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MIDWESTERN BUSINESS AND ECONOMIC REVIEW

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SOUTH DAKOTA V. WAYFAIR INC. AND STREAMLINED SALES AND USE TAX AGREEMENT: EFFECTS ON STATE SALES TAX COLLECTIONS

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ABSTRACT

In *South Dakota v. Wayfair Inc.,* the U.S. Supreme Court reversed precedent cases addressing collection standards and regulations for sales taxes. These two precedent cases held that an out-of-state retailer's liability to collect and remit sales tax to the consumer's respective state was contingent on whether the seller had a physical nexus in that state. Additionally, a collaboration among states led to the creation of the Streamlined Sales and Use Tax Agreement (SSUTA), which offered voluntary guidelines and policies to assist states in not only modernizing but maximizing sales tax collection amounts. This research paper utilizes quantitative analyses to examine the effects of *South Dakota v. Wayfair Inc.* and the SSUTA upon state sales tax collection amounts.

INTRODUCTION

On June 21, 2018, in the case of *South Dakota v. Wayfair Inc.,* the U.S. Supreme Court overturned dual precedent cases from 1967 *(National Bellas Hess v. Illinois Department of Revenue)* and 1992 *(Quill Corporation v. North Dakota).* For several decades, these precedent cases crafted the litmus test in case law that controlled individual states' ability to collect interstate sales taxes from retail transactions. These two cases held that an out-of-state seller's responsibility to collect and transmit sales tax to the consumer's respective state depended on whether the seller had a physical presence (referred to as nexus) in that state. While not intended, many online retailers such as Wayfair and Amazon were permitted to avoid collecting sales tax and, as a result, held pricing advantages over traditional brick and mortar retailers.

A common grievance within state leadership structures over the past several decades has centered upon collecting sales taxes owed by consumers. With a myriad of tax jurisdictions spread among state, county, and local governmental entities, confusion has reigned over what taxes are owed to which state. It has long been a position among individual state lawmakers that vast amounts of sales tax revenues are going unreported and uncollected.

For these reasons, the impact of the landmark *South Dakota v. Wayfair Inc.* Supreme Court decision and the advent of the Streamlined Sales and Use Tax Agreement (SSUTA) upon the level of sales tax collections should be examined. Utilizing quantitative analyses such as multiple independent samples *t*-tests will provide insights into these relationships.

OVERVIEW OF SALES TAX

Sales tax is charged upon purchasing certain goods and services, imposed at the state and/or local levels. Of the 50 U.S. states, only five do not impose a sales tax – Alaska, Delaware, Montana, New Hampshire, and Oregon. Typically, the retailer collects the tax from customers and forwards the funds to the appropriate state or local government. In states that impose a sales tax, buyers that reside within a state's geographic boundaries are responsible for use tax if they purchase an item from a vendor in another state that would have been taxable if bought within the state of residence. Sales and use tax are mutually exclusive, meaning that only one tax applies to a single transaction. Therefore, if the customer purchases a taxable product or service in his or her resident state, the customer pays sales tax; if the customer purchases the same item from a vendor in another state, the customer pays use tax to his or her resident state.

Use tax was initially imposed due to mail-order and catalog sales when the out-of-state business also had a physical presence in the taxing state. This nexus could be satisfied by having physical retail stores or shipping warehouses within the state. While interstate sales certainly occurred during the years in which catalog sales were prevalent, these out-of-state sales increased exponentially as technology such as the internet and online stores became ubiquitous. Although use tax is imposed on the out-of-state transaction for the buyer, use tax reporting and payment are often voluntary. In addition, buyers are often unaware of the use tax liability for which they are responsible (Cavanaugh, 2012). Therefore, use tax compliance is not as high as sales tax compliance from the end-user.

Depending on the tax structure, individual states depend on sales tax revenue to varying degrees. States with no sales tax tend to rely more heavily on other sources of revenue, such as property or income tax. However, in 2016, general sales tax in Texas amounted to 62% of total taxes collected by the state; in Florida, this amount was slightly less but still a substantial 59%. For these and many other states, sales tax revenues provide a large percentage of fund inflows vital to the state budget. States have begun to adopt new sales tax laws that redefine the "nexus," or physical presence, criteria for taxation of internet-based retail transactions. However, the states cannot place a substantial or "undue" burden on interstate commerce. Sales and use taxation have become

more cumbersome as the number of taxing jurisdictions continues to increase. As of June 30, 2017, there were 10,708 sales tax jurisdictions in the United States (South Dakota v. Wayfair, Inc., et al., 2018).

"AMAZON TAX" LAW

In 2008, the state of New York issued tax guidance in hopes of collecting sales tax from out-of-state online retailers. Amazon.com had been highly criticized by traditional retailers and state governments for not collecting sales tax in several states that imposed the tax (Ropp & McNamara, 2014). In response, New York adopted its "click-through" nexus statute (South Dakota v. Wayfair, Inc., et al., 2018). The expanded "nexus" definition includes online retail transactions when a customer clicks a link on an in-state website that takes them to an out-of-state vendor's website (Klamm & Zuber, 2012). Eighteen other states have now followed suit, enacting similar statutes (South Dakota v. Wayfair, Inc., et al., 2018).

SOUTH DAKOTA V. WAYFAIR, INC. (2018)

In 2016, South Dakota enacted a law requiring out-of-state vendors with more than $100,000 in sales or at least 200 separate transactions to collect and remit sales tax. Wayfair, Inc., a leading online retailer of household goods, and other major virtual retailers, argued that the act was unconstitutional. In June 2018, the U. S. Supreme Court overturned *Quill* and *National Bellas Hess,* stating the physical presence rule is an incorrect interpretation of the Commerce Clause. According to the Court, physical presence is not required to generate a substantial nexus. A substantial presence or nexus can also be created based on the economic activities and virtual connections of a business within a state. Nexus is established when a seller has the substantial privilege of conducting business in a jurisdiction and becomes liable to collect and remit sales tax. The court noted the South Dakota system, in consideration of the Commerce Clause, attempts to reduce the burden of sales tax compliance for remote sellers. For example, the South Dakota act applies prospectively and establishes sales thresholds that provide a safe harbor for sellers without a substantial presence. In addition, South Dakota adopted the Streamlined Sales and Use Tax Agreement (South Dakota v. Wayfair, Inc., et al., 2018).

STREAMLINED SALES AND USE TAX AGREEMENT (SSUTA)

In 2005 the Streamlined Sales and Use Tax Agreement (SSUTA) became effective. This agreement was the result of coordinated state efforts to increase

sales tax collections while concurrently decreasing the burden of compliance for remote sellers (Hofmann, McSwain & McSwain, 2013). Significant sales tax compliance burdens arise for several reasons. First, there are over 10,000 state and local sales tax jurisdictions in the country. Each jurisdiction has its own tax rate, the definition of taxable items, acceptable tax-exempt items, remote seller effective dates, and sales thresholds. To complicate matters, the registration process can be different for each state. Some states require registration in each jurisdiction, while others allow for a single state-level registration. A remote seller may need a sales analysis by jurisdiction to determine sales tax registration requirements (Brennan, Jr., 2019). Of the 45 states that levy a sales tax, 35 also have local sales tax rates. Furthermore, state and local requirements may change as definitions, dates, rates, and regulations are updated. Since the *Wayfair* decision in 2018, most states have adopted revised sales tax collection laws.

In addition to expanding sales tax collections for the states, a major objective of the SSUTA is to significantly reduce the compliance burden for remote sellers by streamlining the system. Two key features of the agreement are uniformity and simplicity. Member states must agree on uniform definitions of sales tax terms, uniform state and local tax bases, uniform sourcing rules, and uniform administration of exempt sales. The state and local tax rates are simplified as well as the tax return format and remittance process. Administration of all sales tax is done at the state level. States pay an annual fee to fund the system and must also meet certain technical requirements. States may also need to make changes to existing regulations to meet all the requirements of the agreement (SST State Guide, 2019). The agreement benefits remote sellers by providing one application to register in all member states rather than registering in each taxing jurisdiction. Other incentives are a single location for administration, free sales tax administration software, and limited amnesty for prior sales (Hutchens, 2015).

The Streamlined Sales and Use Tax Agreement guides remote sellers for each state. Table 1 reflects the current status of membership in the SSUTA. To date, 24 of 45 taxing states have adopted the requirements of the SSUTA. The most recent activity was in 2014 when Ohio moved from associate to full membership. Associate members, such as Tennessee, have achieved substantial compliance with the SSUTA terms but not with each required provision.

Since the Wayfair decision in 2018, most states have enacted or changed economic presence effective dates and thresholds as indicated in Table 2. All but three taxing states have established effective dates for compliance. Proposed economic nexus legislation failed to pass in Florida, Kansas, and Missouri. In *Wayfair,* the thresholds set by South Dakota of $100,000 in sales or 200 transactions were noted as a safe harbor for small sellers. Thirty-five states have set thresholds like South Dakota, although several have eliminated

the transaction threshold. Of the SSUTA member states, 19 established the same thresholds as South Dakota.

Critics of the SSUTA note that only 24 states have made the necessary changes to their sales tax regulations to obtain membership. This lack of participation by larger states may indicate the costs to join may be greater than any benefits (Hutchens, 2015). Staying in compliance with the detailed requirements of the SSUTA may also prove difficult. The governor of Kansas recently vetoed a bill which, if passed, would have put the state out of compliance with the SSUTA simply over differing definitions of food items (Cole, 2019). Establishing and maintaining acceptable uniform definitions and tax bases will continue to challenge member states and any states seeking membership (Hofmann, McSwain & McSwain, 2013).

States will face challenges in simplifying the sales tax compliance process whether they are members of the SSUTA or not. Some states, such as Alabama, have already taken steps to address the issue. Alabama conforms to the South Dakota characteristics by setting a small seller threshold of $250,000 and applying the economic presence date prospectively. However, Alabama did not seek membership in the SSUTA and instead set up its own Simplified Sellers Use Tax Program (SSUT). This program allows sellers without a physical presence to collect, report, and remit a flat 8 percent sellers use tax on all sales into the state. Amnesty is provided for periods preceding October 2019, and sellers have a single point system to file all state and local sales taxes.

METHODOLOGY & DATA COLLECTION

Sales tax data from the United States Census Bureau was collected from the 45 U.S. states that collect a sales tax beginning with the calendar year 2017. Because the preferred method of sales tax collections was reported quarterly, the same reporting periods were maintained for this study. Sales tax data chosen to represent the time period prior to the U.S. Supreme Court decision in *South Dakota v. Wayfair Inc.* consisted of six quarters from January 2017 until June 2018. Additionally, sales tax data chosen to represent the time period following *South Dakota v. Wayfair Inc.* consisted of five quarters from July 2018 until September 2018. At the time of data collection for this study, the third quarter of 2019 was the most recent sales tax data available from the U.S. Census Bureau.

RESULTS OF STUDY

A series of independent samples t-tests were conducted to examine any possible differences in sales tax collections among states and time periods. Specifically, the following relationships were examined:

1. Differences in sales tax collections between individual states that were members of the SSUTA and states who were not members.
2. Differences in time periods between sales tax collections prior to the *South Dakota v. Wayfair Inc.* decision and sales tax collection subsequent to this Supreme Court case.

In the analysis of sales tax collections prior to the *Wayfair* ruling (which included all of 2017 and the initial two quarters of 2018), the SSUTA group (N = 144) displayed sales collections of *M* = 1,262,639,410 (*SD* = 1,021,469, 153). By comparison, the group of states who were not members of SSUTA (N = 126) reported numerically larger amounts of M = 2,345,302,754 (SD = 2,770,705,593). An independent samples t-test indicated a significant difference between sales tax collections from those states that were members of SSUTA and states that were not members; t (268) = 4.36, p <.01. A closer examination of the results reveals that, on average, states that were not members of the SSUTA had larger sales tax collections than the individual states who chose to participate in the voluntary tax streamlining agreement.

Additionally, sales tax collections were examined in the time period subsequent to *Wayfair* (encompassing the final two quarters of 2018 until the third quarter of 2019). The non-SSUTA group (N = 105) displayed tax collections of *M* = 2,345,302,754 (*SD* = 2,770,705,593). Comparatively, the SSUTA group of states (N = 120) were numerically smaller M = 1,345,459,942 (SD = 1,082,484,523). An independent samples *t*-test indicated a significant difference was found between sales tax collections from those states that were not members of SSUTA and states that were members; *t* (128) = -3.75, *p* <.01. A similar interpretation of the results yielded a conclusion that numerically larger collections occurred in states who were not members of the SSUTA group.

Differences in time periods between sales tax collections prior to the *South Dakota v. Wayfair Inc.* decision and sales tax collection subsequent to this Supreme Court case were also examined. This pair of independent samples *t*-tests revealed the impact *South Dakota v. Wayfair Inc.* might have upon the level of sales tax collections. In the pre-and post-*Wayfair* analysis of sales tax collections of states that were members of SSUTA (N = 144 and N = 120, respectively), no significant differences were found between sales tax collections prior to the passage of *South Dakota v. Wayfair Inc.* and collections subsequent to the case; *t* (264) =-0.64, *p* =.526. Also found to have no significant effects were non-members of SSUTA between sales tax collections prior to the passage of *South Dakota v. Wayfair Inc.* (N = 126) and collections that occurred after the case verdict (N = 105); *t* (229) = -0.37, *p* =.709. A more detailed examination of the data revealed that while sales tax collections subsequent to the *South Dakota v. Wayfair Inc.* decision were numerically superior, these increases were not found to be statistically significant. These insignificant differences were found to exist within the group of states that

were members of SSUTA and the group of states who were non-members, respectively.

DISCUSSION & CONCLUSION

In the majority of the past related literature, it was suggested that the dual precedent cases controlling sales tax collections *(National Bellas Hess v. Illinois Department of Revenue and Quill Corporation v. North Dakota)* were antiquated and no longer relevant to properly govern modern issues (Einav, Knopfle, Levin, & Sundaresan, 2014). These cases were litigated in eras where mail-order catalogs were prevalent and online retail sales represented an emerging technology (Afonso, 2019). By most accounts, these dual cases (passed 42 and 27 years ago, respectively), were inadequate to address interstate sales through online retailers. As online sales have grown to represent a significant percentage of all retail sales, various levels of government officials have expressed concerns that attempting to apply older case law to new technology leaves vast amounts of tax revenues uncollected (Mikesell & Ross, 2019).

The passage of *South Dakota v. Wayfair Inc.* created a watershed moment that overturned the older cases and provided a much-needed modernization for these sales tax collection policies. State officials were ecstatic as a significant increase in sales taxes was anticipated when this Supreme Court verdict was administered (Conroy, Cutler, & Weiler, 2016). This was not the scenario when the data was analyzed. In this study, sales tax collections prior to the Wayfair decision were not significantly different from those collected in the final half of 2018 and the initial three quarters of 2019. To clarify, the anticipated significant increase in sales tax collections did not occur.

Finding no significant increase was a notably different outcome than expected based on forecasts from previous literature (Hoopes, Thornock, & Williams, 2019; Mikesell & Ross, 2019). One possible consideration could be the relatively short time period of sales tax collections of approximately 18 months. A similar collection of sales tax data in the near future would provide a larger sample size.

Another possibility is some sales tax was already being collected by large online retailers before the *Wayfair* decision. As the economic nexus definition expanded after 2008 due to "Amazon tax" laws, many online retailers began collecting sales tax for multiple states. Data examined by researchers in 2012 indicated the average online retailer in the study collected sales tax in about 18 states which represented almost half of total national state and local sales tax collections. Therefore, only a little more than fifty percent of sales tax obligations would be a new requirement for the average online retailer in the study (Bruce, 2013). As an example, Amazon was collecting sales tax from

about half its customers by 2014. Furthermore, by 2013 over 1,900 online retailers chose to collect and remit sales tax on remote sales as part of the Streamlined Sales and Use Tax Agreement (Volk, 2014).

Although many large online retailers began collecting sales tax before the Wayfair ruling, most online retailers are small businesses. It is estimated that over 99 percent of online retailers have sales of less than $150,000 and number in the millions. The economic nexus sales thresholds established by various states range from no threshold to $500,000 in sales, with $100,000 being the most common small seller exception threshold. The small seller is exempt from collecting sales tax if below the threshold. However, the buyer is still responsible for submitting use tax, but compliance is typically low. It appears that the revenue impact of Wayfair may be lessened due to the large number of small online retailers excepted from collecting sales tax (Bruce, 2013).

Participation by states as members in the Streamlined Sales and Use Tax Agreement (SSUTA) was another relationship that was examined. The quantitative analysis of this participation was found to have a significant effect on sales tax collections. The present study resulted in a significant difference between stated that were members of SSUTA and states that were not. The study found that states who did not join the SSUTA had larger sales tax collections.

A previous study by Alfonso (2019) agreed with this study's outcome. This study indicated that a possible cause for this difference could be that many states with larger populations chose not to join the SSUTA. A perceived explanation would be that states with larger populations would have increased access to financial resources and less need of collaboration with other states in a sales tax policy-led streamlining agreement.

Additionally, participation in the streamlining agreement involves significant costs to change state sales tax codes and to comply with other membership requirements. According to Hutchens (2015), these costs may outweigh the expected financial benefits for states with larger populations. Other hindrances to the membership for some large states are significant political opposition and the streamlining agreements lack of flexibility (Bologna, 2019).

The financial impact of *South Dakota v. Wayfair Inc. o*n state sales tax collections will continue to unfold as economic nexus compliance dates take effect. As states seek to collect sales tax without imposing an undue burden on small retailers, the potential benefit of joining the Streamlined Sales and Use Tax Agreement remains uncertain.

Table 1: Streamlined Sales and Use Tax Agreement Member States

State	Streamlined Sales Tax Member	State	Streamlined Sales Tax Member
Arkansas	2008	North Dakota	2005
Georgia	2011	Ohio	2014
Indiana	2005	Oklahoma	2005
Iowa	2005	Rhode Island	2007
Kansas	2005	South Dakota	2005
Kentucky	2005	Tennessee	2005 (Associate)
Michigan	2005	Utah	2012
Minnesota	2005	Vermont	2007
Nebraska	2005	Washington	2008
Nevada	2008	West Virginia	2005
New Jersey	2005	Wisconsin	2009
North Carolina	2005	Wyoming	2008

Source: https://www.streamlinedsalestax.org

Table 2: Remote Seller Guidance - Individual States

State	Economic Nexus Compliance Date	Sales Thresholds	Streamlined Sales Tax Member
Alabama	10/1/2018	$250,000	-
Arizona	10/1/2019|2020|2021	$200,000|$150,000|$100,000	-
Arkansas	7/1/2019	$100,000 or 200 transactions	2008
California	4/1/2019	$500,000	-
Colorado	12/1/2018	$100,000	-
Connecticut	7/1/2019	$100,000 and 200 transactions	-
Florida	N/A	NA	-
Georgia	1/1/2019|1/1/2020	$250,000 or 200 transactions|$100,000 or 200	2011
Hawaii	7/1/2018	$100,000 or 200 transactions	-
Idaho	6/1/2019	$100,000	-
Illinois	10/1/2018	$100,000 or 200 transactions	-
Indiana	10/1/2018	$100,000 or 200 transactions	2005
Iowa	1/1/2019	$100,000 or 200 transactions	2005
Kansas	10/1/2019	None	2005
Kentucky	10/1/2018	$100,000 or 200 transactions	2005

Table 2: Remote Seller Guidance - Individual States (continued)

State	Economic Nexus Compliance Date	Sales Thresholds	Streamlined Sales Tax Member
Louisiana	No later than 7/1/2020	$100,000 or 200 transactions	-
Maine	7/1/2018	$100,000 or 200 transactions	-
Maryland	10/1/2018	$100,000 or 200 transactions	-
Massachusetts	10/1/2017	$500,000 and 100 transactions	-
Michigan	10/1/2018	$100,000 or 200 transactions	2005
Minnesota	10/1/2018	$100,000 in 10 transactions or 100 transactions	2005
Mississippi	9/1/2018	$250,000	-
Missouri	N/A	N/A	-
Nebraska	1/1/2019	$100,000 or 200 transactions	2005
Nevada	10/1/2018	$100,000 or 200 transactions	2008
New Jersey	11/1/2018	$100,000 or 200 transactions	2005
New Mexico	7/1/2019	$100,000	-
New York	6/21/2018	$300,000 and 100 transactions	-
North Carolina	11/1/2018	$100,000 or 200 transactions	2005
North Dakota	10/1/2018	$100,000 or 200 transactions	2005
Ohio	8/21/2019	$100,000 or 200 transactions	2014
Oklahoma	11/1/2019	$100,000	2005
Pennsylvania	7/1/2019	$100,000	-
Rhode Island	7/1/2019	$100,000 or 200 transactions	2007
South Carolina	11/1/2018	$100,000	-
South Dakota	11/1/2018	$100,000 or 200 transactions	2005
Tennessee	10/1/2019	$500,000	2005, Associate
Texas	10/1/2019	$500,000	-
Utah	1/1/2019	$100,000 or 200 transactions	2012
Vermont	7/1/2018	$100,000 or 200 transactions	2007
Virginia	7/1/2019	$100,000 or 200 transactions	-
Washington	10/1/2018	$100,000	2008
West Virginia	1/1/2019	$100,000 or 200 transactions	2005
Wisconsin	10/1/2018	$100,000 or 200 transactions	2009
Wyoming	2/1/2019	$100,000 or 200 transactions	2008

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CENTRAL CUSTOM VIDEO REPOSITORIES: ADDRESSING ADMINISTRATIVE CHALLENGES TO ADDING BUSINESS ANALYTICS THROUGHOUT A CURRICULUM

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ABSTRACT

As the amount of business-related information exponentially increases, so has the need to add business analytics to curricula, presenting administrative challenges because business analytics is a cross-functional field. Both students and faculty may face knowledge gaps and have limited resources. One strategy is a centralized repository to manage knowledge and its distribution. We examined using a central repository of videos for just-in-time presentations to address challenges in adding content throughout a curriculum.

INTRODUCTION

Colleges and universities are attempting to adjust in the face of challenging times. Higher education's business model is coming under increased pressure to add value and manage costs as students experience mounting tuition costs. The rise of big data and the increased demand for business analytics (B.A.) have created a call to add these skills throughout the business school curriculum (Clayton & Clopton, 2018). B.A. spans multiple organizational functions and may involve introducing concepts and technologies outside of the primary instructor's expertise. A deeper understanding of B.A. requires its inclusion in multiple courses, creating issues for instructors to provide polished and consistent resources to aid student understanding. This case study examines an approach to address the need to incorporate B.A. throughout a college of business (COB) by creating a video library that acts as a centralized knowledge repository to support B.A. education. It further discusses implementing strategies to manage this change with limited financial and faculty resources.

A cross-functional committee explored alternatives for embedding B.A. learning opportunities throughout the COB curriculum in the present case study. The committee's objective was to answer the following question: "How can we best incorporate B.A. throughout the COB curriculum?" Challenges to this objective included the fact that courses that were to be used to teach

B.A.-related concepts were contained in different departments and taught by different faculty, in multiple sections, and across multiple modalities (face to face and online). The courses also were taken in different stages of the students' academic careers, presenting potential knowledge gaps without adding prerequisites. The committee proposed a B.A. content video library to supplement B.A. assignments to train students and instructors. The next step was to identify content creation and video hosting options to determine the best implementation strategy while maximizing student outcomes, obtaining faculty support, and minimizing required resources. This case study presents the administrative issues involved with implementing B.A. in a business curriculum, as part of the literature review, and then describes the implementation was attempted in the presented case to address and alleviate some of these concerns.

BUSINESS ANALYTICS AND ADMINISTRATIVE ISSUES

B.A. are the techniques, technologies, systems, practices, methodologies, and applications that evaluate business data to enable an organization to understand its business and make business decisions in a timely fashion (Hsinchun et al., 2012). The rise of big data has caused analytics to spread throughout organizations, adding cross-functional components (Singh, 2019). This heightened organizational importance of analytics has demanded changes in COB curricula toward an increased emphasis on analytics education. While tuition costs have risen, students and institutions have needed to "balance the books" as most public higher education institutions in the United States face reduced state and government funding while experiencing higher operating costs (Mitchell et al., 2017). The rising tuition costs have caused students to seek institutional "return on investment" and seek institutions that provide the knowledge and skills that will lead to success in increasingly competitive careers after graduation (Dorius et al., 2017). To address the challenge of accountability while increasing the relevance of COB curricula and supporting students' return on investment (Steely & Heller, 2002), the relevant departments have revised their curricula to include more course work in the knowledge, skills, and abilities that are needed to address the gap of data analytics skills across industries from health care to manufacturing (Clayton & Clopton, 2018). The 2018 updates to the Eligibility Procedures and Accreditation Standards for Business Accreditation by the Association to Advance Collegiate Schools of Business (AACSB) International, which became effective on January 1, 2019, contain specific language addressing the need for data analytics education: "Evidence-based decision making that integrates current and emerging technologies, including the application of statistical tools and techniques, data management, data analytics, and information technology throughout the

curriculum as appropriate" (AACSB International 2013/2018, p. 35). The last part of this quote is significant; in part, it states "throughout the curriculum," which is easy to say, but hard to do.

Universities may approach these curricular changes using new degree programs, additional statistics, and math courses, and introductory data analytics courses (Tate, 2017), a layered approach (Schwieger & Ladwig, 2016), but should attempt to supply additional analytical knowledge across all degrees. However, given that universities already have struggled to cover existing material, adding another component such as big data and analytical skills to an existing curriculum has been a struggle. A concerted effort across the university must integrate new courses and learning requirements into an already packed curriculum. There must be support from the university and college leadership to hire additional faculty with the background and experience in data analytics and related course content at the university level. There must be support in the college to adjust curricula to make room for new courses, which often requires cutting other courses. There must be support at the department level to do extra work to design and implement new course materials and learning assessments. This amount of coordination requires a considerable amount of "buy-in" from faculty that might not see the new courses' immediate value. Thus, obtaining cross-department investment in the new paradigm would require some level of cultural change. There is ample "change management" literature to draw from to help COBs navigate the complex path from an organization resistant to change to an adaptive organizational culture. However, in general, the change must be a top priority for senior management, and the change championed by someone with cross-departmental influence. The key to a successful implementation is to develop cross-departmental teams that can bring concerns and ideas to the attention of the data analytics curriculum managers. Research suggests that organizations with adaptive cultures (external focus, anticipatory, confident, open to change, develop new capabilities, implement change well, and sustain the change) are more likely to survive long-term (Costanza et al., 2015).

Building and keeping momentum through the change is paramount. It will require additional effort from individuals managing the new course additions and from the cross-departmental teams formed into "change committees." Numerous challenges may materialize from organizational change management, when integrating data analytics-specific material into an existing curriculum. Examples of possible challenges are summarized in Table 1. Students may not initially appreciate the new content, as data analytics material will require more math and statistics knowledge and application.

Additionally, students may worry about the additional cost associated with access to online resources and text. Students with the Americans with Disabilities Act (ADA) requirements will necessitate additional consideration

to meet their needs (ADA.gov). As mentioned earlier, the additional workload imposed by integrating data analytics material into a business curriculum may require additional faculty. Getting existing and new faculty excited about the inclusion of data analytics material in their courses will be challenging for the organization. Not all students enrolled in the new courses will be in traditional learning venues, perhaps requiring even more distal faculty. Developing reliable assignments and assessments will take considerable effort as solutions to problems based on a small number of data sets would quickly spread across the student population requiring regular updates to the material. Assessment of learning will be a challenge in both the face-to-face and distal learning venues. Finally, department chairs and their deans will have concerns about the use of faculty time and resources. These concerns have to be taken into account to answer the critical curricular change questions to incorporate B.A. throughout the COB curriculum, such as: Will the integration of new content be constrained to a few courses, or will elements of the new curricula be dispersed throughout the old curricula? If dispersed among many courses, how to manage and sustain the change?

RATIONALE FOR A VIDEO LIBRARY

The preceding section has laid out the "dilemma" facing many higher education institutions attempting to integrate B.A. into their business curriculum. While using publicly available content was explored as an alternative, ultimately, we determined that creating our own video library was the best course due to cost and pedological considerations. This section provides a brief review of the literature that provides some rationale for implementing a video library as used in the case study.

Long et al. (2016) described an instructional model utilized in undergraduate courses in which students were provided instructor-created videos to view before class, and class time was used to answer questions (the flipped classroom). Student surveys indicated that students had a favorable view of the videos and preferred customized videos explicitly tailored to course content. Furthermore, Deshpande et al. (2014) and Perry (2010) stated that videos might be used instead of supplemental course materials, resulting in cost savings.

In a recent SAGE White Paper, Carmichael et al. (2018) found that students enjoyed learning from videos and how videos improve performance. Their study also found that student engagement with course content is enhanced when videos are created by the instructor teaching the course. Hence, one of their study's many conclusions is that instructor-created videos are superior to publicly available videos on video-sharing sites. Furthermore, Brame et al. (2017) and Petty (2010) provide evidence to supplement the SAGE White

Paper, finding that student engagement with a video and course content is enhanced when instructors create, and package videos specifically tailored to a given course. Based on a literature review, some of which are presented in this section, a decision was made to create videos in-house instead of publicly available videos, elaborated upon in the subsequent section.

THIS CASE

This case describes an approach used by a Southeastern U.S. university to embed B.A. throughout the COB curriculum by providing videos as a best practice to supply just-in-time presentations to supplement regular instruction (Pan et al., 2012) across multiple courses and sections. As a public institution, responsible use of funds and resources is a priority. Having determined that the implementation of analytics into the curriculum is essential for the COB, alternative strategies were considered, which contained a centralized video library as a critical component. However, the implementation would require significant "buy-in" from all COB faculty to be successful. The use of committees is one way to obtain buy-in and manage change in academia (Chandran et al., 2013). Therefore, a cross-functional and college-wide committee, called the Data Analytics Working Group (DAWG), was formed to determine how to implement B.A. within the COB. The DAWG was created to ensure that all departments had a voice as we decided on the general components for implementing analytics throughout the COB curriculum.

Additionally, the institution examined in this case has course committees that help standardize content and methods in their courses. While the DAWG was informed and voted on many issues related to the Data Analytics Initiative that influenced the college, the course committees that controlled the individual courses served as the primary decision-makers to create and implement the videos. The following is an analysis of the systems evaluated and the implementation process detailed in this case study.

SELECTION OF B.A. SOFTWARE AND TECHNIQUES

As the implementation of B.A. into the curriculum was determined to be an immediate priority, efforts concentrated on listing software and techniques that were readily available to the students and faculty and those who would not add cost and support requirements. Additionally, we examined education literature for what other programs were using for software and teaching as content (Gorman & Klimberg, 2014; Turel & Kapoor, 2016). The software was examined by conducting a SWOT analysis (see Table 2). Microsoft Excel functionality is taught in several courses, and students are certified in its use.

The committee agreed that incorporating Excel to some degree within the analytics program is necessary because it is a widely used program. It is a requirement in some fields, such as accounting, that uses Excel within the CPA exam. However, making Excel the primary program for B.A. material was not seen as practical due to analysis limitations and the fact that some users used the Office 365 version of Excel. In addition to these concerns, there was also a feeling that the additional skills learned by using only Excel for data analysis would not sufficiently distinguish students with employers or towards graduate programs, which often use additional analytics programs due to its commonality.

Two major statistics applications used by organizations, SPSS and SAS, were then considered for an additional analytical program. SPSS had some advantages because the college had access to SPSS licensing, allowing the software to be installed in labs and allowing users to download and use it. Furthermore, many faculty members were familiar with SPSS, which is widely used in academics, which would minimize the need for additional faculty training time and effort. However, there were concerns with maintenance and support regarding the need to download the software and manage the license, especially for online students. Alternatively, SAS has a free academic version and a cloud-based option that would run within most browsers. SAS is also a widely used program by corporations, including some valuable local employers, and served as curriculum advisors. SAS also provided the possibility of offering no-cost certification as a partnership with the college and free faculty training.

Programming languages such as R and Python also are valuable analytical tools that were considered. Corporations wishing to reduce reliance on software packages value knowledge of these programming skills as a low-cost alternative. However, few faculty members were familiar with teaching programming and learning a programming language, while learning statistical models may be a barrier to students' success. These languages may also require students to load additional software and present a challenge for supporting online students.

Ultimately the DAWG voted to include both Excel and SAS as primary analytical tools for the general business student to learn. Additional Excel skills would be added in analytics courses, including cleaning and merging data and running some statistics models such as ANOVA and regression. SAS would be added to several courses and would include a certification. The certification would be offered jointly through SAS and the college, which provides a valuable opportunity for the students to learn a tool that is widely used in industry and required the students to complete four courses, of which two required the use of SAS and two required additional analytics concepts to be added (see Table 3). Additionally, additional SAS offered training certification

prep courses that the students or faculty may pursue, of which some are free such as SAS Programmer 1: Essentials. SAS also has a YouTube channel that provides some instructional content, although those videos are not necessarily tailored to provide scaffolding to the problems that the instructors may assign. One of the primary factors in deciding to use SAS involved a cloud-enabled version that did not require installation. However, this does present some challenges as cloud-based programs are often updated and, therefore, might be out of step with instructor-created video content.

VIDEO IMPLEMENTATION

The course committees for Introduction to Information Systems and Data Analytics and Operations Management were tasked with determining the content and managing the original videos. They decided to create two sets of videos and attempted to make the videos relatively short. One set of videos supplemented the student's knowledge of statistics, while the other set of videos would walk the students through applying the statistical concepts in SAS and Excel. While the statistical concepts could be taught using a stagnant document, the SAS and Excel lab work would require screen capturing demonstrations that necessitate longer videos with the terms and concepts being applied while interpreting the generated output from the chosen analytics software.

A SWOT analysis was performed to compare various programs and options for video content production (Table 4) and video hosting (Table 5) for students' and faculty's access to the videos. The most readily available software for static content creation was Microsoft PowerPoint, which would allow us to create content that would not need frequent updates to cover basic statistics concepts. This static content could then be saved as narrated slides or used to generate MP4 files uploaded to the chosen video hosting sites as videos. However, the content is limited to what is in the slides. Interacting with and demonstrating other programs would not be possible without screenshots, which would make the demonstration less interactive; therefore, PowerPoint was selected as the content creation tool to supplement statistical knowledge, but not for demonstrating and interpreting the selected analytics software.

Camtasia is a video content creation tool that allows faculty to record their screens as they cover slides or switch to other programs when demonstrations are necessary. Camtasia also was currently licensed by the institution to allow each faculty member to download and install a single copy of the software without additional cost. The downside of Camtasia was that video editing and conversion to formats such as MP4 were time-consuming.

Another option available was the use of several lecture capture rooms on multiple campuses of the institution, which allowed for presentations to be recorded and saved to a hosting/streaming option called Mediasite. However,

this option precluded remote faculty from using the rooms. Although it saved time by automating the upload to a hosting site, it was more challenging to edit and use the hosted videos without additional technical support.

Another option currently available is to use virtual meeting sites, such as Teams, Zoom, or WebEx, to record presentations and demonstrations that may allow multiple instructors to present or for a question and answer session simultaneously. While this may be an option that will be explored in the future, it was not discussed initially when this project was carried out.

In addition to the video content production programs, video hosting options were also compared. Mediasite was the institution's software for lecture capture, video streaming, and hosting and accessible to several instructors. Mediasite could easily be linked into Canvas or another learning management system (LMS) and provided statistics of viewership by individuals in the course, which was another advantage. However, these advantages were offset by the need for additional technical support and limited access for remote faculty. Additionally, the college was also addressing storage costs and purging obsolete media stored on Mediasite.

YouTube was another option that many faculty members are familiar with, and it was readily available for remote faculty. Students also are familiar with the platform. Since a presentation is a requirement for their independent project, there remains a potential to incorporate uploading video presentations that could supplement student resumes demonstrating the ability to present analytical findings. However, YouTube may present additional challenges in managing the content's privacy and concern areas such as copyright if external content is discussed.

The institution utilizes Canvas as its LMS. Like most LMSs, Canvas allows videos to be directly uploaded to the course, which many faculty members know, but have been taught to avoid as LMSs usually have caps on the amount of media storage used.

Microsoft Stream was another video storage option available for the institution, free of additional cost with Office 365, allowing for simple video management. Access to videos is limited to the organization's members, and specific channels can be created to better organize course material. While it did not provide individual viewing statistics, it did allow for view counts to be monitored. It also allows students and instructors to upload content to learn useful information dissemination skills that could be used throughout their careers on a platform that would be available to many organizations. Its automated closed captioning ability with editing possibilities was also a plus. Microsoft Stream was the ultimate choice as it provided a free and readily available platform for video hosting and sharing.

With the video content creation and hosting software identified, the next step was determining how to create content. The course committee

determined the number of assignments, and two instructors were assigned to create the initial set of videos. The desire was to keep the videos as short as possible while allowing for longer videos that required students to follow along to complete the assignments. The media content was divided into two types: 1) statistical concepts covered using PowerPoint presentations with embedded narration, which were then saved as PowerPoint files and converted into MP4 video files, and 2) follow-along lab instructions that ran and partially interpreted statistical models in SAS. Both types of media content were uploaded to Microsoft Stream and deployed to Canvas.

CURRICULUM IMPLEMENTATION AND OUTCOMES

The original library consisted of 16 videos (see Table 6). To date, the centralized video library has been accessed by 16 instructors who taught five different courses in four different disciplines, and while the number of views is difficult to evaluate due to changing versions of the videos as related to assignments as well as videos being further broken down into modular videos. Some of the original videos received more than 1,000 views. While not all the videos were used in every course, the savings in content development time, video creation, and associated presentations were substantial. Additionally, consistency in messages and methods, although hard to measure, may improve learning objectives attainment. Finally, as faculty must adapt to more remote learning strategies, the video library becomes a valuable resource. Also, through the count of the video views, a pattern emerged that students widely watched the "follow-along" instructional videos while the statistical concepts videos were not watched as often; this can be partially attributed to the narrated PowerPoint's availability files for statistical concepts.

Initial reviews of the videos provided in comments from students on the end-of-course evaluations indicated that students saw them as an essential part of the course. Student comments included the following: "The videos that accompanied these exercises were very helpful" and "I really enjoyed the videos - couldn't have done it without them!" However, the initial implementation was not without its drawbacks. Some videos required updating as the cloud platform or assignments were changed, and the length of the videos made remaking the videos a long and tedious process for the content creators. Furthermore, students were required to reuse some of the skills covered in prior videos and found it challenging to find the relevant sections. Therefore, based on informal student feedback, and to help students identify specific content, the instructors responded by creating more modularized videos by further breaking down the content as listed in Table 6. These "modular videos" were shorter and usable with multiple assignments, either as instructions or as refresher videos for prior concepts that needed to be included in an analysis,

such as running descriptive statistics. A more formal review process of the videos will be created to facilitate more detailed student feedback and improve video efficacy.

Overall, the first wave of implementation was only partially successful because only a few courses were fully involved in the final implementation due to concerns over administrative cost and the time and effort required for faculty to assimilate the new material into their courses. Furthermore, there was a student perception of a substantial increase in work and difficulty relating the topics covered within courses if too many analytics assignments were given in a specific course. Student comments such as "It felt like I was taking two courses" and "Too many assignments were not related to our textbook" were seen in the end-of-course evaluations. However, many students seemed to comment that they learned a lot within the course and as word of the success of the implementation was spread through the COB faculty by the DAWG, it inspired them to look for opportunities to integrate analytics-related content into their courses. Students also began reporting that exposure to SAS helped them gain employment.

LESSONS LEARNED

We learned several lessons during the implementation discussed in this case regarding faculty, students, course requirements, and technology (see Table 7). First, in assisting with challenging content, the video library's implementation added no costs to the students. The students positively responded to the videos with course evaluation comments indicating that the videos were valuable resources that allowed them to complete complex assignments. The automated closed captioning provided was not perfect but was enough to address ADA concerns. However, adding too many assignments in any given course was a significant concern for students.

The videos were also popular with faculty, as demonstrated by the instructor comments that the preparation for the analytics instruction was complete and that they felt comfortable teaching the courses or topics. The instructors who created the initial round of videos and assignments estimated that at least two weeks of additional time to prepare the assignments and related videos had been required. These videos and assignments were used by at least 16 instructors indicating savings of at least 30 hours of content preparation. However, adding the assignments increased the faculty's grading workload as they represented written assignments, which tend to be more time-consuming for proper feedback to be provided. These concerns were partially addressed by creating more specific rubrics and by making the videos more modular. Overall, the videos helped to mitigate some additional workload issues because

grading requirements partially offset time savings in preparation. The content creators were required to spend additional time, making it difficult for their supervisors to adequately evaluate their increased workload.

Using centralized videos to help mitigate some of the workload issues inspired additional instructors in other courses to use some of the created material to supplement their courses, further expanding the use of analytics beyond its original scope, which was enabled by using committees to maintain constant communication about the work that was being done on adding analytics.

For an organization that is cost-sensitive and identifies analytics as an area critical to accreditation, using a central repository of B.A. modular videos stored in Microsoft Stream provided a cost-effective way to integrate analytics throughout the college curriculum. Creating easy-to-share links to embed videos into an LMS allows multiple courses or assignments to use the same video as a resource. Thus, there was a reduction in the number of prerequisites and prep time for faculty while supporting student success throughout the curriculum and reducing student costs. It also facilitated training the faculty who were not familiar with SAS or the case problems. The implementation of the B.A. assignments was not without technical drawbacks or issues. SAS's cloud-based web studio is a free program that undergoes periodic changes and, as a free service, may be subject to downtime that is not within the instructors' control and would lead to increased workload for several faculty members without a centralized solution. Centralizing the video library creation reduces duplication and therefore increases efficiency.

CONCLUSIONS

Industry and academia both realize the importance of analytics. However, analytics projects are not simple because they require knowledge across functions. Creating a video library covering various B.A. topics helped facilitate a complicated but necessary addition to the curriculum meant to span the entire college. The video library created consistent material that helped facilitate learning and reduced the demands upon instructors. The analytics implementation was viewed as valuable throughout the AACSB accreditation process and created formal and informal groups that helped manage change and process improvements for addressing gaps in analytics in the curriculum. It is strongly recommended to create a centralized shared video library that allows the use of created resources across multiple courses. However, communication is essential, and there is a need for formal and informal communication to communicate the availability of content to both faculty and students. This case reveals several paths for future research. Analytics is a

complex topic to teach, and many instructors have different strengths. There is no doubt that the centralized resource creation method described in this case was more efficient for this university; studying its economic impact may be appropriate. While the examination of end-of-course evaluations indicated success, a more formal study of learning assurance is needed to reveal the benefits and drawbacks of the students' learning both in a single course and longitudinally across the curriculum. Formal empirical studies of the impact of closed captions on nonnative speakers would also be relevant as many universities strive to have a diverse student body. The lack of formal surveys serves as a limitation to the implementation. The design and implementation of a survey of video quality and results assessment is an exciting area that needs further study. Finally, while curriculum change was successfully managed in this case, there needs to be increased research into adding cross-functional components into courses. Higher education is in a period of change, and how universities respond to change needs to be analyzed.

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Table 1. Data Analytics Curriculum Change Challenges

Issues	Perspective	Concerns
Difficult content	Students	Additional math and statistics requirements Additional learning of data analytics material before graduation Cost of additional materials / text ADA concerns (closed captioning)
Additional workload	Faculty	Keeping a consistent message across venues Developing reliable assessments of learning Integrating new content into existing courses
Collaboration requirements	Department Chairs	Providing faculty to change committees Motivating existing faculty for curricula change Motivating faculty to adopt and adapt the new data analytics material into existing courses Faculty qualifications and development
Cost / Value	Leadership	Recruiting additional faculty Training existing faculty Cost of additional text and material to students Accessibility of courses to diverse student groups Assessing the ROI for the investment of resources Alignment of new curricula with organizational values Alignment of new curricula with organizational goals Accreditation standards

Table 2. Analytics Package

Product	Strengths	Weakness	Opportunities	Threats
Excel	Free, Commonly Used	Requires add-ins that are not supported by cloud-based Excel Option. Does not have the full functionality for some statistics.	Used widely in industry, so certifications add value to students.	Already widely required, so may not distinguish graduates as much as having multiple products.
SAS	Free Access, Cloud based, Easy to navigate	Not commonly used by existing faculty	Used widely in industry, so a certification adds value. More widely used by other institutions so may aid in faculty recruitment.	Cloud Option is free, so service guarantee is limited.
SPSS	School License Available so it would add no additional cost, widely used by current faculty.	Requires software that needs to be downloaded and licensed.	Used widely in academia.	Licensing may change.
Programming (e.g., Python or R)	Free	A limited number of current faculty trained in its use.	Widely used in industry as a low-cost alternative to SAS and other software packages.	Student anxiety towards programming may lead to higher failure rates.

Table 3. Joint SAS Certification Courses

Course	Requirement
Introduction to Information Systems and Data Analytics	ANOVA and Linear Regression in SAS, Independent Research Project
Operation Management	Linear Regression in SAS
Business Communications	Communicating Analytic Results
Strategic Management	Strategic Application of Analytic Results

Table 4. Content Production

Product	Strengths	Weakness	Opportunities	Threats
PowerPoint	Free, commonly used by faculty.	Needs additional software to host, external screen capture is limited to screenshots.	Can improve student presentation skills, including narration and adding video content. Improve student connection by including videos of the instructor.	Requires hosting for the videos generated. If uploaded directly to LMS, this may exceed size requirements. Adding video may require additional equipment.
Camtasia	Allows screen capture and editing. ADA compliant.	Video format generation can be time-consuming. Limited to a single license per faculty and not available to students.	Allows the use of multiple products so PowerPoint presentations can flow into live demonstrations.	Requires licensing so may be vulnerable to losing the service.
Lecture Capture	Rooms already established on campuses.	Does not allow remote faculty use. Requires IT support.	May be immediately uploaded to Mediasite for video hosting.	IT Support and Mediasite may be lost or changed to an alternative product.
Teams/Zoom	Allows recording of tutorial sessions and multiple instructor collaborations.	One-time capture that may limit editing.	Exposure of students to virtual environments. Provides for a more "in class" type of experience to online classes.	Cloud-based so terms and formats may change. There may be security issues.

Table 5. Video Hosting

Product	Strengths	Weakness	Opportunities	Threats
Microsoft Stream	Free service with Office 365 that can be restricted to members of the University. Closed Captioning	Limited statistics	A product that students could be trained to use and is able to host videos generated by other software.	The free option may be withdrawn, or a capacity cap may be implemented
Mediasite	Better statistic reporting already integrated with the lecture capture rooms. Closed Captioning	Cost and support	Allows integration of other products with IT support.	Costs money to host and maintain, so videos need to be purged and it may be a victim of cost cutting.
Canvas/LMS	Free	Capacity cap		LMS may change
YouTube	Free, closed captioning options	Higher maintenance if it is to be private.	Students may generate content that they can readily share with potential employers.	Privacy and security controls are not within the organization's control.
Self-hosted	Control of links	Cost and support Captioning would need to be done before uploading.		

Table 6. Original Video Topics and Later Modular Breakdown

Original Video Topic	Software Used	Type	Views	Modular Breakdown
Data Analysis Policy (IRB and Research)	PowerPoint	Concept	197	
Issues with Data (Cleaning and Merging)	Excel, SAS and Camtasia	Examples	100	Cleaning Data, Pivot Tables
Changing SAS Preferences	Camtasia, Web Browser	Examples	174	
Kaggle and Finding a Dataset	Camtasia, Web Browser	Concept	430	
Data Types (DAL 1)	PowerPoint	Concept	175	
Central Tendency (DAL 2)	PowerPoint	Concept	384	
Dispersion (DAL 3)	PowerPoint	Concept	285	
Statistical Significance and ANOVA (DAL 4)	PowerPoint	Concept	395	Statistical Significance, ANOVA
Regression (DAL 5)	PowerPoint	Concept	259	
Decision Making (DAL 6)	PowerPoint	Concept	586	
Registration & Scatter Plots using SAS (DAX 1)	SAS and Camtasia	Examples	1,141	Running Scatter Plots with Grouping and Prediction Intervals, Interpreting Scatter Plots
Descriptive Statistics (DAX 2)	Excel, SAS and Camtasia	Examples	310	Running Characterize Data, Running Descriptive Statistics in Excel, Running Summary Statistics in SAS, Interpreting Descriptive Statistics
Uploading DATA (DAX 3)	SAS and Camtasia	Examples	718	Uploading Data, Filtering Data
ANOVA (DAX 4)	SAS and Camtasia	Examples	735	Summary Statistics W/ Groups, Running an ANOVA, Interpreting an ANOVA
Linear Regression (DAX 5)	SAS and Camtasia	Examples	624	Linear Regression Assumptions, Running Linear Regression, Interpreting Linear Regression Results
Advanced Linear Regression (DAX 6)	SAS and Camtasia	Examples	486	Model Assessment

Note: Views retrieved 9/20/2020 on the original video library created for Fall 2017.

Table 7. Data Analytics Curriculum Change Issues vs Lessons Learned

Issues	Perspective	Lessons Learned
Difficult content	Students	Students saw the videos as valuable resources that enabled success without adding additional cost for course materials. Too many analytical assignments with new concepts in a single course may cause a distraction from the fundamental course content. So new techniques should be spread across multiple courses. Students received just in time knowledge that may be applied without allowing for flexibility for prerequisites. Formal content improvement surveys and improved video view statistics are needed.
Additional workload	Faculty	Centralized videos allowed for reduced prep time. Cloud services frequently change requiring frequent updates which is partially addressed by centralizing the updates to videos. Adding additional assignments that contain analytics require additional grading that can be partially offset with improved rubrics and specific modular videos that can be referred to address student issues.
Collaboration requirements	Department Chairs	Allowed for easier training of faculty that may not be familiar teaching analytical concepts. Committees worked to facilitate change and to add synergy to adding analytics throughout the curriculum. While prep time was reduced for many faculty the content creators saw added prep time that is difficult to measure and reward.
Cost / Value	Leadership	Student cost was reduced. Faculty training costs were reduced. Faculty unfamiliar with software or techniques are able to add analytical components. Students receive a consistent message and set of assignments that provide scaffolding for any additional assignments instructors throughout the program wish to build on.

MBA IN HEALTHCARE MANAGEMENT: ENHANCING ORGANIZATIONS AND ADVANCING CAREERS

Teresa Preston

ABSTRACT

In light of the challenges faced by Healthcare organization administrators, managers and healthcare professionals, the MBA with a concentration in Healthcare Management has gained popularity over the past decade to improve operations, problem-solving and outcomes. Simultaneously, those with careers in this industry find the education to enhance opportunities for advancement and improve performance in management positions, while business colleges increase their impact on society. This exploratory study provides insight to the components and content of the MBA that are perceived as most valuable and beneficial to organizations and professionals. In-depth interviews with Administrators and C-level executives, healthcare professionals and clinical physicians provide insight to better understand how the MBA in Healthcare Management program benefits both the organization and their own careers.

INTRODUCTION

The Healthcare industry faces many challenges specific to the nature of the industry along with continuously changing environmental factors. The wide array of challenges has long since preceded the tribulation of the global pandemic starting in 2019; these challenges also go far beyond the scope of spillover from the pandemic. As a unique industry, much of the graduate education and training to prepare and equip C-level executives, administrators, and mid-level directors and managers historically has been specific to the unique needs for knowledge required to address the mission of healthcare management while working within the constraints specific to the industry. From historical roots, the U.S. healthcare industry has evolved from one of majority non-profits comprising the industry into a profit-oriented industry while also embracing the more recent movement toward patient-centered care (Baumhauer and Bozic, 2016; Fix et al., 2017). While a significant portion of in-patient services still are provided by non-profit entities, these organizations also have found the need to operate, manage, and carry out their missions with a business mindset. In spite of the unique nature of healthcare services, many of the duties of healthcare executives are present across all industries (Huppertz, Strosberg, Burns and Chaudhri, 2014).

In light of the many challenges to effectively manage healthcare, expenditures account for 17.7% of the U.S.'s GDP in 2019 (National Health Expenditure Data, 2020). The U.S. Healthcare industry generated $3.8 trillion in revenue in 2019, a 4.6% increase over 2018 (NHED, 2020). The U.S. Healthcare and social assistance industry has the highest number of employment and the highest payroll amount in the nation (Bureau of Labor Statistics, 2018). The industry provided jobs to 20.7 million employees in 2020 and currently, to 19.8 million employees in 2021 (Bureau of Labor Statistics, 2018).

While six of the nation's 30 largest hospital systems are based in Texas (Becker's Hospital Review, 2019), the total number of acute care facilities in Texas account for approximately 10% of the nation's total hospitals, ranking the state first in the portion of U.S. hospitals (California ranks second with 6.9% of the nation's facilities). In spite of large healthcare system organizations, community hospitals are the institution for front line healthcare services across the U.S. (American Hospital Association, 2019). Of the 6,090 acute care facilities in the U.S., 5,141 (84.4%) are community hospitals (American Hospital Association, 2019).

Considering the amount of assets generated and managed by the healthcare industry – monetary, physical and human capital - coupled with the challenges faced by healthcare organizations today, the growing trend toward individuals with careers in the industry seeking a business education is of no surprise. As healthcare professionals prepare to advance their careers in healthcare, they seek knowledge and skills outside of their original healthcare discipline or "trade" (e.g., medicine, nursing, & all professional ancillary services). Many of these skills and business-based areas of knowledge also extend from conventional curricula in graduate healthcare educational programs such as the MHA or the MSHA (Mass and Novy, 2009). Moreover, by leveraging business knowledge and management skills, these professionals add value to healthcare practices and organizations by addressing issues specific to the industry with a fresh perspective of a business-oriented graduate curriculum (Smith-Barrow 2013).

In addition to administrators and other executives in this industry, physicians find an MBA education valuable in providing knowledge and skills crucial to success of their practices, but for which they have not previously received any education and training. Moreover, many find that their practices often become part of a large corporate network of out-patient medical practices or clinics. While this model frees individual physicians from the business decision-making and management at the level of a private practice, it also provides opportunities for career advancement along with versatility and mobility across different industries, if so desired (Patel et al. 2014; Turner,

Stawicki and Weidun, 2018). In addition to physicians, and as the CNO title has emerged and evolved to being more commonplace, nursing managers, directors and CNO's find they have opportunities to be involved in leading the direction of an organization while also managing nursing's role in the organization with strategic thinking in mind (Iannazzo et al., 2019).

Thus, there is an opportunity for three stakeholder types to benefit from the trend to integrate business education into management of the healthcare industry. These stakeholders are identified as 1) healthcare professionals, nurses, physicians, administrators and other leaders, who wish to pursue career advancement opportunities, 2) the healthcare organizations who leverage business management knowledge and skills of leaders, managers and professionals, for improvement in both operations and outcomes, and 3) business colleges that increase their impact on society and the business communities via a graduate education, specifically, an MBA with a concentration in healthcare management.

While over 50 AACSB-accredited MBA programs with a Healthcare Management concentration have been implemented throughout the U.S., growth in enrollment has increased since 2008 (Principe, 2016). Thus, business colleges have the opportunity to provide value to stakeholder healthcare organizations and professionals, particularly in the Southern and Southwestern regions where MBA programs with healthcare concentrations are lowest and yet, where many of the largest healthcare organizations are located (AACSB, 2018). While this opportunity continues, it is beneficial to gain a better understanding of how the MBA in Healthcare Management contributes to the health of Healthcare – the operational and financial well-being of organizations, outcomes of patient health, and career advancement and performance for professionals.

LITERATURE REVIEW

More health care professionals, physicians, and health care management and administrators continue to pursue graduate programs in business administration to advance careers. These individuals include physicians, registered nurses, and professionals in ancillary services (e.g., physical therapy, respiratory therapy, radiology, etc.). Middle level managers and professional staff within the business and operational sides of health care organizations also are pursuing MBA's with a concentration in healthcare services or management. The trend to hire MBA graduates in executive and management level positions also is partially rooted in the alternative route taken by many new MBA graduates during the economic crisis of the "Great Recession" of 2007 – 2009 (Federal Reserve) and the aftermath of a recovering employment

market that ensued in subsequent years (Love and Ayadi, 2015). These recent graduates faced a tight job market across many other industries. Yet, many found that their newly acquired education could provide a need in healthcare organizations.

Generally, the industry's consensus is that many healthcare administrators lack necessary competencies of agility, innovation, and change management (Love and Ayadi, 2015; Marshall, 2010; Rissi et al., 2015). Moreover, trends toward vertically integrated systems for healthcare services warrant the aforementioned leadership and business management skills along with proficiency in predictive analytics and change management (Love and Ayadi, 2015). Within healthcare, university-based training is highly valued, particularly in the areas of business leadership skills, strategic planning, information management, financial acumen, accounting/auditing and in compliance knowledge specific to healthcare (Mattie et al. 2020). Thus, business colleges have an opportunity to leverage their existing intellectual credentials with enhancements in healthcare sector knowledge and understanding to provide value both to stakeholder employers and healthcare professionals as potential students. Consequently, the business colleges benefit from the growth of an additional program while also increasing impact upon society.

While the healthcare sector is surrounded by rapidly changing environmental factors, physicians are pursuing MBA degrees, either while practicing medicine or in joint MD/MBA programs. MD physicians who earn an MBA, via either approach, enjoy significant financial returns on their investments in MBA programs (Guercio, Lehman, & Sangvai, 2015; Turner, Stawicki and Guo, 2018). These physicians also find new career opportunities open to them, both in clinical and non-clinical functions. They express more personal satisfaction and positive attitudes toward their careers, both for medical and administrative tasks (Patel et al., 2014; Turner et al., 2018).

In the area of education and training for nursing management and additional ancillary services, the literature is limited yet provides insight as to the perceived value of an MBA education specifically for nursing managers, directors, and those holding positions of CNO or CNE (Chief Nursing Executive), or even those in other leadership roles that oversee ancillary health services. The CNO title has emerged and is evolving to being more commonplace while also being involved in a higher level of strategic decisions and in leading the direction of the organization (Iannazzo et al., 2019). As the level of influence from nursing represented by these C-level positions continues, the impact of nursing upon organizational direction and practices requires these leaders to be competent in financial acumen, budgeting, cost accounting, and data literacy, and business-oriented approaches to problem-solving (Iannazzo et al., 2019; Polhemus, 2015; Waxman, 2005).

The purpose of this study is gain insight about the perceived value and identified benefits of an MBA with Healthcare Management concentration among management leaders, physicians, healthcare professionals and operational/business staff. What knowledge gaps are filled by an MBA education? What missing skills are developed through the training in an MBA education? How does the particular content of the valued curriculum benefit the leaders and decision-makers in this industry?

With the trend of hiring and promoting those with MBA degrees supported in the literature, exploratory research is necessary to provide insight on matters of subject matter content to explore why the content is valued and how it enhances operations and performance in the industry. This study explores the perceived benefits of filling knowledge gaps and developing skills needed in healthcare management that an MBA focused on healthcare management can provide. Exploration also will provide insight as to how both healthcare professionals and operational or business staff perceive that the MBA education is beneficial for career advancement while contributing more effectively to their employer organizations. Thus, the study contributes to a deeper understanding of what appears to be an enduring trend in this industry.

METHODOLOGY

A qualitative study was completed using 21 phenomenological interviews to collect data among individuals currently working in Healthcare - organizational leaders at the highest levels of COO, CEO, CNO, President, and Administrator, nurses and nursing supervisors and managers, healthcare professionals in ancillary health services, physicians, and professional staff carrying out operational and business functions. In accordance with the objective of qualitative research, the interviews provided the necessary depth in discussion to acquire a high level of quality data for richness and insight, to delve into the current trend, and to determine the meaning of this phenomena within a particular context (Williams and Moser, 2019). The in-depth interviews provide understanding from the study respondents' own experiences and observations of others to allow interpretation of meanings within their contexts (Spiggle, 1994).

A discovery-oriented approach was used through theoretical sampling, a purposeful approach to selection of study subjects occurring both prior to and during the data collection process. Sample selection included individuals across different levels of organizational hierarchy across different contexts (e.g., hospitals in large hospital systems, community hospitals, out-patient treatment centers, private physician practices, physician network practices, nursing care units, and home health care). Level of familiarity and involvement

with a current MBA program in Healthcare management varied as well. Many respondents at the C-Levels or organizational head positions hold an MHA and are responsible for current hiring and promotions within their organizations.

Most individuals participating in this study currently work in some capacity in the healthcare industry, and are either currently involved in an MBA in Healthcare Management program or have recently completed the degree. Some of these individuals also hold an MHA. This sampling approach coupled with collection of the respondents' observations of others provides triangulation of the data (Carter et al., 2014; Leech and Onwuegbuzie, 2007). Concepts and themes derived from an initial small set of interviews were used to determine the sample selection for subsequent interviews while also shaping the content and direction of discussion (Strauss and Corbin, 1998). Examination of context also is included both in sample selection and in analysis of the data.

Data collection and initial steps of coding are interdependent and interactive in this exploratory qualitative study. Open coding and subsequent axial coding were employed to analyze each small set of interviews with systematic comparison to previous small sets of interviews (Braun and Clarke, 2006; Clarke and Braun, 2015; Eisenhardt, 1989, Spiggle, 1994; Strauss and Corbin, 1998; Williams and Moser, 2019). The iterative process of data collection, coding and analysis led to identification of patterns across the data where consistent themes emerged (Braun and Clarke, 2006; Strauss and Corbin, 1998; Williams and Moser, 2019). At the point in data collection when no new patterns emerged, data collection was concluded with the themes developed from properties of patterns in the data (Braun and Clarke, 2006).

STUDY FINDINGS

Analysis of the qualitative data yields key findings that indicate that an MBA education in Healthcare is highly valued for executive and managerial positions across the industry. While the vast majority of C-level management and Administrators in the sample hold an MHA, they welcome the knowledge and skills attained from an MBA by others within their organizations. These subjects also indicate that they seek out MBA graduates in filling open managerial positions while also encouraging current healthcare employees who seek career advancement to pursue an MBA. Study subjects, as physicians, nurses, other healthcare professionals, or business professionals in the industry, also see much value in an MBA in Healthcare Management, not only for themselves but also for those in other professions in healthcare. Overall, this business education meets the dire need to improve understanding of the business perspective and financial implications of healthcare practices

and operations across their own organizations. The education and training process also introduce different approaches to problem-solving and equips management with new knowledge and skills. Simultaneously, these healthcare and business professionals anticipate that an MBA provides more future career options including the versatility to qualify for career advancement outside of the healthcare industry, if desired. Moreover, these subjects indicate that, the actual process of completing the MBA develops many crucial soft skills. Overall, the data across all subjects indicate that perceptions of the value of the MBA are aligned with recognition of the knowledge gaps and skills missing in the industry that are resolved with a business education.

To provide more insight about the value of the MBA in Healthcare, themes identified in analysis that are relevant to the research questions are described and discussed. These themes presented emerged across all data and subject types.

CROSS-FUNCTIONAL EDUCATIONAL ADVANTAGES

General business management training is crucial. Specifically, a business education concentrating in healthcare benefits organizations, provides career opportunities, and enhances performance to those responsible for the well-being of the organization and the patients. Those with a medical or healthcare profession gain a business perspective; thus, their thought processes include a view at the strategic level of the organizations. In turn, professionals on the business and operational side in healthcare with no previous clinical experience gain the valuable healthcare perspective in the program. The MBA also provides a deeper understanding to their existing business knowledge. The data indicate that the MBA provides fresh ideas, different ways of thinking, and these lead to different approaches to problem-solving. Healthcare professionals indicate that they previously viewed management issues completely from a healthcare side. Many also were never taught to manage costs. While patient well-being is still the priority, they consider different approaches to solving problems to manage costs while also considering patient well-being. Moreover, M.D.'s and R.N.'s in leadership and managerial positions find they are better equipped and have more leverage upon completing an MBA to advocate for the patient. With a clinical background, the education provides a better understanding of the business and management priorities of the organization while they simultaneously are competent to strongly advocate for patient well-being.

> *"The MBA puts us in positions where we have more leverage on the business side of the organization."*

"Many administrators have no idea what goes on at the bedside".

"We [physicians and nurses], are the ones who step up and advocate for the patient. While the numbers may look good on paper, the reality is that this may not be good for the patient."

To address the changing healthcare industry, and to direct the changes identified as necessary for improvement, one physician commented:

"Physicians are well-suited for a leading role to lead the necessary change toward improving quality of healthcare, and reducing costs of healthcare….the MBA is the best option to develop the skills and knowledge to provide more effective services."

CONCEPTUAL UNDERSTANDING OF FINANCE AND ACCOUNTING

One theme across all interviews is the value in understanding basic accounting, cost accounting, financial management and budgeting. Those on the clinical side did not learn subject matter in finance and accounting in their previous education. As fundamental to understanding of business, all respondents indicated that these areas in the MBA program fill gaps in understanding the operational and business side of healthcare. As those on the clinical side indicate, understanding the terminology in finance and accounting, understanding the perspective of this side of the organization, and having the ability to "speak the language", assists them in working with those on the business side.

MARKETING'S ROLE IN THE ORGANIZATION'S SUCCESS

Marketing is integral to any business thriving; yet, the data indicate that all areas of the profession are not previously aware of the key role of Marketing. While the C-level and Administrators made no mention of marketing education as a key component, all others on both the business and clinical sides who have completed or who are active in an MBA in Healthcare program noted that understanding the scope and activities of Marketing were valuable. Two key areas learned from the marketing education in the program focus on customer service: 1) viewing the patients as customers, and 2) understanding that the patients, as customers, can choose to go to competitors for their necessary services. With the focus on patient-centered care and the accompanying changes in payment structure based on patient well-being

and service satisfaction, the framework learned in marketing courses are of great value. Moreover, the data indicate that the learning provides a better understanding of the role of marketing in promoting the hospital, branding, and in the organizational-wide effort of everyone to carry out the brand's message in daily operations.

> *"I had no idea there was so much that marketing did. Now, I also see how their role in branding and public relations is important".*

> *"...it's a nice reminder of what we need to be doing....basic marketing skills are very helpful, and knowing what your customer wants, and how to address concerns."*

MANAGEMENT SKILLS

While many of the clinical professionals have excelled in their field of expertise (e.g., practicing medicine, nursing, physical therapy, radiology therapy, etc.), they have very little or no experience or background to prepare them for the roles, responsibilities, and decision processes required of a manager. One particular comment that points to this concern is as follows:

> *"Most people in healthcare... that [sic] have moved up through the ranks have zero management training. They are good nurses, they are good pharmacists, and people assume they will be a good manager which is not true."*

Areas of management competencies identified as most valuable include Leadership skills, Strategic Planning and Thought Leadership, Project Management and Change Management.

Leadership. Leadership competency skills are identified as an area of weakness among existing managers, especially among those with a clinical background who have been promoted through the ranks of the organization. These skills include the ability to provide organizational leadership, motivate employees, communicate goals and expectations clearly, and interact effectively with all levels of managers and employees.

Strategic Planning and Thought Leadership. The lack of strategic level of thinking and strategic planning skills by managers promoted up through the ranks is one area of concern in healthcare organizations represented in this study. Both C-level officers/administrators and clinical professionals recognize the value in this area of business education. In addition to this type of thought leadership, the ability to create an effective strategic business plan

with an understanding of how to complete a pro forma was identified by many of the health organization chiefs and administrators.

> *"... a lot of our management team has come up through the ranks. They were great clinicians and we've made them management .... Not having that business background ... has been a challenge recently, more so than in the past, when it was easy to make money. So not having management team members who can analyze their expenses or put together a pro-forma and follow the outcomes of it to make sure you're hitting the mark."*

Project management and Change Management. Organizations in healthcare will inevitably undergo some type of change at any given point in time. In fact, the nature of the industry is that new challenges and constraints is the normal state rather than one of being static. Proficiency in project management and facilitating change management is crucial as well. While project management facilitates coordinating and carrying out all duties and tasks necessary to implement some initiative, change management skills ensure management, control and documentation of any change. Project management training must include project life cycle, adherence to the time line and the budget, and coordination of personnel in cross-functional initiatives.

> *"It's hard to find a position that doesn't do project work at some level. It could be relocating a section of nurses to a new unit, moving to a different building, changing out this old equipment with that new equipment, implementing a new system. There's just so many temporary projects that happen no matter where you work..."*

DISCUSSION AND FUTURE RESEARCH

This study provides insight on perceptions of how an MBA education with a Healthcare Management concentration can benefit healthcare organizations along with clinical and business professionals in job performance and career advancement. Key findings include identifying the subject matter areas most valued in an MBA program with the context, reasoning and descriptions of why. These findings are consistent across both top management and other organizational leaders as well as healthcare and business professionals in the industry.

Another key finding is the benefits identified from the process of the education. All study subjects who either completed an MBA or who are in

process, indicate that the educational setting of the MBA courses eliminates organizational hierarchy. Consequently, all students, regardless of their title or position, are on equal footing in an MBA course. This context provides for candid interaction among the students where they learn much from each other across different roles and positions that they would not learn in an organizational setting. Moreover, both the physician MBA students themselves, along with others in an MBA Healthcare program, indicate that the educational process allows physicians to develop soft skills in social intelligence and in understanding the challenges of other healthcare professionals. Generally, the data indicate that all study subjects who have either completed an MBA or currently are in a program find that the education trains them to initiate positive change while also becoming better equipped to respond effectively to environmental changes. In particular, both physicians and nurses see that they are the change agents of the industry, and they must lead to improve the focus on patients' quality of services.

Findings from this exploratory study provide insight to the value of an MBA education concentrating in Healthcare to identified stakeholders among the sample of qualitative interviews completed. Data collection and analysis are limited to interviews with these individual organizational decision-makers, healthcare providers and professionals, and others working in the industry. As a qualitative study, findings are not intended to be generalized to the defined sample population. Regardless, insight is gained from this study that warrants further research.

Future research may include case studies of healthcare services organizations who have hired or sponsored professionals completing this type of MBA program. Case reviews should include examination of the process of integrating more business knowledge and leveraging business-oriented management skills into the organization. Beyond case studies, effectiveness of applying business-oriented approaches and knowledge to leadership and management duties should be measured to determine whether and to what degree this trend does improve the value of healthcare services (e.g., reducing expenses for treatment while providing improved outcomes). Research also may include comparative analysis of financial performance and health treatment outcomes between teams where some portion of decision-makers hold an MBA degree and those teams in organizations who do not have business education and skills represented among decision-makers

Of the business education subject matter identified and discussed in the interviews, Data Analytics was mentioned only by one subject who currently managing IT operations for a hospital facility, so a theme did not emerge across the data for this particular study due to lack of representation. Future research should include examination of the existing benefits of data analytics along with

current and future improvements in healthcare issues that predictive analytics can provide. These issues include identifying and implementing ways in which analytics is best leveraged for healthcare - improving the quality of care and offering most effective treatments, reducing waste and error, so consequently, also reducing costs of healthcare. Analytics also should be examined for the benefit to predict and measure needs for future preventive resources (e.g., wellness exams and treatments, vaccinations, etc.), optimal treatment types newly emerging in the field, and anticipation of emerging public health issues.

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