

SUSTAINABILITY ACCOUNTING IN THE UNITED STATES HIGHER EDUCATION SYSTEM

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ABSTRACT

Education and the accounting profession's governing bodies continue to narrowly define profit and loss using revenue and expenses without regard for environmental costs. With the current environment of COVID-19 wreaking havoc on businesses and industries, unemployment, and the economic climate, sustainability should find worth to the overall accounting and educational sector. Failure to include these environmental impacts of corporate operations continues to understate losses and overstate profits. The study has determined that higher education in the United States (U.S.) has made little headway with sustainability within the traditional college curriculum. The survey also yielded exciting information regarding the location of programs that included sustainability accounting in the curriculum and the level of accreditation of the business program. The geographic information and university accreditation status have never been collected previously by any other survey. The inclusion of sustainability accounting in the curriculum was anticipated to have increased. However, when comparing prior surveys on sustainability inclusion in accounting, progress has declined.

Keywords: externalities, financial capital, natural capital, nonrenewable resources, renewable resources, social capital, sustainability, accounting accreditation

Definition of Key Terms

Externalities. These are defined as the impact made to the systems external to the production or manufacturing process that positively or negatively affect people and the environment. These amounts should be integrated into the managerial and financial strategy, auditing, tax, and accounting information systems (Yakhou & Dorweiler, 2002). A cost (benefit) is considered external when it is not paid (enjoyed) by those who have generated it. Externality valuation provides significant contributions to the formulation of sustainable development.

Financial capital. This term refers to traditional accounting in the corporate environment, i.e., the traditional interaction of assets, liabilities, and retained earnings. Financial capital is the composition of the mix of debt and equity financing of a company. This also includes the composition of the business's invested capital (Khan, Li, Safdar, & Khan 2019).

Natural capital. This term refers to the natural resources used by the production process, typically referred to as ecological, environmental, natural resources, or natural capital. Natural capital can be renewable or nonrenewable (Helm, 2015).

Nonrenewable resources. Nonrenewable resources cannot be replenished and are in danger of being destroyed because of abuse or pollution, or some other threat resulting from production (Park, 2016; Zhang, & Lawell, 2017). These include but are not limited to extraction, pollution, global warming, and other sustainability issues that pervade public discourse (Park, 2016).

Renewable resources. Renewable natural resources are energy sources that are continually replenished. These renewable energy sources are wind, sun, water, geothermal air sources, and biomass sources such as energy crops (Park, 2016).

Social capital. A term used synonymously for the "people" aspect of comprehensive reporting typically includes the words human, society, or social, as in social capital. This provides for the treatment of employees and encompasses the impact felt in the community that examines the morality and rightness of actions (Khan et al., 2019).

Sustainability accounting. An accepted definition of sustainability is the ability to meet the needs of the present without compromising the needs of future generations (Brundtland Commission, 1989; Haskin & Burke, 2016). Sustainability reporting accounts for the full value of natural resources used as input to business processes and the total costs of outputs from business processes (Brundtland Commission, 1989).

Accreditation. Accreditations will include the Association to Advance Collegiate Schools and Business (AACSB), Accreditation Council for Business Schools and Programs (ACBSP), International Accreditation Council for Business Education (IACBE), or no special business accreditation.

These terms are essential in the overall understanding of sustainability accounting for the study and the reader.

INTRODUCTION

In the last decades of the 20th century, businesses continue to treat the depletion of natural resources and harmful output from business processes as externalities. Externalities are those processes external to the firm and unaccounted for through traditional accounting methods. Depletion and harmful output, effects of COVID-19, and other unreported externalities are sustainability accounting issues. Any unaccounted-for cost or consumption of goods levied on third parties is a cause of market failure. With an increased demand for transparency, legal actions, changing operating environments, market forces, and relationships or actions with external stakeholders can lead to the recognition of externalities. Currently, they remain internal issues without consequences (Underman, Bebbington, & O'dwyer, 2018).

Sustainability and corporate social responsibility (CSR) have increased in importance over the past few decades (Haskin & Burke, 2016). Klynveld Peat Marwick Goerdeler (KPMG) surveyed the top 100 companies in 52 countries and found 80% of those companies produce sustainability reports. Over 50% of companies require outside verification of the sustainability reports. Of these 52 countries, 25% have a reporting rate of 90% or greater. Roughly 40% of these 5,200 companies

include the financial risk of changing climates within the sustainability reports, and the majority already have enacted plans to reduce carbon emissions (McCabe, 2020; McKenzie, 2020).

Additionally, the Big Four accounting firms have identified sustainability as the most significant business growth area for their firms in the next few years (Hickman, 2008). In 2020, all the big four accounting firms now have sustainability departments. KPMG states investors are demanding a sustainability framework for comparability and consistency. The need for sustainability information continues to grow as business models include social, environmental, climate change, and governance issues (Haskin & Burke, 2016; Vassen, 2020). Environmental, social, and governance standards (ESGs) are utilized to evaluate corporate environmental impact, employee relationship management, and internal operations (Ward, 2020). The firms, including the big four, will employ accounting graduates who have determined these concepts have merit.

An environmental accountant works to analyze financial records related to pollution and the environment (Lusher, 2012). These individuals will seek out techniques or policies that could save money and reduce the company's environmental footprint. The footprint of a corporation is an indicator of the ecological impact. The water, ecological, and carbon footprints are all types of environmental effects. These three types of footprints are integrated into the triple bottom line approach of accounting (Wiedmann, Lenzen, & Barrett, 2009).

Recently, many companies have announced obtaining or reducing their carbon footprint. Amazon, Ford Motor Company, and ninety-nine others are among these companies (Morgan, 2019). In the decision-making process, sustainability, not profit, will drive the decisions made by the sustainability accountant. In this paper, the terms environmental accountant and sustainability accountant are used interchangeably.

Employment for environmental accountants are found in large corporations, larger manufacturing plants, governmental agencies, and individual consultants. With the increased integration of sustainability within the corporate environment, Certified Public Accountants (CPA's) must understand how to measure and report on sustainability. Eric Hespenheide, Global Reporting Initiative chairman, states global organizations embrace the significance of disclosing their economic impact on the environment, society, and the economy. The environmental, societal, and economic impact are also considered the triple bottom line (Anvari & Turkey, 2017). Furthermore, stakeholders are demanding economic impact statements, realizing organizations can add value through productive and robust business practices (McCabe, 2020). Education must offer courses dedicated to accounting for sustainability to keep pace with demand (Wong, Pippin, Weber & Bergner, 2016).

Social and environmental capital are non-financial assets that are given little attention when financial accounting standards are set. However, the market has demanded additional assets be used for financial decision making, those outside traditional financial assets. Having been primarily ignored by accounting educators and the financial industry, sustainability issues concern non-financial risks and opportunities which are material in nature (Haskin & Burke, 2016).

Education is where change is embraced. Education is the foundational building block for the future generations of accountants, and education provides the directional focus for students. Sustainability accounting and corporate social responsibility are of great importance to the future of corporate reporting and transparency. The adoption of reporting standards, Corporate Sustainability Reporting (CSR) standards, and sustainability reporting were adopted in 2019 by the big four accounting firms (Deloitte, 2019).

United States literature is conflicting stating sustainability is being addressed, and other literature cites the U.S. is not addressing sustainability in the educational curriculum (Kelly & Alam, 2009; Yakhou & Dorweiler, 2002; LeGrande, 2011; Thomas, Keiewaldt, Hodsworth, & Bekessy, 2011; Kranacher, 2009; Tingey-Holyoak & Burrirt, 2012, Paraschievescu & Radu, 2011). However, few studies exist to substantiate either position. This study is meant to add to sustainability accounting information in the higher education curriculum while adding two new items, geographic area, and business program accreditation.

Statement of the Problem

With the recent adoption of the CSR and sustainability reporting standards, a new dimension in preparing corporate financial statements is emerging. Failure to include the environmental impact of corporate operations continues to understate losses and overstate profits. Embracing sustainability accounting and adopting CSR standards signals a new dimension in accounting reporting (Deloitte, 2019).

Education and the accounting profession's governing bodies continue to narrowly define profit and loss using revenue and expenses while excluding costs to the environment. Very few studies examine sustainability accounting in the educational environment even though the big accounting firms consider sustainability as their largest growth sector (Cohen, 2020). Despite increased demand for CPAs with the ability to measure and report on sustainability, less than two percent of universities offer courses in sustainability accounting (Wong et al., 2016).

Purpose of the Study

The purpose of this study is to determine if higher education is making any progress in offering sustainability accounting courses within the traditional collegiate curriculum. This work will include accounting courses in sustainability, their geographic location, and program accreditation status. Data obtained will be used to compare and contrast findings of a similar survey done in 2002 and 2016 as benchmarks to determine if progress is being made or has ceased (Yakhou & Dorweiler, 2002; Wong et al., 2016).

Hypotheses

This research will provide a baseline in the U.S. regarding the importance of sustainability in formal accounting programs. Even with the literature and the push for industries to go green, there is little information on sustainability accounting programs. The geographic location of these programs is of relevance.

H1₀ There is no integration of sustainability accounting throughout the United States curriculum.

H1₁ Integration of sustainability accounting is within the traditional accounting curriculum throughout the United States.

H2₀ There is no difference in the geographic location in the adoption of sustainability issues.

H2₁ Sustainability integration in the traditional accounting curriculum is higher in geographic areas of the U.S. where environmental factors are more important.

H3₀ No difference exists in the level of accredited programs.

H3₁ Sustainability accounting exists within programs of higher accreditation.

The Sustainability Framework

Fenwick (2007) referred to ecological sustainability as "both social and environmental," ranging from human rights issues to the viability of local communities and conservation of natural resources. Only organizations recognizing and acting on the need to preserve natural capital for future generations can be considered genuinely sustainable (Gray 1994; Lamberton, 2005). The importance has become more significant with the acceptance of the CSRs and sustainability reporting standards. The sustainability framework consists of commitments to the environment and social sustainability, managing the environment and social risks, and a commitment to transparency (International Finance Corporation, 2012).

Sustainability is a growing part of the financial statement presentation in many international companies in the U.S. (Haskin & Burke, 2016). KPMG expects the sustainability trend to continue driving or influencing a significant level of global activity this year, with companies factoring sustainability criteria into their investment decisions to enhance value in the longer term. In 2011, less than 20 percent of Standards and Poor 500 index companies reported on sustainability issues. By 2015 the number of companies reporting has risen to 81%. However, reports lack critical issues of interest to investors, such as the impact on operating performance and financial position, contain reporting biases, and are not cost-effective to produce (Sustainability Reporting, 2020).

With the ongoing COVID-19 pandemic, there is an increased call for transparency when reporting corporate uncertainty (Vaessen, 2020). In 2020, the Cheesecake Factory was fined by the Securities and Exchange Commission (SEC) for misleading investors regarding the financial impact of the COVID-19 pandemic on the corporations' financial condition and operations. The company received a fine and paid \$125,000 for the misleading information. Accurate disclosure of their operating and financial status, including how COVID-19 could impact this condition, must be disclosed to both the SEC and investors and lenders (Kelton, 2020).

These authors expect the sustainability trend to continue driving or influencing a significant level of global activity this year, with companies factoring sustainability criteria into their investment

decisions to enhance value in the long term. With an increased focus on sustainability, research has indicated a correlation between sustainability reporting and sales growth, sales, return on equity and assets, in addition to shareholder returns. Sustainability Accounting Standards Board (SASB) metrics can help managers pinpoint operations falling short of projections and concentrate on what needs improvement. Metrics can promote goal congruence, convey corporate expectations, yield feedback, inspire individual business units to perform, provide feedback for decision making, and report benchmarking efforts (Sustainability Reporting, 2020).

It is unknown if the current accounting curriculum has been modified to include sustainability accounting. A large amount of literature suggests that sustainability accounting has been included in the accounting curriculum, and literature suggests that it has not been included (Gandy, 2012; Kahn, 2011; Yakhou and Droweiler, 2002). Almost no literature with data exists to substantiate this claim.

Organizations that acknowledge and act on the need to preserve natural capital for future generations will be evaluated as sustainable (Gray, 1994; Lamberton, 2005). The importance has increased due to the establishment of CSRs, sustainability reporting standards and the march toward required sustainability reporting. This research will explore higher education's adoption of sustainability accounting and the level of integration that exists. This research will help establish a pattern of coverage devoted to sustainability accounting in the accounting curriculum.

Brief Review of the Literature

This review has scanned nearly eighteen years of articles and studies to assess the U.S. position on sustainability education in higher education. Authors cannot agree if sustainability is a social, ethical, environmental, or political issue (Larrán, Andrades & Herrera, 2018). However, Fenwick (2007) referred to ecological sustainability as "both social and environmental," ranging from issues of human rights to viability of local communities and conservation of natural resources. What is agreed upon is if a significant change is not made, the well-being of future generations will be at risk. The disregard for the environment is creating greater social and environmental risks. There is a call to academics to be more involved in greater research, specifically in sustainability issues (Gary, Fagerström, & Hassel, 2011; Haskin & Burke, 2016; Onyango, Muchina, & Ng'ang'a, 2018). Sustainability education has been firmly placed on the United Nations' agenda for many years (United Nations, 2020).

The two schools of thought that drive sustainability accounting are to account for the (1) monetary services provided by the ecosystem and (2) the damage caused by human activity (Antheaume, 2007; Saravanamuthu, 2015). To adjust the curriculum requires a determination of the organizational initiatives regarding sustainability accounting. Ballou, Casey, Grenier, and Heitger (2012) have identified three accounting expertise areas that support sustainability accounting. These three areas are risk identification and measurements, financial reporting, and independent review/assurance. A survey conducted in 2012 indicated that 84.8 percent of the organizational respondents cited environmental issues as the most common initiative (Ballou, Casey, Grenier, and Heitger 2012).

Review of Completed Studies

Traditional accounting taught in higher education is very technical and focused on financial capital while sacrificing natural capital (Saravanamuthu, 2015). Higher education's role is to integrate sustainability concepts and practices into the curriculum that includes sustainability accounting (Kurniawan, 2020; Onyango et al., 2018). Knowledge has been determined to be the base that creates fundamental change. According to Saravanamuthu (2015), the accounting profession should act in the interest of the public. Calling for reform in the educational environment to broaden traditional accounting students' skills by including sustainability accounting in the current curriculum (Larrán et al., 2018; Onyango et al., 2018). To determine the impact of sustainability accounting in education, it becomes necessary to understand where the U.S. is incorporating it into the curriculum (Wong et al., 2016). It is necessary to determine the level at which sustainability accounting has been successfully introduced or integrated into the traditional accounting curriculum and study the progress made by higher education.

According to Gandey (2012), there is fragmented information on integrating environmental accounting into higher education. Ecological considerations at the university level begin with the renovation of old systems. These concepts suggest that renovation of the existing curriculum should occur.

There is literature about how to integrate sustainability accounting into the curriculum and additional literature about success factors of integration on the topic of merging the concepts into the curriculum, but limited studies on actual integration of the subject. The most cited articles on sustainability accounting were published in 2002 (345) and 2010 (228) and focused on defining and approaching sustainability accounting and CSR (Zyznarska-Dworczak, 2020) rather than quantifying the utilization in higher education.

A study performed by Yakhou and Droweiler (2002) surveyed 600 colleges and universities to determine how sustainability affects the traditional accounting curriculum. The overall findings indicated that most surveyed felt environmental accounting should be integrated into the current accounting curriculum and not offered as a standalone course. This predominantly qualitative study was done to determine the attitude of higher education towards sustainability accounting.

A similar study by Kahn (2011) surveyed 32 Australian and 58 United States (U.S.) universities. The author focused on two hypotheses to determine if universities offered a standalone course in sustainability accounting. The second hypothesis was to determine if the sustainability courses covered all topics in sustainability accounting. Of the institutions surveyed, it was determined that 22% of Australian faculty and 14% of U.S. faculty offered a standalone course. The second hypothesis found that the internal and external fundamentals of sustainability were covered in the standalone courses.

In a study done by Yakhouet and Dorweiler (2002), it was determined that a minority of programs favor standalone courses in sustainability, while the majority favored the topic being integrated into the existing curriculum. Matten (2004) found in Europe that two-thirds of the universities surveyed offered single modules. Other studies were undertaken in the UK, Ireland, and Australia.

The findings indicated that sustainability accounting was introduced as a topic or element within other topical accounting courses. Students of these programs are expected to issue sustainability policies, audits, and other similar issues.

Wong, Pippen, Webber and Bergner (2016) researched 900 U.S. colleges and university course catalogs for sustainability courses within the accounting curriculum. Of these 900 colleges and universities, only 17 courses devoted to sustainability accounting existed. With less than 2% of universities offering courses, there is a significant gap between supply and demand.

Students need to analyze the past, present, and future value of an organization through a valuation framework (Sherman, 2010). When students recognize the value, what values are accounted for, and what values are not accounted for, they will gain a new appreciation of the shortcomings of the traditional accounting systems (Sherman, 2010). When this recognition occurs, then the student will internalize the value and need for sustainability accounting.

According to Cunningham, Fagerström, and Hassel (2011), sustainability needs to go beyond just providing supplemental reporting. The information gathered during the financial statement process can be used for sustainability reporting. The authors support integrated reports that include reporting on sustainability issues. These issues are so new that multiple areas of research are open on this topic alone. Areas of potential research include identifying failures and ways to overcome failures, integrated reports, how financial analysts and bankers would use the information, and the criteria that companies and accounting firms should choose.

Survey data appears to be lacking in the United States regarding adopting sustainability accounting concepts in higher education. If topic coverage is present, sustainability is becoming more important to the traditional accounting curriculum. If sustainability accounting is not present, then U.S. education is falling behind many other countries that have made sustainability a priority.

Identifying the organization's sustainability priorities and the necessary framework to sustain the newly created environment is a direction to begin the process not only in higher education but within any company (Gandy, 2012). In other countries, sustainability accounting holds a more prominent place in the accounting curriculum. With the assistance of the government, Australian colleges and universities have developed an accounting degree with an emphasis on sustainability (Wong, 2011).

The push for higher education institutions to engage in sustainability education has prompted Australia's government to develop a plan to include principles that underpin sustainability accounting and the concepts of sustainability (Hegarty, Thomas, Kriewaldt, Holdsworth, & Bekessy, 2011). Some of the obstacles in sustainability development are the complexity of the issues and the consumers' lack of education (Paraschivescu & Radu, 2011).

Based on the literature, there appears to be a lag between what a business wants and what academics are teaching. Accounting professionals are minimal parties in sustainability accounting. Onyango et al. (2018) concur with existing literature indicating education needs to focus on integrating research, training, and communication in sustainability accounting within the

curriculum. Sustainability accounting continues to remain on the fringes of most accounting programs.

From the University of Colorado Boulder, Catherine Milburn finds it essential students are educated in sustainable reporting. Non-financial assets such as stakeholder engagement, brand, access to resources, and risk management are highly tied to most businesses' market capitalization. Many Fortune 500 companies produce sustainability reports, and most companies and organizations are required to disclose non-financial data to the European Union. With a lack of common formats, critical students know to evaluate the results (Wong et al., 2016).

The environment and sustainability must become ingrained within accounting processes. In the U.S., there have been minimal studies performed to determine if the colleges and universities in the U.S. have made any progress in sustainability accounting. The focus of this study is to assess our progress.

According to Rogers (2013), intangible assets now compose 80% of the Standards and Poor's market value. Evaluating the materiality of companies goes far beyond the conventional measures of assets and liabilities. Education of sustainability must also become part of the traditional accounting curriculum. Cunningham, Fagerström, and Hassel (2011) stated there is no commonly defined context of sustainability accounting. This could be a disadvantage. However, there are defined ideas as to what sustainability means. Current research uses a variety of definitions for sustainability research. Much of the theoretical base used to study sustainability is a general systems theory (Gary, al., 2011). Analysis and field study are needed to strengthen the defined idea of sustainability. The academics role has been questioned and requires more involvement by those who should provide the leadership.

An extensive review of the literature indicates the United States lags behind the global marketplace in adopting sustainability accounting, the fundamental foundational question of this study. Increasingly there is more literature regarding the integration of the topic of sustainability into the classroom. However, few studies have been done to support this in the U.S.

Weaknesses in these studies could be apathy, resulting in less than adequate survey results. An additional liability could be respondents reply how they think they are expected to, because of the environmental awareness of sustainability in media venues. Sustainability lacks good definitions, and measures are expected to be extremely varied by institution. An additional weakness of the project could include a disinterest in the topic. A countering strength is that the Big Four Accounting Firms consider sustainability issues and financial statement presentations on sustainability principles to be the largest growth areas for the next several years. KPMG reports 80% of companies address sustainability globally with 90% in the U.S. alone (McKenzie, 2020). The growth is expected to be 20 to 30% of the overall revenue generated (AICPA, 2015). The AICPA considers this an emerging issue incorporated by the uniform CPA examination (Smith, n.d.).

The social and economic implications of accounting for the impact that corporations have on the environment is a complicated issue facing the accounting profession. Training should begin within

the educational arena that teaches those who will apply these expanding concepts. There are 2,300 degree-granting postsecondary institutions in the U.S. as of the 2018-2019 school year, according to the National Center for Education Statistics (*Characteristics of Degree-Granting Postsecondary Institutions*, 2020). With the recent adoption of CSR standards by the Sustainability Accounting Standards Board, instructional resources should become increasingly available (Wong et al., 2016).

Sustainability Accounting Standards Board

The Sustainability Accounting Standards Board Foundation created the Sustainability Accounting Standards Board (SASB) in 2011. The SASB Foundation is responsible for the appointment of board members and the oversight, administration, financing, and supervision of the standard-setting process of the SASB. This independent board is charged with "the due process, outcomes, and ratification of the SASB standards" (Standards Board, 2020).

The mission of the SASB is the development and dissemination of sustainability accounting standards for public corporations. These standards will aid the investor decision process through voluntary disclosure required on Forms 10-K and 20-F to the Securities and Exchange Commission (SEC). The SASB is committed to producing standards that are material, useful for decision making, and cost-effective. The definition of sustainability, reported in key terms from the Brundtland Report, is utilized as the basis for sustainable development or sustainability by the SASB. Furthermore, sustainability accounting must encompass the quantification, control, and reporting of the activities of a corporation under five general areas, including environment, human capital, social capital, leadership and governance, and business model and innovation (Haskin & Burke, 2016; SASB Conceptual Framework, 2017).

The SASB standards are industry-specific, market-informed, and evidence-based. Sustainability issues such as water use, human capital, and climate change are of interest to many individuals. Sustainability metrics in accounting must include a narrative description of factors material to ensure accuracy, comparability, and completeness of the data (SASB Conceptual Framework, 2017).

International Accounting Standards Board

Founded by the International Financial Reporting Standards Foundation, the International Accounting Standards Board (IASB) develops a standard set of global accounting standards known as International Financial Reporting Standards (IFRS). IASB aims to provide standards for accountability, transparency, and efficiency to the global marketplace. Over 140 jurisdictions require the use of IFRS Standards (IFRS, 2017).

The IFRS Foundation has been called upon by the International Federation of Accountants to create an international sustainability standards board (Cohen, 2020b). This international board would work with the IASB to manage sustainability metrics. Five sustainability standard-setters agreed to harmonize frameworks and standards to aid international financial regulators. These five standard-setters include the Sustainability Accounting Standards Board, the Climate Disclosure

Standards Board, the International Integrated Reporting Council, the Carbon Disclosure Project, and the Global Reporting Initiative.

Currently, the International Integrated Reporting Council and the Sustainability Accounting Standards Board intend to merge in 2021 and become the Value Reporting Foundation (Cohen, 2020c). Jane Thostrup Jagd, senior financial lead at the Danish renewable energy company Ørsted, said she believes that International Financial Reporting Standards could be easily expanded to include climate risk disclosures, like those from the Task Force Climate-related Financial Disclosures (Cohen 2020a). As a result, the Climate Disclosure Standards Board could be consolidating with them (Cohen, 2020b). The Value Reporting Foundation will continue with the International Integrated Reporting Council's framework, set sustainability disclosure standards, and promote integrated thinking (Cohen, 2020b).

These boards and sustainability standard-setting bodies are under mounting pressure from global regulators to sync frameworks and standards for social, environmental, and governance, sometimes referred to as environmental, social, and governmental reporting (ESGs). The current standards are not synchronized and cause investor and regulatory confusion for those that worry companies who affirm compliance with the most general standards to 'greenwash' the company's true environmental impact. Companies are currently communicating the connection between long term enterprise value and sustainability issues. The merger between these standard-setting bodies is a step towards constructing a comprehensive corporate reporting system to maintain rigor in sustainability disclosure and integrated reporting. Linking these frameworks and standards will benefit key stakeholders, policymakers, investors, and customers (Cohen, 2020c).

This merger's purpose is three-fold; to utilize the financial accounting principles as the origin for a comprehensive reporting system, oversight to produce comprehensive standards, and a joint commitment to facilitate and work with stakeholders towards a common goal. This merger's goals include elevated disclosure for managers and investors, expanded disclosure of risks and opportunities of ESG components and climate change, and increased disclosure and responsibility of the companies.

The primary objective of this initiative was the involvement of companies, stakeholders, investors, standard setters, and the Big Four to create a comprehensive set of ESG metrics for use in reporting and monitoring progress towards the United Nations Sustainable Development Goals (*Sustainability and Business — Sustainability Frameworks and Standards: Evolution Overview*, n.d.; Ward, 2020).

RESULTS

The results of the internet survey yielded the results in Table 1 with 22 universities identified as having sustainability accounting courses. The map in Figure 1 indicates some integration exists in the accounting curriculum but only at a minimum. There are 2,300 four-year universities in the U.S. with only 22 courses found in accounting programs in the U.S., voiding the first null hypothesis. With 2,300 four-year institutions and only 22 having sustainability accounting courses, this is equal to .00956 or less than 1%. Thus, proving that sustainability has lost ground in the educational environment.

Sustainability courses have declined from both the 2002 and 2016 studies. The study in 2016 looked at 900 universities finding only 17 courses. Yielding 1.8% of universities with sustainability accounting courses (Wong et al., 2016). While the study in 2002 found four courses in universities from 122 survey results (Yakhou & Dorweiler, 2002). The data indicate that integration into the traditional accounting curriculum has declined.

Figure 1 identifies where in the U.S. programs have courses in conjunction with Table 1. The plots indicated each course found. The identified universities are predominantly found on the east coast and around the great lakes. The exceptions are found in Colorado, California, and Washington, all of which are environmentally conscious states. The importance of sustainability accounting courses is found in states that are considered more environmentally conscious. The surprise was the lack of courses found on the west coast, Texas and Louisiana. Areas with depletable natural resources have impacted the environment negatively and positively.

Figure 1. Location of Institution



- | | |
|-----------------------------------|---|
| 1. Appalachia State | 12. University of Denver |
| 2. Berridj State | 13. Hofstra University |
| 3. Clark University | 14. Lipscomb University |
| 4. Humbolt State University | 15. The Ohio State University |
| 5. Idaho State University | 16. Western New England University |
| 6. Kean University | 17. University of Massachusetts Amhurst |
| 7. Towson University | 18. University of Massachusetts Dartmouth |
| 8. University of Mass Lowell | 19. University of Minnesota Duluth |
| 9. University of West Georgia | 20. University of Notre Dame |
| 10. Univ of Wisconsin Whitewater | 21. Daeman College |
| 11. Western Washington University | 22. Elon University |

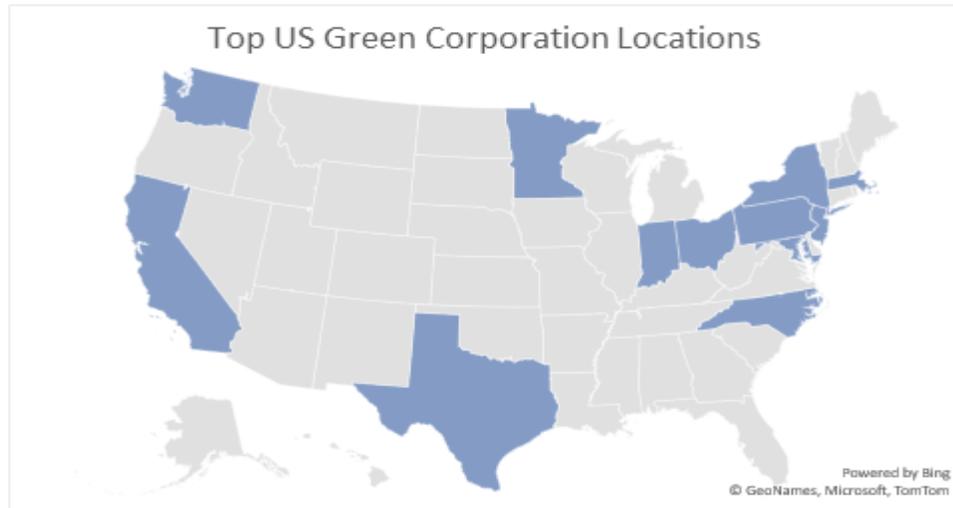
Table 1. Location and Accreditation Status of College or University

<u>College or University</u>	<u>City</u>	<u>State</u>	<u>Accreditation</u>
1. Appalachia State	Boone	NC	AACSB
2. Berridj State	Bemidji MN	None	
3. Clark University	Worcester	MA	AACSB
4. Idaho State University	Pocatello	ID	AACSB
5. Kean University	Union	NJ	Seeking AACSB
6. Towson University	Baltimore	MD	AACSB
7. University of Massachusetts Lowell	Lowell	MA	AACSB
8. University of West Georgia	Atlanta	GA	AACSB
9. University of Wisconsin Whitewater	Whitewater	WI	AACSB
10. Western Washington University	Bellingham	WA	AACSB
11. University of Denver	Denver	CO	AACSB
12. Hofstra University	Hemstead	NY	None
13. Lipscomb University	Nashville	TN	AACSB
14. The Ohio State University	Columbus	OH	AACSB
15. Western New England University	Springfield	MA	AACSB
16. University of Massachusetts Amhurst	Amhurst	MA	AACSB
17. University of Massachusetts Dartmouth	Dartmouth	MA	AACSB
18. University of Minnesota Duluth	Duluth	MN	AACSB
19. University of Notre Dame	Notre Dame	IN	AACSB
20. Daeman College	Amherst	NY	IACBE
21. Elon University	Elon	NC	AACSB

The second hypothesis required finding the areas of the U.S. with programs or was integration random. Location selection of an organization is a strategic decision based on the costs and scale of the construction. With strong social and environmental effects of facility placement, location is not based solely on an economic perspective (Anvari & Turkey, 2017). Sustainability integration in the traditional accounting curriculum is found in areas of the U.S. where environmental factors exist.

Business strategists have argued for increased consideration of geographic location when scrutinizing the environmental engagement of firms. DeBoer, Panwar, and Rivera completed a place-based study approach to environmental management in 2017. DeBoer et al. (2017) found that a known green local's corporate geographic location is positively related to the organization's level of voluntary environmental program engagement.

Figure 2. Locations of Green Corporations



Company	Industry	Location
Prologies, Inc.	Real Estate, Investment, and Trusts	CA
McCormick & Company	Food and Beverage Production	MD
Cisco Systems, Inc	Communications Equipment	CA
Analog Devices, Inc	Semiconductor Manufacturing	MA
Ecolab, Inc.	Food or other Chemical Agents	MN
HP, Inc.	Computer and Peripherals	CA
Comerica Inc.	Banking	TX
Eli Lilly and Company	Biopharmaceuticals	IN
Autodesk, Inc.	Software	CA
KeyCorp	Banking	OH
Alphabet, Inc.	Internet and Data Services	CA
MetLife, Inc.	Insurance	NY
Danaher Corporation	Medical Devices	DC
PNC	Financial Services Banking	PA
Bank of America Corp	Banking	NC
Ingersoll-Rand Plc	Machinery and Manufacturing	NC
Tesla, Inc.	Consumer Vehicle and Parts	CA
Itron, Inc	Machinery and Manufacturing	WA
Workday, Inc	Software	CA
Campbell Soup Company	Food and Beverage Production	NJ
ANSYS, Inc.	Software	PA
Vmware, Inc	Software	CA

Using clean revenue as an indicator of performance, the Global 100 lists the top 100 companies worldwide. Clean revenue is the amount of revenue the company generates from sustainable products (Strauss, 2019). Firms on this list are greener and acquire more revenue from clean goods, those that are green positive or have a positive social impact, and clean services. These companies derive approximately 26% of total revenue from clean revenue versus 9% for non-clean companies. Additionally, they have more women on the board of directors, pay higher taxes, and have a lower CEO to average worker pay ratio. While the U.S. has more companies represented

with 22, those in Europe comprise over half of the list with 52 companies. The Global 100 ranking indicates higher levels of sustainability translate into increased revenue (Scott, 2019).

These authors compared the list of top U.S. green companies to the areas where sustainability accounting is taught as part of the accounting curriculum which suggests a correlation between geographic location and sustainability accounting. As this is becoming a global issue, education in sustainability accounting is certainly lagging behind other countries and declining over time in the U.S. Figure 2 denotes the location of the 100 most sustainable corporations on the globe.

The third hypothesis identified that sustainability accounting is found in programs with higher levels of accreditation. There are currently 532 AACSB programs in the United States (*Find AACSB-Accredited Business Schools | AACSB*, n.d.). It was found that roughly 3.57% of programs with sustainability accounting courses do have higher levels of accreditation. These findings were not surprising however, what was a surprise was there were not more accounting programs with courses. The majority of courses were found in programs with AACSB accreditation. This level of accreditation is highly recognized and prized. It is anticipated that these programs would be on the cutting edge of any needed curriculum changes.

CONCLUSION

Corporate social responsibility is the most important factor impacting businesses on the global agenda. KMPG found 80% of the top 100 companies in 52 countries provide investors with sustainability reports (McCabe, 2020). Sustainability accounting is considered the largest growth sector by the big accounting firms (Cohen, 2020a). CPAs are demanding the ability to estimate and report on sustainability, but less than one percent of universities offer sustainability accounting courses. In 2020, all of the big four accounting firms have sustainability departments. However, the majority of U.S. accounting graduates are ill equipped to report the economic impacts (Onyango et al., 2018). Investors are demanding a framework for comparability and consistency (Haskin & Burke, 2016; Vassen, 2020).

The establishment of a business location has variable impacts on local levels. Local public authorities can place limits on organizations and force considerations on social and environmentally detrimental activities (Anvari & Turkay, 2017). Additionally, corporate geographic location impacts the level of environmental engagement of the organization. The greener the location, the increased resources expended by organizations (DeBoer, Panwar, & Rivera, 2017).

This paper adds to the literature and provides a continued benchmark on sustainability accounting programs in the U.S. The programs in the U.S. have retracted instead of growing. The U.S. higher education system is not trending with business and industry in the sustainability platform. The programs in the U.S. are lagging seriously behind with sustainable development and reporting (Sisaye, 2011). The highly accredited institutions are leading with the implementation. The programs are found in states that are greener than the others. What was not found was the presence of programs in states that have experienced heavy oil and gas catastrophes.

Sustainability development will continue to be of importance to financial accounting reports and accounting programs. Sustainability reporting has become a competitive advantage for many businesses and organizations for sustained profitability and growth (Sisaye, 2011). This is now evidenced by the newly adopted sustainability standards of reporting by the big four accounting firms in 2020.

An organization's geographic location is positively related to their local environmental impact (Deboer, Panwar, & Riviera, 2017). The Global 100 reports only 22 U.S. based companies are generating revenue from sustainable products (Strauss, 2019). The location of these organizations is positively correlated with the location of sustainability accounting courses. Suggesting these organizations and universities are ahead of the curve on sustainability issues. With sustainability becoming a global issue, and U.S. corporations lagging European corporations, it is imperative the U.S. education system prioritize sustainable accounting.

Climate change is worsening every day. Life expectancy in developed nations is plateauing or even falling and the education system is increasingly failing young people in preparing them adequately for the future (Social Capital, 2020). Economic inequality, COVID-19, and climate change are just a few reasons why businesses should incorporate long-term, value-creating sustainable needs and prioritize the planet and people. Informed decision making based on key metrics will aid businesses in obtaining the full value of a corporation. Additionally, corporations can make differences for the benefit of society as a whole (Ward, 2020). The success of incorporating sustainability will fail without education.

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