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Does Tax Curriculum or VITA participation correlate with improved REG Section CPA Exam Scores?

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Murray State University Honors College

HONORS THESIS

Certificate of Approval

Does Tax Curriculum or VITA participation correlate with improved REG Section CPA
Exam Scores?

Sunshine Coombs
May 2022

Approved to fulfill the
requirements of HON 437

Dr. Amanda Grossman, Professor
[Accounting Department]

Approved to fulfill the
Honors Thesis requirement
of the Murray State Honors
Diploma

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Does Tax Curriculum or VITA participation correlate with improved REG Section
CPA Exam Scores?

Submitted in partial fulfillment
of the requirements
for the Murray State University Honors Diploma

Sunshine Coombs

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Abstract

Students who graduate with an accounting degree often take the Certified Public Accountant (CPA) exam to increase their earning potential and gain prestige within the accounting profession. The Regulation (REG) section of this exam exemplifies a student's knowledge in the United States' tax filing system and makes up a quarter of the total exam. Accounting students often participate in Volunteer Income Tax Assistance (VITA) programs which may provide an avenue of preparation for the REG section of the CPA exam. This research aims to identify if there is a connection between universities that offer a VITA program and their respective students' success on the REG section of the CPA exam. Tax course options are also analyzed to determine if the amount of tax courses taken also impacts the REG section score of the CPA exam. This was done using a combination of public data consisting of different universities' first-time pass rates on the REG section and a survey that was distributed to professors regarding their accounting and VITA programs. No difference was found in REG pass rates between those universities that offered VITA and those that did not offer VITA. However, this research did find that when students attended a university that offered elective tax courses, they scored higher on the REG section of the CPA exam. This means that universities could begin offering additional tax courses if they wish to see an improvement in their students' CPA exam scores. The results of this research can be used to communicate to universities what level of significance VITA programs have on their accounting students' future success.

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INTRODUCTION

The Certified Public Accountant (CPA) exam is a barrier to promotion and hiring for accountants. CPA certifications are on the rise for younger accountants and can mean a significant difference in an entry-level accountant's salary (O'Malley, 2003). Not only do CPAs make 15 percent more on average, but they are also permitted to prepare and sign an audited financial statement and a reviewed financial statement, unlike accountants who do not have this certification (AccountingEdu.org, 2021). CPAs can also offer financial advice and interpret the laws surrounding accounting. That is why many students prepare for and sit for this exam as soon as possible after receiving their degree. Exam-takers also sit for the exam soon after graduation because their chances of passing decrease the farther removed from school they are (Franklin, 2017).

The CPA exam is constantly evolving and because of this, many people question whether curriculum should be changing to better match the qualifiers of the exam. When tax professors and students were asked what they felt would increase their chance of passing the CPA exam, approximately 46 percent responded that additional tax courses were needed in order to improve student performance on the exam (Conteh & Oke, 2019). One could easily conclude that having more formal education relating to tax could significantly help students perform better on the REG section of the CPA exam.

Past studies have shown that VITA can lead to students having greater problem-solving skills which is tested on the REG portion of the CPA exam through task-based simulations (Christensen & Woodland, 2016). This is due to the experiential learning component VITA provides to the classroom. When VITA is used as an experiential

learning opportunity, it is proven to serve as a great improver of academic performance (Blanthorne & Westin, 2016).

The purpose of this study is to determine if there is a significant correlation between VITA or tax course characteristics on the REG section scores of the CPA exam throughout four years: 2015 to 2019. The results of this research can be used to communicate to universities what level of significance these options have on their accounting students' future success on the REG section of the CPA exam. Limited research has been done to prove or disprove these correlations and this research contributes to the discussion by augmenting the work provided in the literature review.

This study finds that students who take a graduate tax course are more likely to perform better on the REG section of the CPA exam. This study failed to find a correlation between VITA participation and student performance on the exam. Also, no correlation was found between the nature of undergraduate tax courses and student performance.

BACKGROUND

CPA Exam

The CPA exam consists of 4 sections: auditing and attestation (AUD), financial accounting and reporting (FAR), business environments and concepts (BEC), and regulation (REG). Exam takers have 4 hours to take each section, totaling 16 hours. All sections must be passed within 18 months of the date the first exam was passed with a minimum score of 75 on each section. The exam has been proven to have been historically challenging with 2021 pass rates equaling approximately 48 percent for

AUD, 62 percent for BEC, 45 percent for FAR, and 60 percent for REG (Learn More about CPA Exam Scoring and Pass Rates, 2022).

This exam is uniform across all 50 states and select territories, but the exam is not the only requirement to become a licensed CPA. Other requirements and the order in which requirements must be met vary by state. All 50 states require that an applicant have at least 150 credit hours with at least a bachelor's degree before they become certified, although some states let you sit for the exam before meeting this requirement. In all states you must be at least 18 years old with some states having higher age requirements. There are also documented ethical and experiential components to the application in many states (Follow this General Guide to Earn Your CPA, 2021). States vary on how many hours of upper-level accounting are required, but a typical range is 28 to 33 hours. For most states there are no particular requirements regarding how many of each type of course must be taken (e.g., A student must take at least two courses in federal taxation.)

The CPA exam will look very different for future test-takers as of January 2024. In 2020, the AICPA Council and the National Association of State Boards of Accountancy, NASBA, voted to once again rapidly change the format of the CPA exam to better reflect a good benchmark for the profession (Yeaton, 2020). The new exam will consist of accounting, auditing, taxation, and technology. Then there will be specialties that a candidate may choose between which include taxation compliance and planning, business reporting and analysis, and information systems and control (Yeaton, 2020). Since taxation is one of these specialties that exam-takers can choose, it is now even more important to uncover predictors of success in this area.

VITA

Students use Volunteer Income Tax Assistance Program (VITA) to gain hands-on experience in tax law. The mission of VITA is to provide tax advice and filing to moderate-to-low-income families. Many tools for filing can become very expensive to low-income families and the process can leave families feeling uneasy about how compliant they are with tax law (Davis, 2010). A variety of people benefit from VITA including the elderly, students, and international students. Many accounting departments offer some sort of opportunity to get involved with VITA whether it be through the accounting department itself or through a third party such as United Way. VITA is an opportunity for students to get real life experience that could serve as a way to study for the REG section of the CPA exam, which tests a student's knowledge of federal taxation.

REG Section

The REG section of the CPA exam has two item types that test for competency: multiple-choice questions and task-based simulations. VITA is known for helping with each item as certification to participate in VITA is required by the Internal Revenue Service (IRS), and certification training proves a working knowledge of federal tax compliance (Weis, 2008). Training includes a series of multiple-choice questions and task-based simulations based on the level of certification desired.

LITERATURE REVIEW

As previously stated, the CPA exam is an essential part of an accountant's career which has led to many studies of factors that contribute to student success on the exam. One such study was performed utilizing data between the years of 2013

through 2015 and sought to identify what the best path to meeting the 150-hour requirement is as it relates to pass rates. This study showed that students who met the 150-hour requirement by obtaining a graduate degree performed better on the CPA when compared to those who obtained it through another method (Nagle, Menk, K.B. & Rau, 2018).

A related study wanted to see if the amount of time an exam-taker was removed from school affected the exam-taker's ability to pass. This study showed that 2017 exam candidates, who took their exam within one year of graduation, were more likely to pass on their first try (Bunker & Cagle, 2020).

Another study was interested in how age played a role in the CPA exam. Whereas the previous study accounted for exam-takers who had a gap between their studies and sitting for the exam, this study wanted to see how nontraditional students performed having little or no gap in their education. The study found that nontraditional students did not perform as well on the CPA exam, likely because their test-taking skills are very different from traditional students.

Bunker and Harris (2014) used NASBA reports from 2011 and 2012 to determine if online education affected CPA pass rates more than traditional education. The study found that students who attended an online university performed worse on the CPA exam when compared to students who attended in-person. Students also performed better when they attended a university that was accredited by the Association to Advance Collegiate Schools of Business.

Beta Alpha Psi is a national honors fraternity for accounting students. Although its organization is not meant to help students with the CPA exam, having a chapter is

often linked to better accounting programs. A study performed by Coffey (2020) found that universities with a Beta Alpha Psi chapter had a greater percentage of students pass the CPA exam. The author hypothesized that students with a greater aptitude for success often join Beta Alpha Psi, which could have caused the significant difference in the study.

Dickins, Hull, and Quick (2021) attempted to determine what study method is best when preparing for the CPA exam. Although the study did not directly compare VITA or tax courses to these study methods, it did examine how effective face-to-face instruction is in preparing for the exam since task-based simulations were introduced. The study found that practicing problems on ones-own, normally using a CPA review course, was the most effective way to prepare for the CPA exam.

HYPOTHESES

The following hypotheses are tested in this study:

H1: Students who attend a university that offers VITA perform better on the REG section of the CPA exam than students who attend a university that does not offer VITA.

H2: Students who attend a university with higher student participation in VITA perform better on the REG section of the CPA exam than students who attend universities with lower student participation.

H3: Students who attend a university that requires more than one tax course or that offers an elective tax course will have higher performance on the REG section of the CPA exam.

H4: Students taking a graduate tax course will have higher student performance on the REG section of the CPA exam.

METHOD

Participants

Only universities ranked by U.S. News were used in this study. U.S. News ranks only regionally accredited institutions that offer four-year bachelor's degree programs. The participant pool was generated from those universities with a student population over 7,000 students. Participants in this study consisted of professors in the accounting department of their respective schools who would have knowledge of their students' participation in VITA, department's offered accounting courses, and tax courses' experiential learning components. Participants were primarily found on each university's respective website using the course schedule search function. Through the course schedule search, a professor teaching tax courses for the Spring 2022 semester was identified. If this function was not available, a tax professor on the accounting department's faculty page was identified and used. If a tax professor could not be identified, the head of the accounting department was used. If the head of the accounting department could not be identified, the university was excluded from the study. Participant email addresses were collected in an Excel spreadsheet. After this survey was initially emailed, prospective respondents were given 1 week to respond before a follow up email was sent. The final round of surveys was distributed 2 weeks after the second round. Respondents were given 1 more week to complete the survey before it was closed. The response rate was approximately 25 percent with a total of 56

participants completing the survey. Participants were divided into 7 geographical regions. As seen in Table 1, 32.14 percent of participants were from the Midwest, 21.43 percent were from the Southeast, 23.21 percent were from the Southwest, 14.29 percent were from the West, 5.36 percent were from the Northeast, 1.79 percent were from the MidAtlantic, and 1.79 percent were from the Northwest.

TABLE 1: University Region Table

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Northwest	1	1.8	1.8	1.8
	Southwest	13	23.2	23.2	25.0
	Northeast	3	5.4	5.4	30.4
	Southeast	12	21.4	21.4	51.8
	Midwest	18	32.1	32.1	83.9
	West	8	14.3	14.3	98.2
	MidAtlantic	1	1.8	1.8	100.0
	Total	56	100.0	100.0	

Online Survey

The online survey was created using Google Forms. (See Appendix A for further details). This survey could be accessed via the hyperlink included in the email that was distributed to participants. A request for participation and a brief explanation of the survey and participant rights was included in the body of the email above the hyperlink. The survey consisted of a combination of both multiple-choice questions and questions

using the Likert scale. The survey was split into two sections. The first section included all survey disclosures and the opportunity for the participants to consent to take part in the study.

The second section of the survey was intended to find out more about each institution's tax knowledge opportunities for its respective students. Participants had to respond with a valid institution that they were representing to be included in the study. Participants were asked if there was a VITA program opportunity for students, what years accounting majors participated in a VITA program, and what percentage of all accounting students at the institution participated in the most recent session of VITA.

To measure how tax courses relate to student learning, participants were also asked how many tax courses are required, how many elective tax courses are offered, and how many of these courses included a service-learning component. The remaining questions used the Likert scale to rate the participant's opinion on his or her tax courses' coverage of certain topics from "not at all" covered to "very extensive" coverage. Certain topics included federal tax procedures, federal taxation of property transactions, federal taxation of individuals, and federal taxation of entities.

REG Section Data

Some data containing university information was used from a private, previously established database. Publications for the years 2015 through 2019 produced by NASBA were used to obtain the percentage of students, by university, who passed the REG section of the CPA exam on their first attempt from the years 2015 to 2019 (NASBA, 2016-2020). The number of students who took the REG section for each university was also recorded. Universities who did not have this data available for all the

years of 2015 to 2019 were excluded from the study. Data obtained were analyzed using IBM SPSS Statistics software, a statistical software suite.

RESULTS

Descriptive Statistics

The following tables represent the respondent data from the survey.

As indicated in Table 2 and 2A, 69.6 percent of the respondents' universities offered a VITA program, and 80.4 percent of respondents indicated that less than 10 percent of eligible students participated. Table 2B shows that for 2020 and 2021 there was a large decline in universities providing an outlet for VITA participation. Some VITA sites closed these years due to the COVID-19 pandemic, which could have produced this result.

TABLE 2: VITA Availability by University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	no VITA offered	17	30.4	30.4	30.4
	VITA offered	39	69.6	69.6	100.0
	Total	56	100.0	100.0	

TABLE 2A: Percentage of Students Who Participate in VITA by University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 10%	45	80.4	80.4	80.4
	more than 10%	11	19.6	19.6	100.0
	Total	56	100.0	100.0	

TABLE 2B: Student Participation in VITA by Year

		Frequency	Percent
Valid	Not Applicable	13	23.2
	2021	30	53.6
	2020	32	57.1
	2019	39	69.6
	2018	38	67.9
	2017	37	66.1
	2016	34	60.7
	2015	33	58.9

As seen in Table 3 and 3A, 69.6 percent of universities required only one tax class for undergraduate students and 51.8 percent of universities offered no elective tax courses at all. However, Table 3B indicated that 41.1 percent of universities indicated that up to 75 percent of their students take a graduate tax course, and 35.7 percent of universities indicated that greater than 75 percent of their students take a graduate tax course.

TABLE 3: Number of Tax Courses Required for Undergraduate Students by University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	2	3.6	3.6	3.6
	only 1	39	69.6	69.6	73.2
	more than 1	15	26.8	26.8	100.0
	Total	56	100.0	100.0	

TABLE 3A: Number of Elective Tax Courses Taken by Undergraduate Students by University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	29	51.8	51.8	51.8
	at least 1	25	44.6	44.6	96.4
	2	2	3.6	3.6	100.0
	Total	56	100.0	100.0	

TABLE 3B: Percentage of Students Who Take a Graduate Tax Course by University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	13	23.2	23.2	23.2
	0-75%	23	41.1	41.1	64.3
	>75%	20	35.7	35.7	100.0
	Total	56	100.0	100.0	

As seen in Table 4, 67.9 percent of universities had a Beta Alpha Psi chapter and 51.8 percent of universities had an award seeking Beta Alpha Psi chapter.

TABLE 4: BAP Chapter Type by University

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No chapter	18	32.1	32.1	32.1
	award seeking	29	51.8	51.8	83.9
	not award seeking	9	16.1	16.1	100.0
	Total	56	100.0	100.0	

Most university respondents indicated that there was at least some coverage of REG section topics. The mean result in Table 5 regarding the coverage of ethics, professional responsibilities, and federal tax procedure was 2.48. Table 5A regarding the federal taxation of property transactions produced a mean result of 3.79. Table 5B regarding the federal taxation of individuals resulted in a mean of 4.21, which was expected as this is the required tax course in most universities' curriculum. Table 5C regarding the federal taxation of entities resulted in a mean of 2.91. These means indicate that universities are providing a sufficient amount of coverage in these areas for their students to perform successfully on the REG section of the CPA exam.

**TABLE 5: Rate of Extent of Coverage on Ethics, Professional Responsibilities, and Fed Tax Procedure
(not at all) 1– 5 (very extensive)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	9	16.1	16.1	16.1
	2	21	37.5	37.5	53.6
	3	18	32.1	32.1	85.7
	4	6	10.7	10.7	96.4
	5	2	3.6	3.6	100
	Total	56	100.0	100.0	

**TABLE 5A: Rate of Extent of Coverage on Federal Taxation of Property Transactions
(not at all) 1– 5 (very extensive)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	2	3.6	3.6	3.6
	2	3	5.4	5.4	9
	3	13	23.2	23.2	32.2
	4	25	44.6	44.6	76.8
	5	13	23.2	23.2	100
	Total	56	100.0	100.0	

**TABLE 5B: Rate of Extent of Coverage on Federal Taxation of Individuals
(not at all) 1– 5 (very extensive)**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	1	1.8	1.8	1.8
	2	4	7.1	7.1	8.9
	3	6	10.7	10.7	19.6
	4	16	28.6	28.6	48.2
	5	29	51.8	51.8	100
	Total	56	100.0	100.0	

TABLE 5C: Rate of Extent of Coverage on Federal Taxation of Entities
(not at all) 1– 5 (very extensive)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1	13	23.2	23.2	23.2
	2	14	25	25	48.2
	3	5	8.9	8.9	57.1
	4	13	23.2	23.2	80.3
	5	11	19.6	19.6	100
	Total	56	100.0	100.0	

Hypothesis 1

Hypothesis 1 predicts that students who attend universities with a VITA program perform better on the REG section of the CPA exam than those students whose universities are without a VITA program. As seen in Table 6, the mean REG scores for universities that offered VITA was higher when compared to the universities that did not offer VITA for years 2015 through 2018. During 2019, the mean was higher for universities that did not offer VITA when compared to the universities that did offer VITA. As seen in Table 6A, the differences between the two groups for all 5 years was insignificant. Therefore, the data do not provide support for the first hypothesis.

TABLE 6: VITA Offering as Determinant of REG score

	VITA	N	Mean	Std. Deviation	Std. Error Mean
RegScore2019	no VITA offered	17	61.0706	18.72377	4.54118
	VITA offered	39	60.7051	12.93528	2.07130
RegScore2018	no VITA offered	17	55.9765	18.59504	4.50996
	VITA offered	39	59.6179	12.56855	2.01258
RegScore2017	no VITA offered	17	46.4294	17.38339	4.21609
	VITA offered	39	52.0513	12.35673	1.97866
RegScore2016	no VITA offered	17	50.8765	13.99998	3.39549
	VITA offered	39	53.8795	10.63126	1.70236
RegScore2015	no VITA offered	17	53.1353	14.03825	3.40478
	VITA offered	39	54.2846	14.29938	2.28973

TABLE 6A

Independent T-Tests: VITA vs. No VITA on REG Scores

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
RegScore2019	Equal variances assumed	3.928	.053	.084	54	.933	.36546	4.32655	-8.30876	9.03968
	Equal variances not assumed			.073	22.932	.942	.36546	4.99126	-9.96144	10.69236
RegScore2018	Equal variances assumed	5.355	.024	-.857	54	.395	-3.64148	4.24769	-12.15759	4.87463
	Equal variances not assumed			-.737	22.629	.468	-3.64148	4.93865	-13.86712	6.58416
RegScore2017	Equal variances assumed	1.179	.282	-1.378	54	.174	-5.62187	4.07898	-13.79974	2.55600
	Equal variances not assumed			-1.207	23.347	.239	-5.62187	4.65731	-15.24832	4.00458
RegScore2016	Equal variances assumed	2.306	.135	-.881	54	.382	-3.00302	3.40927	-9.83818	3.83215
	Equal variances not assumed			-.791	24.405	.437	-3.00302	3.79834	-10.83553	4.82950
RegScore2015	Equal variances assumed	.073	.788	-.278	54	.782	-1.14932	4.13346	-9.43641	7.13776
	Equal variances not assumed			-.280	31.069	.781	-1.14932	4.10309	-9.51688	7.21824

Hypothesis 2

Hypothesis 2 predicts that students who attended universities with higher student participation in VITA perform better on the REG section of the CPA than students who attend universities with lower student participation. As seen in Table 7, the mean REG scores for universities that had fewer than 10 percent of students participating in a VITA program was higher when compared to universities that had greater than 10 percent of students participating for years 2015 through 2019. Although the trend is contradictory to expectations, the difference between the two groups for all 5 years was insignificant. Therefore, the data do not provide support for the second hypothesis.

TABLE 7: VITA Participation as Determinant of REG score

	VITA Participation	N	Mean	Std. Deviation	Std. Error Mean
RegScore2019	less than 10%	45	61.0178	15.73348	2.34541
	more than 10%	11	59.9909	10.33387	3.11578
RegScore2018	less than 10%	45	59.0378	15.19290	2.26482
	more than 10%	11	56.3636	12.13559	3.65902
RegScore2017	less than 10%	45	50.6444	14.72784	2.19550
	more than 10%	11	49.1182	12.02779	3.62651
RegScore2016	less than 10%	45	53.4133	11.98176	1.78614
	more than 10%	11	51.1455	10.84180	3.26893
RegScore2015	less than 10%	45	53.9933	14.39285	2.14556
	more than 10%	11	53.7000	13.50259	4.07118

Table 7A

Independent T-Tests: <10% vs. >10% Participation on REG Scores

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
RegScore2019	Equal variances assumed	1.563	.217	.205	54	.838	1.02687	5.00559	-9.00874	11.06248
	Equal variances not assumed			.263	22.874	.795	1.02687	3.89987	-7.04309	9.09683
RegScore2018	Equal variances assumed	.472	.495	.542	54	.590	2.67414	4.93589	-7.22172	12.57001
	Equal variances not assumed			.621	18.513	.542	2.67414	4.30324	-6.34871	11.69699
RegScore2017	Equal variances assumed	.981	.326	.318	54	.752	1.52626	4.79852	-8.09418	11.14671
	Equal variances not assumed			.360	18.120	.723	1.52626	4.23932	-7.37598	10.42850
RegScore2016	Equal variances assumed	.035	.853	.572	54	.569	2.26788	3.96186	-5.67517	10.21093
	Equal variances not assumed			.609	16.528	.551	2.26788	3.72507	-5.60849	10.14424
RegScore2015	Equal variances assumed	.154	.696	.061	54	.951	.29333	4.78700	-9.30402	9.89069
	Equal variances not assumed			.064	16.045	.950	.29333	4.60195	-9.46015	10.04682

Hypothesis 3

Hypothesis 3 predicts that students who attend a university that requires more than one tax course or that offers an elective tax course will have higher performance on the REG section of the CPA exam. As seen in Table 8, for the year 2015, the REG scores for institutions requiring only one tax course (mean = 56.71) are significantly higher than the scores for institutions requiring more than one tax course (mean = 45.82, $t(52) = 2.659$, $p = .010$). Except for the year 2018, the REG score means for those institutions offering only one tax course as opposed to those institutions offering more than one tax course produced a significant difference that indicated that the REG scores are higher for those institutions that require only one tax course as opposed to those institutions that offered more than one tax course. Therefore, the data do not provide support for the hypothesis, and are contrary to expectations.

As seen in Table 8B, the data for all 5 years are consistent with the second aspect of hypothesis 3, though the difference for year 2018 is insignificant. Table 8C provides the independent t-test results, and the following statistical analysis provide significance levels for the one-tailed, as opposed to two-tailed, test. For year 2015, the REG scores for institutions offering at least one tax elective (mean = 57.44) are significantly higher than the scores for institutions requiring more than one tax course with no tax elective (mean = 50.94, $t(52) = -1.771$, $p = .042$). For year 2016, the REG scores for institutions offering at least one tax elective (mean = 55.74) are significantly higher than the scores for institutions requiring more than one tax course with no elective (mean = 50.42, $t(52) = -1.710$, $p = .0465$). For year 2017, the REG scores for institutions offering at least one tax elective (mean = 53.85) are significantly higher than

the scores for institutions requiring more than one tax course with no elective (mean = 48.66, $t(52) = -1.425$, $p = .08$). For year 2018, the REG scores for institutions offering at least one tax elective (mean = 59.08) are insignificantly higher than the scores for institutions requiring more than one tax course with no elective (mean = 57.65, $t(52) = -3.69$, $p = .3565$). For year 2019, the REG scores for institutions offering at least one tax elective (mean = 63.60) are significantly higher than the scores for institutions requiring more than one tax course with no elective (mean = 58.52, $t(52) = -1.296$, $p = .1005$). Therefore, the data supports the hypothesis.

TABLE 8: Number of Tax Courses Required as Determinant of REG Score

	Tax Courses Required	N	Mean	Std. Deviation	Std. Error Mean
RegScore2019	only 1	39	61.9436	13.50592	2.16268
	more than 1	15	55.9133	16.63198	4.29436
RegScore2018	only 1	39	57.3897	14.19310	2.27271
	more than 1	15	60.4333	16.16587	4.17401
RegScore2017	only 1	39	52.0949	11.79183	1.88820
	more than 1	15	44.3933	18.27099	4.71755
REGScore2016	only 1	39	54.7615	10.33888	1.65555
	more than 1	15	47.4733	12.57614	3.24714
REGScore2015	only 1	39	56.7179	11.89164	1.90419
	more than 1	15	45.8267	17.06121	4.40519

TABLE 8A

Independent T-Tests: 1 vs. >1 Tax Courses Required on REG Scores

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	T	Df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
REGScore2019	Equal variances assumed	.529	.470	1.377	52	.174	6.03026	4.37941	-2.75767	14.81818
	Equal variances not assumed			1.254	21.493	.223	6.03026	4.80819	-3.95498	16.01550
REGScore2018	Equal variances assumed	.064	.801	-.679	52	.500	-3.04359	4.48143	-12.03625	5.94907
	Equal variances not assumed			-.640	22.794	.528	-3.04359	4.75264	-12.88010	6.79292
REGScore2017	Equal variances assumed	1.445	.235	1.832	52	.073	7.70154	4.20427	-.73494	16.13802
	Equal variances not assumed			1.516	18.668	.146	7.70154	5.08140	-2.94675	18.34983
REGScore2016	Equal variances assumed	1.258	.267	2.184	52	.034	7.28821	3.33783	.59037	13.98604
	Equal variances not assumed			2.000	21.685	.058	7.28821	3.64483	-.27709	14.85350
REGScore2015	Equal variances assumed	2.846	.098	2.659	52	.010	10.89128	4.09549	2.67308	19.10948
	Equal variances not assumed			2.269	19.470	.035	10.89128	4.79912	.86299	20.91957

Table 8B: Number of Tax Course Electives as Determinant for REG Score

	Tax Courses Elective	N	Mean	Std. Deviation	Std. Error Mean
REGScore2019	None	29	58.5207	17.08030	3.17173
	at least 1	25	63.6040	11.54663	2.30933
REGScore2018	None	29	57.6586	17.55789	3.26042
	at least 1	25	59.0880	10.41183	2.08237
REGScore2017	None	29	48.6621	15.55661	2.88879
	at least 1	25	53.8520	11.09569	2.21914
REGScore2016	None	29	50.4207	12.69607	2.35760
	at least 1	25	55.7440	10.16256	2.03251
REGScore2015	None	29	50.9448	17.19729	3.19346
	at least 1	25	57.4400	9.01369	1.80274

Table 8C

Independent T-Tests: None vs. at least one Elective Tax Course on REG Scores

		Levene's Test for Equality of Variances		t-test for Equality of Means					95% Confidence Interval of the Difference	
		F	Sig.	T	Df	Sig. (2- tailed)	Mean Difference	Std. Error Difference	Lower	Upper
REGScore2019	Equal variances assumed	1.777	.188	-1.260	52	.213	-5.08331	4.03530	-13.18074	3.01412
	Equal variances not assumed			-1.296	49.369	.201	-5.08331	3.92337	-12.96614	2.79952
REGScore2018	Equal variances assumed	4.703	.035	-.356	52	.723	-1.42938	4.01130	-9.47864	6.61988
	Equal variances not assumed			-.369	46.479	.713	-1.42938	3.86867	-9.21443	6.35568
REGScore2017	Equal variances assumed	.650	.424	-1.390	52	.170	-5.18993	3.73340	-12.68154	2.30168
	Equal variances not assumed			-1.425	50.344	.160	-5.18993	3.64276	-12.50539	2.12552
REGScore2016	Equal variances assumed	2.227	.142	-1.682	52	.099	-5.32331	3.16466	-11.67366	1.02704
	Equal variances not assumed			-1.710	51.742	.093	-5.32331	3.11278	-11.57030	.92368
REGScore2015	Equal variances assumed	10.721	.002	-1.697	52	.096	-6.49517	3.82809	-14.17679	1.18644
	Equal variances not assumed			-1.771	43.532	.084	-6.49517	3.66716	-13.88809	.89774

Hypothesis 4

Hypothesis 4 predicts that students taking a graduate tax course will have higher student performance on the REG section of the CPA exam. The three groups for this test were indicated as (0 = none, 1 = 0-75%, 2 = >75%). As seen in Table 9 for year 2018, a significant difference was found, using a one-way ANOVA, across the three group means ($F(2,53) = 3.302, p = .045$). A post hoc bonferroni analysis was run to determine which groups were making the ANOVA significant. As seen in table 9A, the students who attended institutions that reported 0-75% (mean = 64.27) of their students take a graduate tax course performed significantly better on the REG section than the students who attended institutions that reported >75% (mean = 54.47) at the $p = .039$ level (one-tailed). Other comparisons among groups were insignificant. There was no significant difference found for the other years under examination.

Table 9: Graduate Tax Course as Determinant for REG Score

		Sum of Squares	df	Mean Square	F	Sig.
REGScore2019	Between Groups	237.089	2	118.544	.536	.588
	Within Groups	11731.987	53	221.358		
	Total	11969.076	55			
REGScore2018	Between Groups	1295.604	2	647.802	3.302	.045
	Within Groups	10396.597	53	196.162		
	Total	11692.201	55			
REGScore2017	Between Groups	22.062	2	11.031	.053	.948
	Within Groups	10989.216	53	207.344		
	Total	11011.278	55			
REGScore2016	Between Groups	87.273	2	43.636	.310	.734
	Within Groups	7450.390	53	140.573		
	Total	7537.662	55			
REGScore2015	Between Groups	375.423	2	187.712	.942	.396
	Within Groups	10563.325	53	199.308		
	Total	10938.749	55			

TABLE 9A: Graduate Tax Courses as a Determinant for REG Score for 2018

		N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
						Lower Bound	Upper Bound		
RegScore2018	none	13	54.5385	19.22713	5.33265	42.9196	66.1573	20.00	100.00
	0-75%	23	64.2739	10.76983	2.24567	59.6167	68.9311	48.00	85.70
	>75%	20	54.4700	13.39411	2.99501	48.2014	60.7386	30.80	88.90
	Total	56	58.5125	14.58031	1.94838	54.6079	62.4171	20.00	100.00

TABLE 9B: Multiple Comparisons for 2018

Bonferroni

Dependent Variable	(I) Graduate Tax	(J) Graduate Tax	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
	Courses	Courses				Lower Bound	Upper Bound
RegScore2018	none	0-75%	-9.73545	4.85986	.151	-21.7507	2.2798
		>75%	.06846	4.98974	1.000	-12.2679	12.4048
	0-75%	None	9.73545	4.85986	.151	-2.2798	21.7507
		>75%	9.80391	4.28216	.078	-.7831	20.3909
	>75%	None	-.06846	4.98974	1.000	-12.4048	12.2679
		0-75%	-9.80391	4.28216	.078	-20.3909	.7831

Additional Tests

A factorial ANOVA test with two independent variables was run to determine if students who attended a university with a BAP chapter had higher performance on the REG section of the CPA exam. The two independent variables were if VITA was offered (VITA or no VITA) and type of BAP chapter (none, award-seeking, or not award-seeking). The ANOVA was insignificant with respect to both VITA and BAP Chapter Type: $F(1,50) = .276, p = .602$, and $F(2,50) = .616, p = .154$, respectively. There was no significant interaction between the two variables.

Anecdotally, as seen in Table 10A, when no VITA is offered, it appears that students with an award-seeking chapter do better on the REG section than those with no chapter or a non-award seeking chapter. Table 10A also shows that if VITA is offered, universities without a chapter are affected more than the award seeking or non-award seeking chapters.

Table 10: Summary of VITA Offered and BAP Chapter Type

		Value Label	N
VITA	0	no VITA offered	17
	1	VITA offered	39
BAP Chapter Type	0	No chapter	18
	1	award seeking	29
	2	not award seeking	9

Table 10A: VITA Offered AND BAP Chapter Type as a Determinant of REG Score

Dependent Variable: REGScore2019

VITA	BAP Chapter Type	Mean	Std. Deviation	N
no VITA offered	No chapter	57.2000	23.42990	7
	award seeking	66.6875	15.04683	8
	not award seeking	52.1500	14.63711	2
	Total	61.0706	18.72377	17
VITA offered	No chapter	66.2000	10.26129	11
	award seeking	58.1857	14.41844	21
	not award seeking	59.6286	10.59807	7
	Total	60.7051	12.93528	39
Total	No chapter	62.7000	16.61537	18
	award seeking	60.5310	14.83408	29
	not award seeking	57.9667	11.04061	9
	Total	60.8161	14.75193	56

Table 10B: Levene's Test of Equality of Error Variances^{a,b}

		Levene Statistic	df1	df2	Sig.
REGScore2019	Based on Mean	1.629	5	50	.170
	Based on Median	1.604	5	50	.176
	Based on Median and with adjusted df	1.604	5	42.288	.180
	Based on trimmed mean	1.619	5	50	.172

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Dependent variable: RegScore2019

b. Design: Intercept + VITA + BAPChap + VITA * BAPChap

TABLE 10C: Tests of Between-Subjects Effects

Dependent Variable: REGScore2019

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	991.542 ^a	5	198.308	.903	.486	.083
Intercept	123553.228	1	123553.228	562.755	.000	.918
VITA	60.643	1	60.643	.276	.602	.005
BAPChap	214.829	2	107.415	.489	.616	.019
VITA * BAPChap	852.161	2	426.081	1.941	.154	.072
Error	10977.534	50	219.551			
Total	219090.370	56				
Corrected Total	11969.076	55				

a. R Squared = .083 (Adjusted R Squared = -.009)

SUMMARY AND CONCLUSIONS

Though there have been many studies done to analyze predictors of student success rates on the CPA exam, this study contributes to prior research by determining if characteristics of universities' current tax curriculum or the offering of VITA correlated with improved student performance on the REG section for the years 2015 through 2019. The findings of this study can be useful to universities that are redesigning graduation requirements or to accounting departments that wish to know if there is value in offering a VITA program.

There was no significant difference found in REG scores when students attended a university that offered VITA or when students attended a university that had high VITA participation. This result was entirely unexpected as one could easily conclude that a hands-on tax training experience would lead to improved performance on tax-related

task-based simulations. This result could be due to a non-responsive error. The problem with VITA serving as an experiential learning opportunity is that it can only serve as one if students actually participate. As shown in Table 1, this research found that only roughly 70 percent of universities offer a way for students to participate in VITA. As shown in Table 1A, of those universities that did offer VITA, 80 percent of them had fewer than 10 percent of their students participating. Student participation is a significant limitation of this study and this also could have caused the unexpected result.

The only test that produced significant differences in REG scores and supported its hypothesis was students who attended a university that offered an elective tax course performed higher on the REG section of the CPA exam. This result was expected as one can easily conclude that students taking additional tax courses would score higher on the REG section.

A significant difference in REG scores did show that students who attended a university who had only one required tax course scored higher on the CPA when compared to students who attended a university that required more than one tax course. Logically, additional tax knowledge preparation should lead to higher REG section scores. This unanticipated outcome could have resulted from sampling error or a non-responsive error.

A significant difference in REG scores was found when testing the hypothesis that taking a graduate tax course improved REG score; however, additional testing is needed to determine at how many of these courses are necessary to produce a higher REG score.

The inaccessibility of data pertaining to certain and specific VITA locations and student participation creates an inherent limitation of this study. This study relied on the memory and thoughtfulness of survey participants which led the other significant limitation of this research: sample size. Only 56 responses were obtained which limits how representative of the population the study is.

Future research could dive deeper into REG section exam testing components and the amount of coverage each university has in order to see if there is a correlation between sufficient coverage of exam topics and improved performance on the REG section of the CPA exam.

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APPENDIX A- Survey

Survey Disclosures and Consent

DISCLOSURES: The following contains information you will need to help you decide whether or not to participate in this research study. You must be at least 18 years old to participate. Please read the following information carefully and contact the study team member(s) with any questions you may have.

1. Nature and Purpose of Project: The purpose of this study is to determine if there are any correlations between student participation in a Volunteer Income Tax Assistance Program (VITA), tax course content and exposure, and that institution's reported success rate on the REG section of the CPA exam.
2. Participant Selection: You are being asked to participate because you are identified as a professor who has knowledge of your institution's tax courses and VITA participation.
3. Explanation of Procedures: The survey consists of questions asking about your institution's accounting program and VITA program (if applicable). You will be provided the opportunity to comment on the survey.
4. Study Duration: The online survey should take approximately 8 minutes to complete.
5. Discomforts and Risks: There are no anticipated risks and/or discomforts for participants.

6. Benefits: This project is not designed to benefit you directly. However, your participation will help us evaluate the value of your institution's opportunities to gain tax knowledge and experience as they relate to student performance on the REG portion of the CPA exam.

7. Confidentiality: We will use survey responses only on an aggregate basis and will not make public any individual responses. All survey responses that we receive will be treated confidentially and stored on a secured server. However, we are unable to guarantee the security of the computer on which you choose to enter your responses. Information (or data) you enter, and websites you visit online can be tracked, captured, corrupted, lost, or otherwise misused.

8. Refusal/Withdrawal: Your participation is strictly voluntary and you are free to withdraw/stop participating at any time with absolutely no penalty. Please note, however, that all questions must be answered in order for your responses to be included in the study results.

9. Contact Information: Any questions about the procedures or conduct of this research should be brought to the attention of Dr. Amanda Grossman at 270-809-4398 or agrossman@murraystate.edu. Please contact her if you would like to be informed of the study results, which will take at least a few months to compile. Results derived from this survey may be presented at academic conferences or published in academic journals.

This project has been reviewed and approved by the Murray State University Institutional Review Board (IRB) for the Protection of Human Subjects. If you have any questions about your rights as a research participant, you should contact the MSU IRB Coordinator at (270) 809-2916 or msu.irb@murraystate.edu.

CONSENT: I have read the study disclosure, my questions have been answered, and I agree to take part in this study.

- Yes, I agree to take part in this study.
- No, I do not agree to take part in this study.

Tax Knowledge Opportunities for Students

What institution are your answers representing?

Does your institution offer accounting majors an opportunity to participate in a Volunteer Income Tax Assistance (VITA) program, run either on campus or through a third party (e.g., United Way)?

- Yes
- No

In which of the years listed did accounting majors from your institution participate in a VITA program? Please check all that apply.

- Not applicable
- 2021
- 2020
- 2019
- 2018
- 2017
- 2016
- 2015

Approximately what percentage of your institution's total accounting majors (undergraduate and graduate) participated in the most recent session of VITA?

- not applicable
- less than 10%
- between 11% and 25%
- between 26% and 50%
- more than 50%

For accounting majors, how many tax courses are required to complete the undergraduate degree?

- 1
- 2
- 3
- 4
- Other

Of the required undergraduate tax courses, how many of them are designated as either a service learning course, or have an experiential component?

- None
- 1
- 2
- 3
- 4
- Other

Consider the required undergraduate tax course(s). How would you rate the extent of coverage on the topic of ethics, professional responsibilities and federal tax procedures?

Not at all	1	2	3	4	5	Very extensive
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Consider the required undergraduate tax course(s). How would you rate the extent of coverage on the topic of federal taxation of property transactions?

Not at all	1	2	3	4	5	Very extensive
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Consider the required undergraduate tax course(s). How would you rate the extent of coverage on the topic of federal taxation of individuals?

Not at all	1	2	3	4	5	Very extensive
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Consider the required undergraduate tax course(s). How would you rate the extent of coverage on the topic of federal taxation of entities?

Not at all	1	2	3	4	5	Very extensive
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For accounting majors, how many undergraduate elective tax courses are offered?

- None
- 1
- 2
- 3
- 4
- Other

Approximately what percentage of your accounting majors take at least one of the elective undergraduate tax courses?

- Not applicable
- 0-25%
- 26-50%
- 51-75%
- 76-100%

Of the elective undergraduate tax courses, how many of them are designated as either a service learning course, or have an experiential component?

- Not applicable
- None
- 1
- 2
- 3
- 4
- Other

How many graduate tax courses are offered at your institution?

- None
- 1
- 2
- 3
- 4
- Other

Approximately what percentage of accounting majors take at least one of the graduate tax courses?

- Not applicable
- 0-25%
- 26-50%
- 51-75%
- 76-100%

If your institution has a Beta Alpha Psi (BAP) chapter, please indicate which type.

- I do not know if my institution has a BAP chapter.
- My institution does not have a BAP chapter.
- Non-Award Seeking (Mission-Based)
- Award-Seeking (Distinguished, Superior, Gold)

Do you have any comments about this survey? Please provide them here: