

Could a STEM Designation Help the Accounting Workforce Shortage?

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The US is facing a shortage of accountants in the workforce, with numerous positions going unfilled every year. The number of college graduates earning a bachelor's or master's degree in accounting and the number of graduates sitting for the CPA Exam has also declined in recent years. The AICPA created an advisory group to help shape a national strategy to address the talent shortage, and one potential strategy is for accounting curricula to earn a STEM (science, technology, engineering, and mathematics) designation. Many believe a STEM designation would attract more international students to this field of study and help alleviate the shortage of qualified accounting professionals.

Keywords: STEM designation, accounting profession, workforce shortage

INTRODUCTION

There is a shortage of qualified candidates entering the accounting profession in the United States (US). The number of college graduates earning a bachelor's or master's degree in accounting has dropped four percent since the onset of the COVID-19 pandemic, and the number of graduates sitting for the Uniform Certified Public Accountant (CPA) Exam has also plummeted (Niehaus 2022). The combination of growing demand for accountants in the workforce and decreasing supply of qualified candidates is increasing the shortage annually. On July 31, 2023, the American Institute of CPAs (AICPA) announced the creation of an advisory group to help shape a national strategy to address the talent shortage in the accounting profession. One potential strategy is for accounting curricula to earn a STEM designation.

STEM is an acronym for science, technology, engineering, and mathematics. A STEM designated field of study is determined by the US Department of Education (DOE) classification of instructional programs (CIP) taxonomy. In recent years, the accounting profession has evolved into a technology-driven profession, using data analytics and other emerging technology skills to better serve the profession. Many believe a STEM designation for the accounting profession would attract more international students to the field of study and help alleviate the shortage of qualified accounting professionals. According to Blacharski (2023), a STEM designation for the accounting profession would enhance the career pathway by encouraging more young people to pursue accounting as a career and help to alleviate the critical

shortage of accountants and CPAs. Carpenter (2023) noted that a STEM designation would provide recognition that the accounting profession has evolved where technology, data security, and analysis of data are now integral parts of both training and work. Carpenter (2023) also noted that a STEM designation might also create more exchanges between high school and university educators, leading more high school students to the field of accounting.

The AICPA has voiced its strong support for legislation establishing the accounting profession as a STEM career pathway, thus supporting long-standing efforts to diversify the future accounting workforce (AICPA 2023a). Recently, legislation has been introduced in Congress to establish accounting as a STEM-designated field of study, but, currently, colleges and universities would need to reclassify their accounting programs in order to earn a STEM designation. The remainder of this article discusses STEM education in the US and the process some colleges and universities are going through in order to reclassify their accounting programs.

BACKGROUND

The US is facing a shortage of accountants in the workforce, with numerous positions going unfilled every year, and the shortage is getting worse. According to the American Institute of Certified Public Accountants Trends Report (AICPA 2023b), the number of bachelor's and master's degrees in accounting completed in the 2021-2022 academic year dropped to its lowest total since the 2007-2008 academic year. The 2023 Trends Report also noted in 2022 the number of CPA Exam Candidates was the lowest total in more than 15 years, while the number of new positions in accounting increased in 2023.

There is also a shortage of workers with STEM skills in the US workforce. According to Twiste (2022), almost 60 percent of the STEM-based jobs in the US will go unfilled over the next two years because of a lack of qualified workers. The US Department of Homeland Security (DHS) maintains a list of fields of study that qualify as a STEM-designated degree program for optional practical training (OPT) for F-1 (international) students. The STEM OPT program allows F-1 students earning degrees in certain STEM fields to remain in the United States for up to 36 months to work in their field of study, making STEM-designated fields of study more attractive to international students planning on working in the US.

STEM education is an important topic in the US, with numerous legislative Acts passed in recent years to promote growth in this area. The America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act of 2007 (aka America COMPETES Act) was signed into law by President George W. Bush in 2007. Part of this Act focused on STEM education in the US and how to identify strategies for increasing STEM graduates in the workforce. The Act provided funding in numerous areas focusing on educating future STEM workers.

In 2011, President Barack Obama signed the America COMPETES Reauthorization Act of 2010 into law. The Act provided increased funding in STEM education and required the White House's Office of Science and Technology Policy to establish a committee to coordinate federal programs and activities in support of STEM education. This committee was tasked with developing and implementing a strategic plan for STEM education. Also, the committee was responsible for updating the strategic plan every five years. In 2022, Congress passed the America COMPETES Act of 2022, which was signed into law as part of the CHIPS and Science Act, which provided new funding for STEM education. Also, in 2022, the DOE launched the initiative "Raise the Bar: STEM Excellence for All Students" designed to strengthen STEM education nationwide.

Recently, the Accounting STEM Pursuit Act of 2023 was introduced in the House of Representatives and the STEM Education in Accounting Act was introduced in the Senate. These bills would allow federal grant funding to be used for accounting education in elementary, middle, and high school classrooms and potentially allow accounting to be designated as a STEM field at the post-secondary education level. Increased offerings of accounting courses in middle or high school could translate directly to more students choosing to major in accounting in college, creating more skilled workers for the accounting profession. The AICPA believes there is a clear overlap between accounting and technology and supports the accounting profession being designated as a STEM career pathway (Deem 2022).

In April 2023, the AICPA sponsored an article in the newspaper Politico listing the following seven reasons why accounting should be classified as a STEM field: (1) A strong accounting pipeline protects public interest, (2) STEM programs benefit US employers and recent graduates, (3) Diversifying the accounting profession is more important than ever, (4) Accountants innovate technology to drive transparency and prosperity, (5) STEM workers are critical to maintaining the health of capital markets, (6) More students can pursue a promising career in the financial industry, and (7) Policymakers from across the aisle support accounting in STEM. The article also called on Congress to support this STEM designation for accounting.

In August 2023, the AICPA submitted a written request to the DHS that several CIP codes be added to the STEM-designated degree program list, including the following: Accounting, Accounting and Computer Science, Accounting and Finance, Auditing, Financial Forensics and Fraud Investigation, and Taxation. The Association to Advance Collegiate Schools of Business (AACSB) has also recognized that technology knowledge is a minimum requirement for entry into the accounting profession and now requires all programs seeking accounting program accreditation in addition to business school accreditation to meet this requirement (Deem 2022). An official STEM designation for the accounting profession would acknowledge that CPAs are already incorporating STEM skills, including artificial intelligence, predictive analytics, and blockchain into their day-to-day operations (Blacharski 2023).

In addition to seeking federal legislation, the AICPA and the Chartered Institute of Management Accountants (CIMA) are working with colleges and universities to expand their accounting curricula to include additional technology-focused courses to meet the profession's current and future needs (Deem 2022). According to the AICPA, as of January 2023, at least 56 colleges and universities have changed their accounting curricula to increase the technology requirements for accounting and accounting-related degrees, almost exclusively at the master's level. Examples of new technology-driven courses developed at various colleges and universities include the following: (1) Data Analytics for Accountants, (2) Data Mining for Business Intelligence, (3) Data Wrangling and Visualization for Accounting Professionals, (4) Innovation and Analytics in Accounting, (5) Accounting Analytics and Information Systems, (6) Programming and Data Analysis for Accountants, (7) Innovations with Auditing Technology, (8) Emerging Technologies in Accounting and Auditing, and (9) Fundamentals of Accounting Technology and Data Analytics. Many of the colleges and universities changing their accounting curricula have reclassified their programs under an existing CIP code in order to earn a STEM designation, thereby hoping to attract more international students to their program.

There is evidence that STEM-designated accounting programs are attracting more international students to the accounting field. Miles Education (a company based primarily in India) is one example of a company trying to help alleviate the shortage of accountants in the US by placing international students from India with colleges and universities in the US that have STEM-designated graduate accounting programs. According to their website (www.mileseducation.com), they have partnerships with more than 15 colleges and universities in the US that have accounting programs with a STEM designation for F-1 international students.

For colleges and universities looking to reclassify their accounting programs to earn a STEM designation, the AICPA and CIMA (together as the Association of International Certified Professional Accountants) created a toolkit for state CPA societies and others to work with schools to change their CIP code to obtain STEM recognition. This toolkit includes documents covering the benefits of a STEM designation and suggestions to help schools with this process. In addition, the toolkit also contains sample CIP code change request forms used by other colleges and universities. The following paragraph summarizes the document provided by the AICPA and CIMA for accounting programs to apply for and receive STEM designation for their program.

The first step toward applying for and receiving a STEM designation involves analyzing the use of technology in existing courses and understanding where curriculum changes will need to be made. The second step includes encouraging program leadership (chairperson, dean, provost, etc.) to support the process and obtain letters of support from local practitioners, the state CPA society, and other relevant associations or interested parties. The third step involves creating a petition requesting a change in the

program major's CIP code and having this petition approved by the college's or university's governance system. The next step requires the selection of a CIP code that has already received STEM designation. The five CIP codes that have been used recently to qualify as STEM are: (1) 11.1003 - Computer and Information Systems Security/Information Assurance, (2) 27.0305 - Financial Mathematics, (3) 45.0603 - Econometrics and Qualitative Economics, (4) 52.1301 - Management Sciences and Quantitative Methods, and (5) 52.1399 - Management Sciences and Quantitative Methods, Other. There are additional CIP codes approved by the DHS in 2022 that may also qualify for certain accounting programs. The fifth step involves approval of university leadership at the highest levels. The final step requires approval by the state higher education authorities for the change in CIP code for the accounting program to obtain STEM designation (AICPA & CIMA 2023).

At the postsecondary education level, colleges and universities face a dilemma obtaining a STEM designation. Currently, most accounting CIP codes are not on the DHS list of approved STEM CIP codes. Therefore, in order to earn a STEM designation, schools would need to go through the time-consuming process to reclassify their program to a STEM-designated CIP code. On the other hand, in 2023, Acts were introduced in the House of Representatives and the Senate to have accounting designated as a STEM field. Also, in August of 2023, the AICPA made a direct request to the DHS to have multiple accounting CIP codes added to the approved STEM list. Colleges and universities could take a wait-and-see approach waiting on current legislation and DHS requests to be finalized or start the process of changing their curricula to a STEM-approved CIP code.

CONCLUSIONS AND COMMENTS

The shortage of qualified candidates entering the accounting profession is increasing at an alarming rate. The AICPA and industry leaders are working on strategies to address this shortage in the profession, with a STEM designation for accounting education being one of these strategies. A STEM designation for accounting has several important benefits for the profession. The designation would affirm that technology, data analysis, and advanced math skills are integral parts of the accounting profession. The designation would recognize the evolution of accounting in higher education and could potentially help the accounting pipeline by exposing more students to a career in accounting. A STEM designation could also lead to increased accounting courses in middle or high school, translating directly to more students choosing to major in accounting in college. In addition, this designation would provide federal funding to support accounting education.

A STEM designation probably would not completely alleviate the shortage in the accounting workforce. Other factors are certainly fueling the accounting shortage, including a stagnated median salary for accountants, the 150-hours of college credit that must be completed to obtain a CPA license, and the perception that the pay is not enough to match the work and time that is put in on the job (Ellis & Overberg 2023). However, the STEM designation would certainly be a positive step for the accounting profession. There are clear benefits for a university accounting program to receive a STEM designation—additional career opportunities for students, particularly those who can benefit from the extended OPT time; an emphasis in critical technology and analytics skills in the curriculum; introduction of courses that are more useful and more interesting for accounting students; and promotion of diversity, equity, and inclusion in the accounting profession.

Currently, for an accounting program to become STEM designated, administrators and other personnel must take steps toward reclassifying their accounting program under a new CIP code, one that is STEM designated. The current process for an accounting program to reclassify its CIP code in order to become a STEM designated program is a lengthy one. It is a process that involves a large time commitment and use of resources.

The Accounting STEM Pursuit Act, if passed, would be another step toward post-secondary accounting programs being recognized as STEM. While some educators might be tempted to take a “wait-and-see” approach rather than go on the long journey of reclassifying their programs as meeting STEM

requirements, it is clear that those programs could end up missing out on the benefits that a STEM designation, in its current state, offers.

The “Process for Accounting Programs to Apply for and Receive STEM Designation for Their Degree Programs” document that was part of the toolkit issued by the AICPA & CIMA outlines the steps that university programs should currently undertake in order to ultimately become STEM designated (AICPA & CIMA 2023). Regardless of where the STEM legislation is heading, it is important for universities to incorporate the information from this document into their programs. Accounting programs and education are often criticized for being too slow in implementing curriculum changes meeting the profession’s demands (Moore & Felo 2022). Suggestions outlined in the document that every program should consider include the following:

- Obtain an understanding of what courses are being taught in the curriculum and what technology is taught in each course.
- Determine whether the curriculum is teaching innovation in the technology components of the various courses.
- Consider a data analytics course (or significant coverage of data analytics in other courses).
- Consider the software tools that are being used (such as Excel, Tableau, and Power BI, among others) and the tools that can be incorporated into the curriculum.
- Consider whether students are required to write macros, scripts, or perform programming.
- Consider whether students are required to produce visualizations (graphs, plots, histograms, etc.).
- Consider whether students are required to prepare data for further analyses.
- Consider whether courses cover relational databases, link databases to each other, and/or use Microsoft Access.
- Consider whether technology is being used in audit courses as a way to find and evaluate risky transactions.
- Consider whether courses (such as a fraud examination course) use process mining technology to identify transactions that don’t follow prescribed policies.

It is important for educators to focus on developing a high-quality program. This is the priority. Any university accounting program should consider the suggestions outlined by the AICPA & CIMA. Hopefully, that would then lead to the STEM designation, for those universities that desire it, and the benefits that follow.

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