Does reflective learning take place in online MBA introductory quantitative courses?

Blake A. Frank
University of Dallas

Robert J. Walsh
University of Dallas

ABSTRACT

Online education has grown dramatically over the past 15 years. At the university level, researchers have shown that online education has both its advantages – greater flexibility and access to student– and disadvantages – like disconnection with other students and faculty.

Another possible drawback for the students enrolled in an online course is the inability to engage in reflective learning, or deep thinking. Some critics of online courses (Rahm and Reed, 1997 and Somer, 1999) suggest that online courses only offer passive learning and "one-way" information flows from teacher to student, significantly limiting a student's ability to make connections within the material and critical apply the material to new situations. Alternatively, other researchers (Hay et al., 2005, for example) find no difference in reflective learning between an online versus on campus course, but also argue that students engagement in reflective thinking is much more instructor-dependent on line than on campus.

This study extends the Hay et al. 2005 study by examining whether students who earned a good grade display more reflective thinking ability in an online course than mediocre or poor students. Students are asked at course-end the open-ended question "What advice would you give to a student just entering this course?"

The results of this study suggest that reflective learning can take place within an online course – specifically a quantitative MBA course. But like the Hay, et al. 2005 paper which labeled it dependent on the instructor, this study finds reflective thinking dependent on the student's grade within the course.

Keywords: online education, reflective learning, masters of business administration

INTRODUCTION

Online education has exploded in growth since 1995. A 2010 Sloan Survey found that 5.6 million students were enrolled in at least one online course in the fall of 2009. The same survey showed that online enrollment had increased by 21% from the prior year, while on-campus enrollment had only increased by 2%.This dramatic growth has been consistent throughout the past decade. Dolezalek (2003) found that expected increases in online courses would average 40% over the next decade. Earlier in the prior decade at many institutions, online education has become a replacement for on campus courses (Drago, Peltier and Sorenson, 2002).

One of the major obstacles facing online education is the perception that the courses are not as rigorous as on campus course, or that the amount of material learned in the online course is not as much as the on-campus course. In the initial rush to create on line courses, some researchers found that courses lacked quality (Caudron, 2001), or that some colleges (mostly for-profit) created "diploma mills" (Hereford, 2000). On the other hand, other investigators have concluded that there were no significant differences in learning outcomes between online and on-campus courses (Palloff and Pratt, 2001) and that online students exhibited a higher level of engagement than on-campus students (Robinson and Hullinger, 2008). Employers have also signaled a belief in the comparability of online versus on campus education (Astani and Ready, 2010).

One measure of quality of the educational experience is the students' ability to reflect on the knowledge and experience within the course. This reflective ability is seen as a higher level of learning than mere memorization or application. It also has been shown to be particularly important to business education, where there is no defined solution (Schon, 1983, 1987) or uncertainty or change is imminent (Pee, et al., 2000).

This paper examines whether students can demonstrate an ability to reflect on information given in three different quantitative online MBA courses at one university in the southwest United States – Introduction to Financial Accounting, Introduction to Managerial Accounting and Introduction to Statistics. An open-ended question was asked at the end of each course: "What advice would you give to a student entering this course?" Students were separated in those receiving a good grade (A/A-) versus a mediocre to poor grade (B+ or below).

Using a Reflective Learning Dictionary in Wordstat, a text analysis program, the student advice was scrutinized for words of advice which would indicative of habitual learning, understanding and reflection. Students at all grade levels provide advice to students in similar amount and content in encouraging habitual learning and understanding. Good students, on the other hand, use more words to advice future students to also do reflect thinking, probably modeling their own learning experience in the course.

This paper is outlined as follows. Section two provides a literature review describing some of the prior literature on reflective thinking in general and in online courses in specific. Section three provided the hypotheses and results. Section four discussed the results found in section three and extends the results further. Section five offers a conclusion.

LITERATURE REVIEW

Reflection has been shown to be an integral part of education, and business education in particular.   Past literature reviewed by Peltier, Hay and Diego (2005) and extended by Peltier, Hay and Diego (2006), defined reflection as "….a series of increasing deep learning stages that may be used by individuals to integrate new knowledge, to contemplate its meaning and relevance to past knowledge, and culminating on whether to modifying existing beliefs and assumptions…."

Reflection within business courses has also proved very desirable. Schon's (1983, 1987) established the idea of a "reflective practitioner," where a critical part of making an important business decision is the ability to step back, understand the "whys" and "wherefores" and integrated disparate pieces. Subsequently, others studies have shown reflective thinking to be important in areas such as business education (Reid and Parker, 1995) and accountancy (Velayutham and Perera, 1993). McFarlane (2001) points out the benefits of reflection in business ethics courses, and the idea of using learning logs as a retrospective benefit encourages students to look back in making connections to previously learned materials.

The question of whether reflection is encouraged in an online business course is a valid one. Many researchers have concluded that online courses, completed in relative isolation of other students and the professor, have failed or at least limited the possibilities to question past learning or make connections between disparate parts of a course's information.

Studies have found that students are unhappy with the lack of connection with faculty (Arbaugh, 2002, and Blunt, 2001). Brower (2003) found that online courses might not facilitate higher level learning because a lack of rapid communication and feedback that can challenge prior knowledge or assumptions. For example, Shea and Boder (2001) pointed out that online courses can be seriously lacking in interactivity with students and professors and generally not as challenging as on campus courses. Problems include lack of feedback or timely feedback from instructors, too many students in online courses, projects poorly designed for an online environment – all deficiencies which could limit a student's ability to apply newly learned material to a new situation.

Higher level learning can be defined in a number of ways. For purposes of this paper, it is seen as through a continuum of learning, reaching a high enough state of knowledge to be able to reflection on the information learned in a new way – to be able to evaluate a unique situation, or to be able to critically think in new perspective. Hays et al. (2005) used this continuum in an examination of whether students enrolled in traditional (on-campus) courses demonstrate reflection/deep thinking more often or better than online students. From the students' perspective, they find no difference "…we feel confident in being able to conclude that online management education is capable of encouraging higher levels of learning, thus countering critics who wrongly characterize online delivery as a passive delivery medium…."

The authors temper this conclusion with a caveat. While reflective learning can take place in both online and on-campus courses, the role of the lecturer/instructor is encouraging reflective thinking was much more critical in the online course.

This study takes the examination of reflective learning in online courses further by examining the role of the student. Specifically in the advice given to future students by students completing the course, do students receiving higher course grades (A or A-) exhibit different thinking patterns (habitual vs. understanding vs. reflective) than students receiving lower grades (B+ or lower)?

HYPOTHESIS AND RESULTS

The continuum of reflective learning used in this study is as follows (as modified by Hays, et al., 2005).

Habitual learning

The lowest level is a non-reflective stage. Kember, et al., (2000) describe it as "…that which has been learnt before and through frequent use becomes an activity which is performed automatically or with little conscious thought…."

At this level, specific tasks are treated as unrelated, memorization is emphasized, and little connection between activities is made. Students might encourage other students on how much to work to get a desired grade, what advice from the teacher to follow, or what information is important for grading or testing purposes.

The key words a student might use to give advice encouraging habitual learning are found in Table 1.

Table 1: Words which suggest advice for habitual learning

- BASIC
- EVALUATION
- EXAM
- FACT
- FOLLOW
- GRADE
- INFORMATION
- LITTLE
- MATERIAL
- MINIMUM
- QUIZ
- REMEMBER
- TASK
- TEST
- MEMORIZATION
- TIME
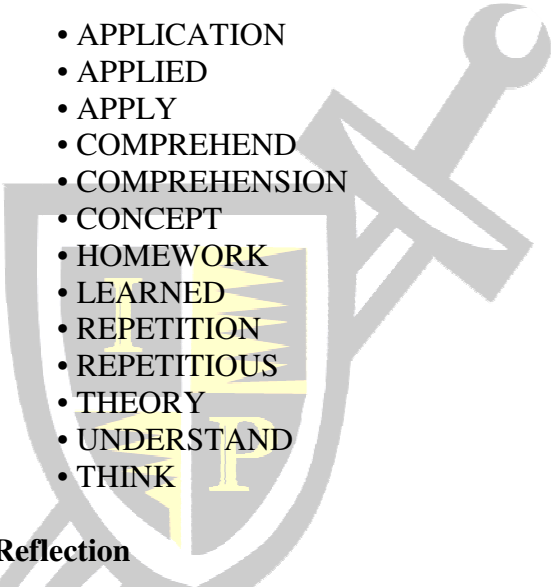- WITHOUT_THINKING
- WORK
- WORKLOAD

Understanding

The second level is also a non-reflective state. Again, Kember, et al. label this stage as:"…understanding focuses on comprehension, without relation to one's personal experiences, in that the learner need only focus on comprehending the material…"

Students are this level might encourage future students on how to comprehend the material either through doing homework, or through repetition of problems, or learned or learning process. They also might tell students to apply the material learned or to comprehend it in a certain way.

The key words a student might use to give advice encouraging understanding are found in Table 2.

Table 2: Words which suggest advice for understanding

- APPLICATION
- APPLIED
- APPLY
- COMPREHEND
- COMPREHENSION
- CONCEPT
- HOMEWORK
- LEARNED
- REPETITION
- REPETITIOUS
- THEORY
- UNDERSTAND
- THINK

Reflection and Critical Reflection

The third and fourth level is a reflective state of thinking and doing. Luang and Kember (2004) show that there is a causal relationship between deep thinking and reflecting – the former causing the latter. It is characterized by challenging assumptions, face new scenarios and using real-world experiences to make connections.

A current student advising future students in the course to engage in reflective learning might suggest challenging alternatives or assumptions or beliefs, or search for deeper meanings or new or novel ideas. He or she might also tell prospective students to explore the implications of actions, or to discover or be aware or reflection on new information.

The key words a student might use to give advice encouraging reflection are found in Table 3.

Table 3: Words which suggest advice for reflection

- ALTERNATIVE
- ASSUMPTION
- AWARE
- BELIEF
- BELIEVE
- CHALLENGE
- CHANGE
- DECISION
- DILEMMA
- DISCOVER
- EXPERIENCE
- ALTERNATIVE
- FUTURE
- EXPLORE
- IMPLICATION
- IMPROVE
- IMPROVEMENT
- INTEGRATE
- INTERACTION
- MEANING
- NEW_IDEAS
- NOVEL
- PERSPECTIVE
- PREMISE
- QUESTION
- REAPPRAISE
- REASSESS
- REFLECT
- REFLECTION
- RETHINK
- SELF-AWARE
- TRANSFORM
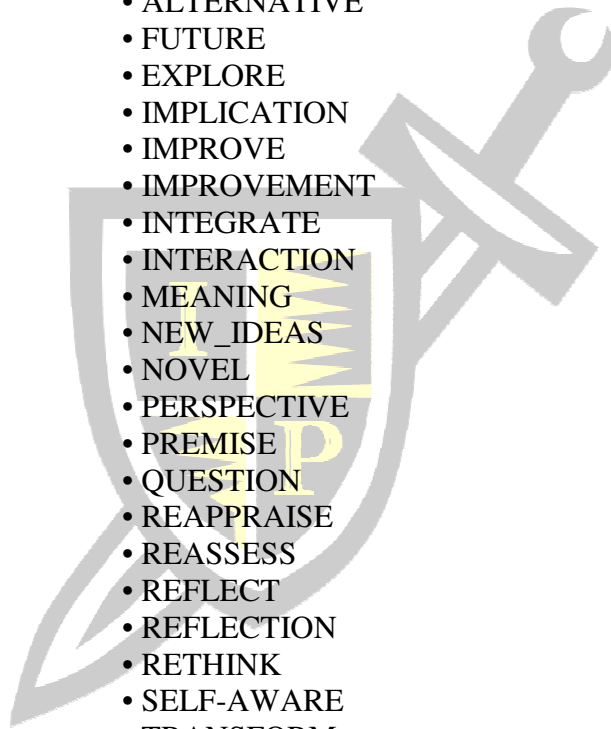
During a three year period (2008-2011) in a large MBA program at a private university in the US, the following question was asked at the end of each online course in Introduction to Financial Accounting, Introduction to Managerial Accounting and Introduction to Statistics: "What advice would you give to students entering the course?" Bonus points on the final exam were offered for an "attempted" response (which averaged around 30 words). Responses were received from 313 students over nine sections with six different instructors.

Table 4 shows the distribution of gender by course grade level. A chi-square analysis indicated an insignificant relationship between the two variables of good grade versus mediocre/poor grade ($\chi^2 = \#\#, df = 3, p > .05$).

Table 4: Distribution of respondents by gender/grade

	Male	Female
Good Grade	145	59
Mediocre/Poor Grade	69	40

In previous research on the assessment of reflection, a quantitative approach was taken. Typically students completed a questionnaire or were evaluated on a behavioral checklist (Boenink, Oderwald,De Jonge, Van Tilbugh,&Smal, 2004; Kember, Leung, Jones, Loke, McKay, Sinclair, &Tse, 2000; Sobral, 2000; Van Woerkom, Nijhof, &Nieuwenhuis, 2002). In this research, a qualitative analysis approach was used. This approach has been used to assess Student Evaluation of Teaching (Rovai, Ponton, Derrick, & Davis, 2006; Kelly, Ponton, &Rovai, 2007). Responses to the open-ended questions were analyzed for word use indicative of the three levels of learning: habitual, understanding, and reflective.

A Learning Level Dictionary was developed using the key sets of words noted in Tables 1, 2 and 3 to show student advice within habitual learning, understanding and reflection and critical reflection.

Next, the additional literature on the assessment of the three learning levels was scanned to identify words that were descriptive of each learning level (Boenink, et al, 2004; Kember, et al., 2000; Sobral, 2000; Van Woerkom, 2000). Key words were extracted and allocated to one of the learning levels. For example, habitual learning is often described as memorization-oriented. Therefore, variants of the word memorize were allocated to the dictionary's Habitual Learning section.

In the analysis phase, responses to the open end question were compared to the words in the three categories of the Learning Level Dictionary. The rationale behind the qualitative analysis is that an individual's thought level can be shown in the words they used in their open-ended responses.

If students are able to use all levels of learning, including reflective learning/deep thinking, they should be providing advice to future students using the words in the three categories of the Learning Levels Dictionary. On the other hand, students receiving lower grades may not have been able to reach the higher levels of thinking, specifically using reflections or critical reflections. If this is the case, then the key words used by students receiving good grades will be different than those receiving mediocre or poor grades. Of course, this could also be the case over all three areas – good students will also give advice using more words that encourage habitual learning, understanding and reflections/critical reflections.

This leads to three hypotheses:

H1: Students who receive a good grade (A/A-) in the course will encourage students to do more habitual learning than student who received a mediocre or poor grade (B+ or less) in the course.

Using the chi-square test, the following results are noted in Table 5:

Table 5: Student course performance and habitual learning advice

	G	M/P	Chi2	P-value
Habitual Learning	265	112	4.348	0.114*

* not statistically significant

Hence H1 cannot be rejected. Therefore, there is no significant difference in course advice given when students in the current course give advice to future students on habitual learning. Good students and mediocre to poor students each advice future students similarly in areas of habitual learning.

H2:Students who receive a good grade (A/A-) in the course will encourage students to do more understanding of material in the course than students who receive a mediocre or poor grade (B+ or less) in the course.

Using the chi-square test, the following results are noted in Table 6:

Table 6: Student course performance and understanding advice

	G	M/P	Chi2	P-value
Understanding	157	74	.7972	0.673*

* not statistically significant

Like H1, H2 cannot be rejected – students with poor or mediocre grades use the same types of advice that encourages understanding as good students.

H3: Students who receive a good grade (A/A-) in the course will encourage students to do more reflections on relationships in the course than students who receive a mediocre or poor grade (B+ or less) in the course.

Using the chi-square test, the following results are noted in Table 7:

Table 7: Student course performance and reflective learning advice

	G	M/P	Chi2	P-value
Reflection	217	71	13.218	0.001*

* very statistically significant

H3 can be accepted – good students encourage future students to use reflection in their advice more so than mediocre or poor students.

While it can be shown that students within on-line quantitative courses can be reflective thinkers, the next question is "why only good students?" In other words, what can faculty within courses do to encourage all students, not just those that are earning higher grades, to engage in higher level reflective thinking.

One possible way to restrict quantitative online courses to more "online experienced" students – the plausible belief being that students who already understanding the expectations and drawbacks of an online course (working alone, limited student/faculty interaction, self-motivation requirements) will be more able to focus on learning the material in the course particularly well.

That leads to the fourth hypothesis:

H4: Students who have completed 2 or more online courses at the MBA level before this course will encourage students to do more reflective learning than students who have only completed one or no online courses before this course.

Using the chi-square test, the following results are noted in Table 8:

Table 8: Prior online course experience and encouraging reflective learning

	2+	0-1	Chi2	P-value
Reflection	13	21	.0000	1.000*

* not statistically significant

Hence H4 cannot be proven – students with more experience taking online courses in the MBA program before this course do not necessarily encourage more reflective thinking to future students.

A second possibility is that students who are accounting or finance concentrations will engage in higher level reflective thinking since they will be mindful of the relevance of the material in the course to their future career aspirations and be looking for way to integrate that knowledge.

That leads to fifth hypothesis:

H5: Students who have declared concentrations in accounting or finance at the MBA level before this course will encourage students to do more reflective learning than students who have are concentrating their MBA studies in some other area.

Using the chi-square test, the following results are noted in Table 9:

Table 9: Declared MBA concentration and encouraging reflective learning

	Hi	Lo	Chi2	P-value
Reflection	6	28	.0051	0.975*

* not statistically significant

Thus H5 cannot be proven – the advice given by student who are MBA concentrations in accounting or finance are no different than students in any other MBA concentration area.

CONCLUSION

This study examines the wording in advice given by students completing three different MBA online courses by asking the open-ended question "What advice would you give to someone entering this course?"

Using a Reflective Learning Dictionary in Wordstat, a text analysis program, words indicative of habitual learning, understanding and reflection were each noted and summarized. Students receiving a final grade of A or A- encouraged students to engage in reflective learning more than students whose final grade was lowered than A-. No significant differences were noted between good versus mediocre/poor students in advice which would encourage habitual learning or understanding.

The study was extended to see if students would encourage more reflective learning if they had significant prior online course experience within the MBA program, or if their concentration was in a quantitative area, such as accounting or finance. No significant differences were noted.

Future studies in the area should examine why some students perform better than others – it is merely aptitude or motivation or organizational skills? Do any of these allow or encourage students to be able to have the deep learning necessary for reflection?

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