ADVANCES IN ACCOUNTING EDUCATION

ADVANCES IN ACCOUNTING EDUCATION: TEACHING AND CURRICULUM INNOVATIONS

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ADVANCES IN ACCOUNTING EDUCATION: TEACHING AND CURRICULUM INNOVATIONS VOLUME 24

ADVANCES IN ACCOUNTING EDUCATION: TEACHING AND CURRICULUM INNOVATIONS

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STATEMENT OF PURPOSE

Advances in Accounting Education: Teaching and Curriculum Innovations is a refereed academic journal whose purpose is to help meet the needs of faculty members and administrators who are interested in ways to improve teaching, learning, and curriculum development in the accounting area at the college and university levels. We publish thoughtful, well-developed articles that are readable, relevant, and reliable.

Articles may be either empirical or nonempirical and should emphasize innovative approaches that inform faculty and administrators as they seek to advance their classrooms, curricula, and programs. All articles should have well-articulated and strong theoretical foundations. Establishing a link to the nonaccounting literature is desirable. Further, we expect all manuscripts to address implications for the scholarship of teaching and learning.

Normally, articles that emphasize pedagogy and classroom innovation (e.g., cases, exercises, specific approaches to teaching a topic, etc.) must demonstrate efficacy in at least one college setting. That is, the authors offer evidence to show that the innovation has been tried and it is effective.

Nonempirical manuscripts should be academically rigorous. They can be theoretical syntheses, conceptual models, position papers, discussions of methodology, comprehensive literature reviews grounded in theory, or historical discussions with implications for efforts to enhance teaching, learning, and curriculum development. Reasonable assumptions and logical development are essential.

Sound research design and execution are critical for empirical reports. Reviewers focus on the quality of method, data, results, and analysis as well as the implications for teaching, learning, and curriculum development.

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PREFACE

Advances in Accounting Education: Teaching and Curriculum Innovations publishes both nonempirical and empirical articles dealing with accounting education. All articles emphasize teaching, learning, and curriculum development and discuss vital matters pertaining to the improvement of accounting programs at colleges and universities. Nonempirical papers are academically rigorous and specifically discuss the institutional context of a course or program, as well as any relevant tradeoffs or policy issues. Empirical reports exhibit sound research design and execution, and develop a thorough motivation and literature review, including references from outside the accounting field, where appropriate. Volume 24 consists of five themes: (1) research on student attitudes and behavior, (2) cases and pedagogical approaches in tax, (3) financial reporting and introductory accounting, (4) research about the CPA exam, and (5) international.

Theme 1, *Research on Student Attitudes and Behavior*, contains two chapters that address matters related to student study choices and changes in student ethical attitudes over time. In the first chapter, the authors show that students who study more perform better on exams and that students who read their textbooks perform better on exams than those who rely on videos for studying. The second chapter focuses on shifts over time in the ethical attitudes of students who aspire to be CPAs and shows that current students as a group may be less tolerant of ethically questionable behavior than students of prior decades.

Theme 2, *Cases and Pedagogical Approaches in Tax*, consists of three chapters that contribute to teaching and learning in taxation. The first of the three discusses a pedagogical approach that incorporates multiple critical topics in the accounting curriculum using an integrated tax research case. The approach is designed to develop students' research, data management and analysis, critical thinking, decision-making, and professional communication skills. These goals are achieved through the use of an integrated assignment requiring students to conduct research, decide how to use an assortment of information sources, conduct analysis of data and business documents, and arrive at and communicate a conclusion. The second chapter is a case that engages students in examining how the recent changes to depreciation incentives in the Tax Cuts and Jobs Act of 2017 (P.L. 115-97, Dec. 22, 2017) may affect the purchase of capital assets. Bonus depreciation is the focus and the case facilitates teaching students how to apply the concept of bonus depreciation to maximize value and how to communicate this information effectively. The third chapter in this theme is somewhat different. It focuses on potential transformative effects of the Volunteer Income Tax Assistance program. The authors examine whether the program might contribute to changes in student attitudes to volunteerism subsequent to participating in VITA.

Theme 3, *Financial Reporting and Introductory Accounting*, consists of an instructional case for use in intermediate accounting as well as a note on the importance of supplemental resources in accounting. The first chapter in this theme presents a case in an area that is not often covered in great detail in the intermediate accounting courses – accrued liabilities for vacation days that have been earned but not paid. The authors contend that grappling with issues makes students appreciate the difficulties that such accruals present. The case allows students to consider the impact of a policy change on budgeting, firm financials, financial ratios, and the potential reaction from investors and employees. This case forces students to critically think about a little discussed business problem – contingent liabilities. The second chapter in the theme uses the context of the first accounting course and looks at the contribution of supplemental resources on student learning.

Theme 4, *Research about the CPA Exam*, contains two chapters that address issues with policy implications for the accounting profession. The first of the two chapters looks at the prevalence of professional certification in accounting among accounting faculty. It also addresses faculty perceptions of the value of obtaining a certification to both teaching and research. The second chapter takes a closer look at research about the CPA exam. It offers a comprehensive review of academic research related to the CPA exam and identifies several research streams in this area, including studies that examine the effects of educational requirements and institutional and candidate characteristics on CPA exam success. In addition, the authors describe the CPA licensure regulatory landscape and show a general trend of lessening educational requirements among the jurisdictions over the past two decades.

Theme 5, *International*, is the final of the five themes. The chapters in this theme include (1) a replication study that examines the efficacy of a specific pedagogical approach, called the pause method, in teaching auditing and (2) patterns in academic performance and approaches to assessment design in an online financial accounting course at a UK university.

In total, this volume includes 11 peer-reviewed articles that make significant contributions to teaching, learning, curricula and programs, and faculty development matters in accounting.

THEME 1

RESEARCH ON STUDENT ATTITUDES AND BEHAVIOR

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STUDY CHOICES BY INTRODUCTORY ACCOUNTING STUDENTS: THOSE WHO STUDY MORE DO BETTER AND TEXT READERS OUTPERFORM VIDEO WATCHERS

Earl K. Stice, James D. Stice and Conan Albrecht

ABSTRACT

We use student-level online resource usage data for students in four different introductory accounting courses to explore the impact on exam performance of both student study effort and students' revealed preferences for reading text or watching video lectures. The online learning tool tracks student study choice (read text, watch video, or skip) on a paragraph-by-paragraph level. We match these usage data with student performance on course exams. We find that students who study more material earn higher exam scores than do students who study less material. We also find that students who self-select to do relatively more of their studying through reading text score higher on exams, on average, than do students who self-select to do relatively more of their studying through watching videos. Specifically, holding the overall amount of study constant, a student who chooses to spend the highest fraction of her or his study time watching video mini lectures earns exam scores 10 percentage points lower (six-tenths of a standard deviation) than a student who chooses to spend the lowest fraction of study time watching videos. Our results demonstrate that at least for introductory accounting students, increased study effort does indeed have a positive impact on exam performance. Our evidence also suggests that the highest performing introductory accounting students choose to learn

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accounting proportionately more through reading than through watching. These results are a reminder that when we talk about using "technology" to help our students learn accounting, the written word is still an important technology.

Keywords: Online learning; education technologies; video lectures; textbooks; study effort; reading

Every instructor who has taught introductory accounting has been presented with this question from a worried student who has just received a lower-than-expected score on the first accounting exam: What I can I do to increase my exam scores? The instructor's response to this question usually boils down to the following age-old remedy: Study more.

Surprisingly, this intuitive instructor-to-student advice is more a statement of faith than of science. As detailed below, past research presents mixed results on whether increased study effort improves student performance in a specific course. This paper directly addresses the question of whether increased study effort improves student performance in introductory accounting classes.

In addition, the increasing popularity of online video material (such as that produced by the Khan Academy[1]) raises the question of what continuing educational role is to be played by the reading of text. For example, a set of essays in *The Futurist* addressed the question of "what our emerging visual culture means for the written word and the future of civilization" (Tucker, 2007). In one essay, an author stated bluntly: "Will [new] technologies ever make it possible to be an educated illiterate? My guess is yes" (Wagschal, 2007).

In the context of these perhaps-premature predictions of the demise of the usefulness of the written word, our study examines whether university-level accounting students choose to spend their individual study time primarily reading text or primarily watching video lectures. We do not attempt to determine how students *should* spend their study time; we only describe how students choose to study, reading text or watching video lectures, when given that choice. We also compare the relative exam performance of *reading* students and *watching* students.

To quantify student study effort and to explore students' choices of reading text or watching videos, we employ detailed online resource usage data – automatically collected by learning software – for students in introductory accounting courses in both the United States and Hong Kong, at both the undergraduate and graduate levels. With respect to this issue of varying preferences for learning method, it is important to state that we do not survey or otherwise query students about their learning style preferences. Rather than examining what students say about their learning method preference, we instead observe actual student choices. The courses in which we collected student data are accounting principles I, accounting principles II, introductory managerial accounting for undergraduate students, and introductory financial accounting for MBA students. Students used the online resource to read text, to watch corresponding video lectures (with synchronized PowerPoint slides), or to do a combination of both. The online learning system

tracks the amount of material studied through reading text and watching videos. We associate these student-specific usage data with student-specific performance on course exams.

We find that students who study more material, whether through reading or watching, earn higher exam scores than do students who study less material. We also find that students who self-select to primarily do their studying through reading earn higher scores on exams, on average, than do students who self-select to primarily do their studying through watching videos. The video lectures are designed to cover all of the material and examples in the same depth as that found in the text; this design mitigates confounding effects potentially caused by differences in coverage between the text and the videos. In short, a student is able to learn all exam-relevant material solely through reading text or solely through watching videos.

Overall, it is *not* the case that students, given a free choice, will always choose to study by watching video lectures rather than by reading text. In fact, our evidence suggests that the highest performing accounting students choose to learn accounting primarily through reading.

To confirm our results, we perform robustness checks employing more precise control variables. We use a subset of our data, taken from undergraduate introductory accounting students in a large, open-enrollment course. This course contains both students with a broad cross section of declared majors as well as students in all classes, from freshmen to seniors. We find that even after including declared major (majors in business and science compared to majors in the humanities and other nonquantitative majors) and class standing (freshmen compared to all others) as control variables, students who choose to study primarily through reading text outperform students who choose to study through watching videos. This result holds even after controlling for amount of study. It is also interesting to note that students with declared majors in business and science outperform students who are declared majors in the humanities and other nonquantitative majors, even after controlling for amount of study and mode of study. Also, first-year students (freshmen), who presumably have less experience with engaging deeply with challenging material, underperform other students, even after controlling for amount of study and mode of study.

This paper proceeds as follows: The next section contains a review of the literature. We then state our hypotheses. We then describe the technology we use to deliver accounting material, side by side, in both text and video format and explain how the technological tool records student usage data. We then detail our research findings, and this paper concludes with a discussion of the limitations of the research, our conclusions, and possible avenues for future research.

LITERATURE REVIEW

Contrary to the intuition of most students and instructors, there is no well-established connection between study time/effort and associated academic performance. This counterintuitive result is summarized by Olivares (2002):

> [T]he study time-grade association literature has provided inconsistent findings: some researchers have found a positive association, others a negative association, and yet others no association between study time and grades.

For example, Eskew and Faley (1988) find that their measure of effort/motivation is significantly positively associated with exam performance. However, their measure is based on scores on unannounced, one-question, in-class quizzes (with just the highest 10 of 23 scores counted) and is very rough, essentially reflecting the frequency of class attendance. As an alternative proxy for study effort, Doran, Bouillon, and Smith (1991) use student forecasts (made during the first class period of the semester) of their expected weekly study hours in an accounting principles course. As acknowledged by the researchers, this student-reported, ex ante measure of study effort is "prone to large amounts of estimation error." This effort measure was not found to be associated with exam performance.

Stinebrickner and Stinebrickner (2008) do find a positive association between their measure of student study effort and first-semester grade point average (GPA) for college freshman. Their study effort measure is the average of the student-reported number of daily study hours for four 24-hour time diaries completed at different times during the semester. Note, however, that this study effort measure is more a proxy for overall student study habits and does not establish a tight connection between study effort and performance for any particular subject. Olivares (2002) measures study time/effort using end-of-semester student-reported number of weekly out-of-class hours spent studying for an introductory psychology course. After controlling for student cognitive ability and for student-reported course difficulty and teacher effectiveness, Olivares finds no impact of study time/effort on the final course grade.

Credé and Kuncel (2008) perform a meta-analysis of the relation between time spent studying and academic performance. They find a significant correlation between time spent studying and freshman GPA, but an insignificant correlation (aggregating data from 17 studies) between time spent studying and performance in individual courses. In contrast, Barbarick and Ippolito (2003) use student-reported study hours to find that increased study time does increase exam scores in an introductory soil science class. Plant, Ericsson, Hill, and Asberg (2005) use student-reported study hours and find that this measure is significantly positively related to GPA, but only after controlling for cognitive ability and quality of study.

Nonis and Hudson (2010) examine factors influencing cumulative and semester GPA for students in undergraduate business strategy, finance, and marketing courses. They find that increased study time (as reported by students) is associated with higher cumulative and semester GPA, but only for students whose survey responses indicate a high ability to concentrate. For students with a low ability to concentrate, increased study time has no impact on GPA.

Some past research has shown that students who spend more time doing homework perform better in courses. For example, an Organisation for Economic Co-operation and Development (OECD) study of the scholastic habits and performance of 15-year-old girls and boys worldwide demonstrates that "on average across OECD countries, girls spend 5.5 hours per week doing homework while boys

spend a little less than 4.5 hours" (OECD, 2015). This homework time difference contributes to the fact that 14% of boys, but only 9% of girls, perform below the proficiency level in all three core subject areas of reading, mathematics, and science.

In a study focused on introductory accounting students, Yu (2011) finds that after controlling for teacher effectiveness and for the ex post self-reported level of effort the student is willing to spend on accounting, student-reported study hours is not related to course grade. In a particularly unsettling finding, Guney (2009) reports that when analyzed in a multivariate setting, the number of student-reported study hours is actually negatively related to course grade for introductory accounting students. In short, the evidence is inconclusive on whether the amount of study actually improves student performance in introductory accounting.

The rise of massive open online courses (MOOCs) and YouTube videos and other forms of video and audio delivery of content raises the question of whether the reading of text continues to be an important mode of delivery of accounting study material. Johnson (2019) describes various strategies employed by university instructors to stem this tide and teach and coax students to read.

Learning and teaching research suggests the existence of several different learning styles. One model, the VARK model, posits the existence of four dimensions in learners' preferences for learning methods: Visual, Aural, Read/Write, and Kinesthetic (Fleming, 2001). A good summary of the learning style literature is contained in Leite, Svinicki, and Shi (2010). Visual learners prefer to learn through charts, graphs, maps, and other diagrams. Aural learners prefer to learn through hearing, such as listening to lectures, including even recording lectures and listening to them again. Read/write learners prefer to learn by reading printed text. Kinesthetic learners prefer to learn through practice and experience. Of course, each individual learner's learning method preferences represent a portfolio of learning styles, but many learners exhibit a dominant learning method preference.

The Dunn and Dunn model (Dunn, Griggs, Olson, Beasley, & Gorman, 1995) proposes a six-dimensional description of a person's learning style. The perceptual domain includes elements similar to those included in the VARK model described earlier. In addition, the Dunn and Dunn model includes a psychological domain (Is a person analytical? Is a person impulsive?), an emotional domain (learner motivation and persistence), an environmental domain (learner preferences for sound, light, temperature, and seating), a physiological domain (preferred time of day for learning), and a sociological domain (learner preferences for studying alone, in small groups, or in large groups). According to a commercial website selling learning style assessments based on the Dunn and Dunn model (www.learningstyles.net): "Although how humans learn is a complex subject, there is one basic assumption that is undeniable – one size does not fit all!"

One aspect of the increased popularity of MOOCs and free online video courses is the underlying assumption that modern students prefer to learn by watching video and listening to audio rather than by the reading of text.[2] It may be the case that, in general, casual learners do in fact prefer to watch videos rather than to read text. Our research addresses a slightly different issue: What study choice do university students make when casual or incomplete understanding of content has immediate negative consequences in terms of low exam scores and

low grades? This research examines whether university-level accounting students, for whom a grade matters, choose to spend relatively more of their individual study time reading text or watching video lectures.

Prior research has explored the impact of technology on learning by introductory accounting students. For example, Bates and Waldrup (2006) find no significant increase in student performance or in student attitudes about an accounting principles course in response to the introduction of PowerPoint lectures. Lippincott, Matulich, and Squires (2006) show that accounting students have a generally favorable view of online quiz technology. Chen, Jones, and Moreland (2013) report that online content delivery appears to make more sense for lower level accounting courses as compared to advanced courses. Khanlarian and Singh (2014) find that monitoring and addressing student frustration with technology is an important factor in successfully using Web-based homework.

Bryant and Hunton (2000) describe educational technology research as fitting into five categories. They describe the mixed results with respect to research in one of those categories which they label "media-comparison studies." In a media-comparison study, the researcher attempts to determine which of two or more content delivery media provides the superior learning opportunity for students. Bryant and Hunton cite the famous "mere vehicles" analogy of Clark (1983) wherein the delivery media for instruction are compared to trucks delivering groceries. In the analogy, only the content of a delivery truck, not its make or model or color, impacts the nutritional value of the contents. Similarly, according to Clark, differing instructional media do not impact student achievement; the only relevant aspect of the delivery medium is its content. In support of this claim, results from "media-comparison" research are mixed (Thompson et al., 1992).

HYPOTHESES

We first address the question of whether the amount of material studied using the online learning tool (OLT) is associated with accounting student performance on course exams. Our expectation is that students who choose to study more will earn higher exam scores.

We state the following hypothesis, in its null form.

> *Hypothesis 1*: Students who study more material using the OLT score the same as, or lower, on course exams than do students who study less material using the OLT.

This hypothesis is stated in terms of amount of material studied. As described below, the OLT records, at the paragraph level, whether a particular student has read that paragraph and whether the student has watched the associated video lecture. Our data do not directly reflect the amount of time students study. A pure "on the screen" time measure would not necessarily capture studying time any better because students often waste time, daydream, and multitask while they are "studying." Instead, we assume that amount of material studied – captured on a micro level – is a proxy for the amount of time students spend