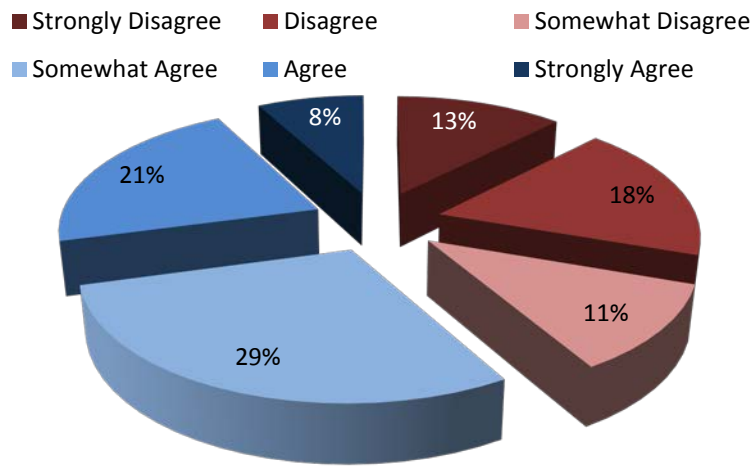
Some comments noted that the software would be beneficial for English as second language students. The cross-tabulation analysis indicated that a higher percentage of students for whom English is a second language agreed that the software improved their writing, but the difference between the two groups was not statistically significant.

Table 8

Students' Opinions About Their Improvement of Writing in This Class by English Proficiency

	No N (%)	Yes N (%)
English as second language	12 (31)	27 (69)
Native English speakers	25 (50)	25 (50)

X^2 (1) = 3.34, p > .05

The gender analysis indicated that male students had more confidence in their writing than female students, and the relationship is statistically significant.

Table 9

Students' Opinions About Their Improvement of Writing in This Class by Gender

	No N (%)	Yes N (%)
Male	13 (30)	31 (70)
Female	24 (53)	21 (47)

X^2 (1) = 5.18, p < .05

14

Conclusion

Overall, the writing software helped students understand their weaknesses and strengths in writing and there was statistically significant improvement in the pre- and post-test scores. However, the level of improvement was marginal compared to what was previously reported.

The sub-analysis of the study indicated that the instructors need to pay attention to the learning style of the students. The data indicated that female students in the online class were less likely to complete the program.

Research has shown that women and men can have the same situations and have completely different approaches to resolution because of their gender (Palm, 2007). Relational theorists suggest this is based in the idea that women crave connection and men autonomy (Chodorow, 1978; Gilligan, 1982; Zelvin, 1999). In online classrooms, the student is almost completely autonomous and the data support the suggestion that males would flourish more in this type of environment. Because women thrive with interactions and relations with other people, it is logical that women would do better in traditional classrooms that allow for direct interaction with the instructor (Zelvin, 1999). Research on interactive classroom teaching styles supports what we have found in this study. Welsh (2012) found that females were more apt to find interactive learning techniques to be beneficial to their ability to learn in lecture environments. In fact, females were more likely to report feelings of isolation in large science classrooms, something that their male cohorts did not experience (Welsh, 2012).

This difference in how male and female students respond to different teaching environments is reflected by our data, which show a higher rate of participation and learning for females in a classroom receptive to interaction and social relations than in a learning environment that is almost completely autonomous.

Although the sample size was limited, the study also found some differences among ethnic groups. African-American students had a higher incompletion rate than other students. Asian and White students were more likely to complete the program, and White students were more likely to gain from the software. However, Asian students showed only marginal improvement. This raises the question regarding whether the program is better for Western students but not as effective for those students whose mother language was not English.

Furthermore, the data indicated that those who had a higher GPA gain more from the software. Conversely, those students who had a lower GPA and who might need to improve their writing the most had a higher incompletion rate and marginal progress. This might have to do with lack of discipline as the modules were not set to a time schedule and students were left to pace themselves appropriately. Students with higher GPAs might have better time management skills.

Finally, it is indicated that the writing modules are extra work for the students, and some students felt that it was not suitable to use in discipline-related courses.

In conclusion, regardless of whether the software is used, the study indicated that there is no easy way to teach and learn writing skills and there is no methodology that works for every student. Yet, constant encouragement and feedback from the instructor would help motivate students to learn quality writing.

Recommendations

Use of the MWL software can benefit students under the right circumstances.

1) *Direct interaction and access to the instructor would alleviate navigational errors and frustration for all students.*

This would deter discouragement in the program. Using a more regulated system for the implementation of the use of MWL modules would also benefit students and potentially improve outcomes.

Because some students are not well disciplined with time management, having specific due dates for each module would potentially increase participation rates and improve the quality of participation.

2) *Use of the Write Click software was well received by most students.*

This particular program focused more on the fundamentals of writing such as grammar, punctuation, and sentence structure. It did a more thorough job than the spelling and grammar check provided by Microsoft Word. Due to the primarily digital culture these students are accustomed to, they lack practice with these skills.

3) *Use of this software in all social science classes would certainly improve the writing skills of students.*

Because the software allows the student to master a number of practice modules, as the students truly hone their skills they would eventually not have any practice modules to complete.

4) *Use in multiple classes across multiple disciplines would negate the resistance of students to the program as inappropriate subject matter for their major.*

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CONSENT FORM

You are asked to participate in a study that will be conducted by Dr. Takahashi and a graduate student in the Criminology Department, California State University, Fresno. We hope to learn the benefits of using *MyWritingLab* software, which is designed to help improve writing skills.

You will take a pre-test at the beginning of the semester that will assess your current writing skills. The software is designed to tailor exercises to your needs. After your initial assessment test, you will be asked to complete a series of practice modules. Each module will have a review of particular writing skills and a short comprehension test. After the completion of all modules, you will be asked to complete a post-test to assess the impact of *MyWritingLab* software on your writing skills.

The pre- and post-test scores will be compared to determine the effectiveness of the software program in building advanced writing skills. The use of the software is part of the class assignments, and you will receive 100 points by completing all tasks. The benefits will include free use of the software during the semester to improve your writing skills. You will have opportunities to contribute your opinions about the software to the Criminology Department by answering a survey and/or participating in a focus group.

Dr. Takahashi will monitor your progress of the practice and will access the pre- and post-scores. Also, she will access your academic and demographic background information from the Office of Institutional Effectiveness at California State University, Fresno. Any information that is obtained in connection with this study will remain confidential. If you give us your permission, by signing this document, we plan to disclose only the overall group level results of the study. The database will be maintained by Dr. Takahashi, and she is the only person who can access your information.

If you have any questions later, your instructor, Dr. Takahashi (ytakahshi@csufresno.edu, 559-278-4800) will be happy to answer therm. Questions regarding the rights of research subjects may be directed to Dr. Constance Jones, chair, California State University, Fresno, Committee on the Protection of Human Subjects (559-278-4468).

By signing below, you consent to participating in this project as directed.

_____   _____
Student Signature   Student Name (Printed)

_____   _____
Student ID Number   Date