ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

2022 REFEREED PROCEEDINGS

FEDERATION OF BUSINESS DISCIPLINES

March 2022
New Orleans, Louisiana

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

2022 Refereed Proceedings

New Orleans, Louisiana

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ABIS is seeking board member nominees for several positions!
Please contact a current board member if you are interested in serving our organization.

CONGRATULATIONS!

Recipients of the ABIS 2022 Federation of Business Disciplines

Distinguished Paper Award

The Future of Cloud Computing: Implications for Theory and Practice

Frida Alcocer-Loredo, Texas Woman's University

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ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

Association of Business Information Systems

ABIS 2022 Program Overview

Thursday March 3, 2022

7:30 a.m. – 10:00 a.m.	**ABIS & ABC-SWUS Joint Breakfast**
8:30 a.m. – 10:00 a.m.	Session A: **ABC-SWUS & ABIS Joint Session – Distinguished Paper Presentations**
10:30 a.m. – 11:45 a.m.	Session B: **Teaching Analytics**
11:45 a.m. – 1:30 p.m.	**Lunch on your own** ***Executive Board Meeting (by Invitation)**
1:30 p.m. – 3:00 p.m.	Session C: **Research in Information Systems**
3:30 p.m. – 5:00 p.m.	Session D: **Improving Information Systems Curriculum I**
5:30 p.m. – 7:00 p.m.	**FBD Presidential Welcome Reception**

Friday March 4, 2022

7:30 a.m. – 8:30 a.m.	**ABIS & ABC-SWUS Joint Breakfast**
8:30 a.m. – 10:00 a.m.	Session E: **ABIS Business Meeting *All Members Welcome***
10:30 a.m. – 12:00 p.m.	Session F: **Improving Information Systems Curriculum II**
12:00 p.m. – 1:30 p.m.	**Lunch on your own**
1:30 p.m. – 3:00 p.m.	Session G: **ABC-SWUS & ABIS Joint Session - Innovative and Multidisciplinary Topics I**
3:30 p.m. – 5:00 p.m.	Session H: **ABC-SWUS & ABIS Joint Session - Innovative and Multidisciplinary Topics II**

CONGRATULATIONS!

Recipient of the 2022 FBD Outstanding Educator Award

Eddie Horton

Northwestern State University

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 3, 2022
(Thursday)

7:30 a.m. – 8:30 a.m.		Camp

ABC–SWUS and ABIS Joint Breakfast

We invite ABC-SWUS and ABIS Associations presenters and members to enjoy breakfast together!

ABC-SWUS or ABIS Association Name Badge Required for Entry

8:30 a.m. – 10:00 a.m.	Joint Session with ABC-SWUS	Camp

SESSION A **ABC-SWUS and ABIS Joint 2022 Distinguished Paper Session**

Co-Session Chairs/Association Vice Presidents and Conference Chairs:
Jason W. Powell, Northwestern State University
Lindsay Clark, Sam Houston State University

ABC-SWUS Distinguished Paper: *Giving Values a Voice in the Business Communication Classroom*
N. L. Reinsch, Jr., *Lubbock Christian University*

ABIS Distinguished Paper: *The Future of Cloud Computing: Implications for Theory and Practice*
Frida Alcocer-Loredo, Texas Woman's University
Regini Chacko, Texas Woman's University
Mahesh Raisinghani, Texas Woman's University

10:00 a.m. – 10:30 a.m.		Exhibit Hall – St James

FBD Coffee Break

Please attend the poster sessions and visit the exhibits for information on the latest books and newest educational technologies. Let our exhibitors know how much we appreciate their continued support!

Great Door Prize Drawings take place at **10:15 a.m.** in the Exhibit Area. *Must be present to win.*

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 3, 2022
(Thursday)

10:30 a.m. – 11:45 a.m. Canal

SESSION B **Teaching Analytics**

Session Chair: **Mahesh S. Raisinghani,** Texas Woman's University

Evolution of an Undergraduate Business Analytics Program
Robert Mitchell, University of Arkansas at Little Rock

Utilizing Live Class Sessions in an Asynchronous Online Course: The Case of the MBA BI Course
Kimberly L. Merritt, Oklahoma Christian University
K. David Smith, Cameron University

A Transdisciplinary Bridge Program for Teaching Forensic Information System via Analytics, Machine Learning and Bioinfomatics
Joselina Cheng, University of Central Oklahoma
Rhonda Williams, University of Central Oklahoma
Alexia Benson, University of Central Oklahoma

11:45 a.m. – 1:30 p.m. **Lunch on your own**

ABIS Executive Board Meeting and Luncheon by Invitation Only (Location: Port)

1:30 p.m. – 3:00 p.m. Canal

SESSION C **Research in Information Systems**

Session Chair: **Eddie Horton**, Northwestern State University

Why Do People Do That? Coding Self-Reports of Reasons for Multicommunicating
N. L. Reinsch Jr, Lubbock Christian University
Jeanine W. Turner, Georgetown University

Apple's NeuralHash: An Exploration of Security, Public Trust, and Law
Daniel Gordy, Northwestern State University
Eddie Horton, Northwestern State University
Danny Upshaw, Northwestern State University

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 3, 2022
(Thursday)

3:00 p.m. – 3:30 p.m. Exhibit Hall – St James

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3:30 p.m. – 5:00 p.m. Canal

SESSION D **Improving Information Systems Curriculum I**

Session Chair: **Shane Schartz**, Fort Hays State University

The Virtual Career Fair: An Engaging Simulation for Business Communication and Business Information Students
Ashton Mouton, Sam Houston State University
Traci Austin, Sam Houston State University
Danica Schieber, Sam Houston State University

Can Resiliency Be Taught? A Review of a Class Assignment
Carol S. Wright, Stephen F. Austin State University
Kayla Sapkota, Arkansas State University at Beebe

GMetrix: Is there an ROI?
Julie McDonald, Northwestern State University
Mary Beth Fair, Northwestern State University

The Minimalist View: Creating an Information Systems OER Textbook For All
Shane Schartz, Fort Hays State University

5:30 p.m. – 7:00 p.m. Exhibit Hall – St James

FBD Presidential Welcome Reception

You are invited to attend this FBD conference-wide social event. Visit with long-time friends and make new ones as you enjoy light appetizers and a cash bar. Stop by to relax and wind down from the day's conference activities before heading out for the evening. To enter the Exhibit Hall, all persons older than six years of age are required to wear their conference or guest badge. All badges can be obtained from the Registration area during their open hours.

Name Badge Required for Entry

Enjoy your evening in New Orleans!

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 4, 2022
(Friday)

7:30 a.m. – 8:30 a.m.	Camp

ABC–SWUS and ABIS Joint Breakfast

We invite ABC-SWUS and ABIS Associations presenters and members to enjoy breakfast together!

ABC-SWUS or ABIS Association Name Badge Required for Entry

8:30 a.m. – 10:00 a.m.	Canal

SESSION E **ABIS Business Meeting** *** All Members Welcome ***

Session Chair/ABIS President: Eddie Horton, Northwestern State University

All members are invited to join us for our annual business meeting.
The meeting agenda includes:

- Election of Officers and Executive Board positions
- Discussion of topics related to our Journal of Research in Business Information Systems (JRBIS)
- Information and discussion on next year's conference
- General discussion on topics introduced by the membership

10:00 a.m. - 10:30 a.m.	Exhibit Hall – St James

FBD Coffee Break

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CONGRATULATIONS!

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Distinguished Paper Award

Faculty Perceptions of Technology Challenges in a University's 100 Percent Virtual Instruction Environment during a Pandemic

Sherry Rodrigue, *Nicholls State University*

Lori Soule, *Nicholls State University*

Betty Kleen, *Nicholls State University*

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 4, 2022
(Friday)

10:30 a.m. – 12:00 p.m. Canal

SESSION F **Improving Information Systems Curriculum II**

Session Chair: **Sherry Rodrigue,** Northwestern State University

Examining Student Engagement from a Social Network Analysis Perspective
Richard Kumi, University of Arkansas at Little Rock

Students' Successes and Challenges in Compressed Course Formats Compared to Traditional Program Students
Lori Soule, Nicholls State University
Sherry Rodrigue, Nicholls State University
Jennifer White, Nicholls State University
Betty Kleen, Nicholls State University

Using Experiential Learning Strategies to Teach Information Systems and Technology
Douglas G. Darby, Lubbock Christian University

12:00 p.m. – 1:30 p.m. **Lunch on your own**

Enjoy local cuisine in New Orleans!

1:30 p.m. – 3:00 p.m. Joint Session with ABC-SWUS Camp

SESSION G **Innovative and Multidisciplinary Topics I**

Session Chair: **Ronnie Abukhalaf**

COVID Business Interruption Claim Decisions that Could Impact Insurance E-Policy Development
Mary Beth Fair, Esq./MA, Northwestern State University
Carmella Parker, Esq./MBA, Northwestern State University

How Interpersonal Communication Skills could Aid to Overcome the Increased Challenges in an Evolving Remote Work Environment
Matthew Flores, University of the Incarnate Word

Panel Discussion: The Increasing Career Readiness for Accounting, Computer Information Systems, and Finance Majors
Vianka Miranda, Northwestern State University
Ronnie Abukhalaf, Northwestern State University
Melissa Aldredge, Northwestern State University

ASSOCIATION OF BUSINESS INFORMATION SYSTEMS

March 4, 2022
(Friday)

3:00 p.m. - 3:30 p.m.	Exhibit Hall – St James

FBC Coffee Break

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3:30 p.m. - 5:00 p.m.	Joint Session with ABC-SWUS	Camp

SESSION H **Innovative and Multidisciplinary Topics II**

Session Chair: **Carol S. Wright,** Stephen F. Austin State University

Student-Focused Online Learning: What Can COVID Teach Us?
Kristen Brewer Wilson, Eastern Kentucky University

Exposing Business Law Students to Virtual Depositions
Russell Sylvester, Esq., Northwestern State University
Carmella Parker, Esq./MBA, Northwestern State University

Roundtable Discussion: Engaging Students with Assignments in Online Classes
Kayla Sapkota, Arkansas State University at Beebe
Carol S. Wright, Stephen F. Austin State University
Lucia Sigmar, Stephen F. Austin State University
Marice Jackson, Stephen F. Austin State University

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Please make plans to join us in Houston for our 2023 conference.

◆ ◆ ◆

50th Annual Conference
March 8 - 11, 2023
Hyatt Regency Houston, Texas

TABLE OF CONTENTS

(Click on the title below to view the paper)

THE FUTURE OF CLOUD COMPUTING: IMPLICATIONS FOR THEORY AND PRACTICE

Frida Alcocer-Loredo, Texas Woman's University
Regini Chacko, Texas Woman's University
Mahesh Raisinghani, Texas Woman's University, mraisinghani@twu.edu

EXECUTIVE SUMMARY

In 2011, the National Institute for Science & Technology (NIST) brought forth a draft definition of cloud computing, which articulated for service and deployment models. Which then turned into "the main idea [being] that most enterprise applications can run in a time-sharing setup with such bells and whistles as collaboration, reports and guaranteed uptime" (Arnold, 2014). With the many advancements in society, it became clear that large data sets were taxing for new organizations. Despite the differences of knowledge management and cloud computing, organizations saw it as an opportunity to take an offered solution if the outsourcing efficiencies were up to par. Although cloud computing is seen as an advancement, there are notable setbacks that may make an organization, new to the idea, hesitant. According to Trees (2019), "the transition to cloud-based KM has its challenges, including fewer opportunities for customization and the need to reorient users' mindsets." However, this roadblock isn't stopping organizations from evolving and learning about the cloud as they improve on their technological advancements. Likewise, an organization will need to evaluate the effect of quality control and how the development of cloud adoption will affect their organization and data at hand.

As general nature, humans tend to follow the trend of what is the latest known thing to be used at the time. This is no different with cloud computing, as nine out of ten companies have already made this progressive stand. The movement towards cloud adoption is growing over service delivery models and some may have questions over whether or not this movement is right for them and their organization. While the promise and positive attitude is appreciated, is there a lack of knowledge towards this movement? Are organizations just following the trend, if so, what do they need to look out for? Does cloud adoption have a systemic approach for quality control? In this paper we aim to discuss why organizations are moving from knowledge management to cloud computing and how it will affect future innovation.

INTRODUCTION

Knowledge Management is known to originate from the management consulting circle. The thought came when organizations found they needed an in-house group for internet operations. With this group, the organization would be able to make information accessible and disperse it amongst various departments of the organization easily. Soon enough, after much progress in technique and service building the management circle decided to market this new service product to other organizations that had a larger bandwidth. As illustrated in figure 1, these organizations included those that supported applications such as information systems, general management, and public policy so that they are able to map, gather, and filter necessary

information. There are three fundamental processes of knowledge management, which include knowledge acquisition, sharing, and utilization, but because it is not a static process the success lies within cloud computing (Aksoy & Algawiaz, 2014). Based on research, the top reason for an organization's motive behind moving to cloud computing is the opportunity to expand access within their enterprise applications. For example, Microsoft has chosen to opt in operations that consider a hybrid outlet. Below in this image (2019), is an outline of how Microsoft plans to integrate cloud computing into their knowledge management. Although there are many models to consider, Microsoft's is a model that organizations should place value on as it illustrates exactly how an organization should take action and where steps should be inclusive of certain cloud based integration. When making these decisions, it is important to evaluate all aspects and how it may impact certain roles or goals that the organization thrives on. With society moving at a constant high speed, the need for a modern workplace is essential in carrying out actions thoroughly and time effectively. Having this pressure within the IT realm of not only finding a way to do so but making sure that it is cost efficient has been the long part of the journey, but most have come to realize the advantages that cloud computing has to offer. Cloud computing is said to be the more popular option in today's society as it is more cost and time efficient, performance and productivity increased, and secure all while being able to provide service oriented architecture.

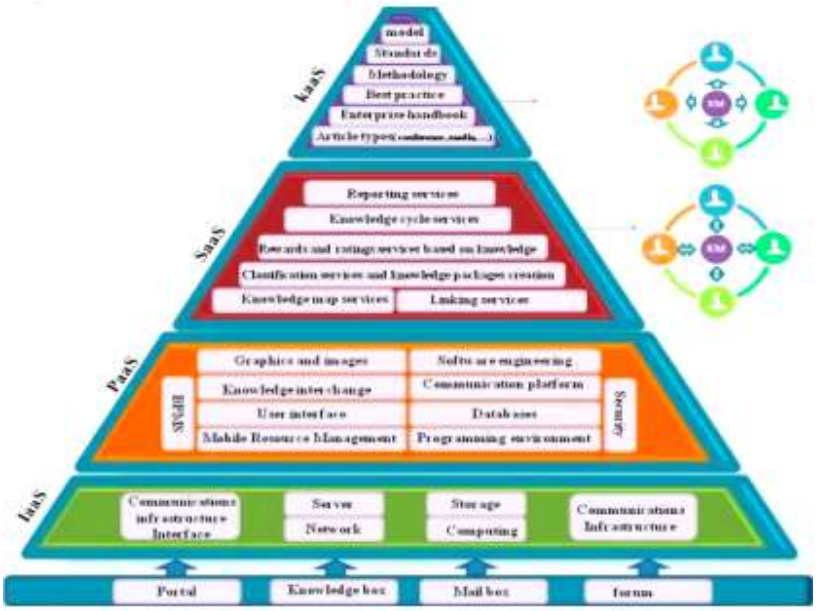

Fig 1-Framework for Cloud Based KM

SERVICE DELIVERY OF CLOUD COMPUTING

With the growing movement of organizations switching from knowledge management to cloud computing, the applications that make it affluent include infrastructure, platform, software and knowledge. These given applications offer an array of benefits and make for this process of cloud computing more efficient when compared to knowledge management. As illustrated in figure 2, when used appropriately, it will benefit the four deployment models of cloud computing: private cloud, public cloud, hybrid cloud and community cloud. According to Daud & Rahman (2017), each cloud has a particular service and priority to its name. For instance, the private cloud is used for data that is needed to be in a controlled space. Public clouds have a slight sway in control but optimizes in efficiency and cost reduction. The hybrid cloud is when two or more clouds are meshed to serve a particular service and lastly the community cloud is used for shared data amongst several organizations. With the proper use and understanding of these applications and clouds, there will be a great reduction in time constraints or vulnerability that an organization may have in relation to knowledge management. To help further reiterate the advancements that cloud computing has to offer, a framework was presented, which can be seen in Figure 1 (Sadeghzadeh et al., 2014). In this particular framework, there is a detailed explanation as to what makes up each layer that is cloud computing and what is expected to come from it. These layers will be further discussed within this paper, as one continues to delve into how cloud computing works and how it will further help with the process of knowledge-based management and quality control amongst organizations. With this knowledge of the various cloud functions, what actually makes up the applications for the software to be groundbreaking?

Infrastructure as a service (IaaS), is the first basic service model that provides cloud computing provisions. Many cloud frameworks that exist are leveled to the basis of private and public clouds. According to Shahzadi et al. (2017), there are cloud platforms that provide IaaS which include, Nimbus, Eucalyptus, OpenNebula, OpenStack, CloudStack, AbiCloud, and XEN Cloud Platform. In their study, they classify that choosing an appropriate IaaS may be difficult if the organization is unaware of the goals they are wanting to achieve, based on their user requirements. This is vital to inquire about across all departments of an organization so that all needs are met across the board. This will not only give everyone the advantage of sharing their opinions and concerns but will also help outline the ideal needs for administration to make a decision on which platform they are to choose. If an organization were to follow this service model, it would eliminate the cost for an infrastructure. Due to IT services having the ability to subscribe to a Cloud Service Provider, it allows them to have the “pay as you go” option. In addition to this, the subscription will be based from a remote location and services can be accessed as needed, based on the turnover time of the organization itself. The organization is then able to utilize servers and networks at any location and desired time. To diversify this there is “a software technology called virtualization which consists of physical resources as servers allow IaaS providers to present clients with affordable and practically unlimited instances of servers”

(Sadeghzadeh et al., 2014). In addition to this option, organizations will also have the alternative to network virtual machines as needed. The use of IaaS will also eliminate the need for any physical IT resources as organizations will be able to ameliorate their application versions without assistance.

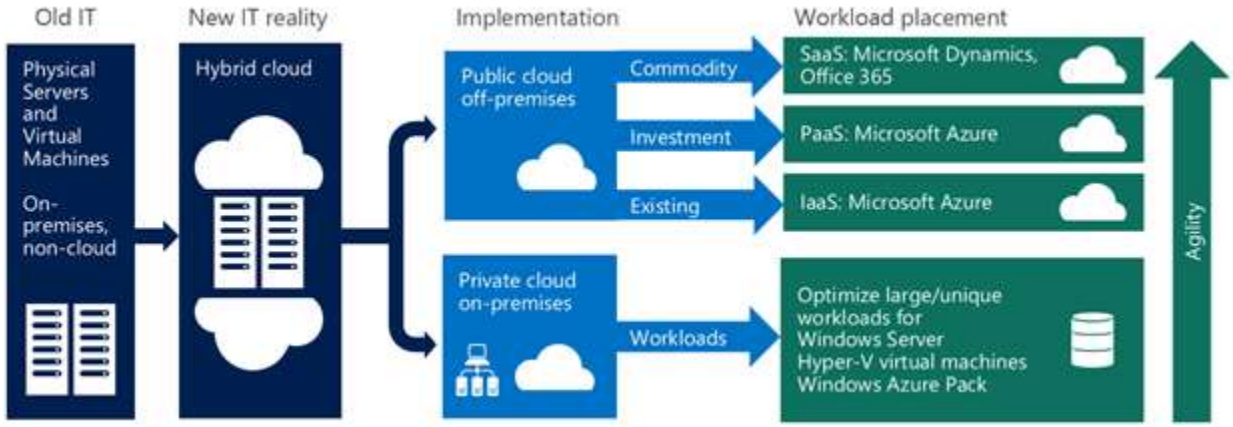

Figure 2: Cloud computing deployment models

Platform as a Service (PaaS), serves as the next service model that is used to develop customer-created software applications. The PaaS has three stakeholders, the host who provides adequate resources to meet the customer demands, the provider who provides a suitable environment to build applications and the user who needs to be in the accessible range of a browser to seamlessly deploy the applications. In addition to this, the service is done by using tools that are managed within the cloud and able to be utilized with a browser. Sadeghzadeh et al. (2014) states that "this layer is placed on the infrastructure layer's virtual machines." Since the organization will have the foundation of an IaaS layer, they will be able to maintain and develop these web applications they are curating, with little to no particular competence. With the potential to customize applications, it is imperative that the needs of the organization or goal of a project are defined prior to creation, so that the solution can meet. Although customization can be altered after implementation, it will minimize any prolonged disruptions or delays if the organization is prepared. As preparation is taking place, it is also ideal that the organization is aware of any upfront costs so that they are able to identify where the help is needed, if they are able to handle certain aspects of implementation, and where the vendor will need to take over. In turn, this will increase the flow of information so that all stones are left unturned. Additionally, "the improved information flow enables deeper insights and a more comprehensive overview for decision makers (Gower, 2019). This will allow for less time constraints and loopholes that the organization may have faced prior to using a PaaS application. Kulkarni, Khatawkar, and Gambhir (2011) resonate on the idea that for an organization to fully benefit this models' capabilities, staff developers have to adapt their applications in such a way that they are able to react to outside changes and diversions. This may essentially lead to the developer using IaaS and PaaS services from within the application. All in all, PaaS applications have a typical usage towards

services such as startups, projects with elevated deadlines, or organizations and projects that have a small expenditure limit.

Software as a Service (SaaS), is the service model that will change the way individuals build, obtain, and use the software. This service model has the upper hand in having a service oriented architecture, which enables software applications to communicate with one another. In the early attempts of this service model there is a notable difference in how users' experience has drastically changed. In the past, the model was aligned to traditional applications with some functionality of SaaS applications and the ability to share data with other applications were limited. However, "today, SaaS applications are expected to take advantage of the benefits of centralization through a single instance, multi-tenant architecture, and to provide a feature rich experience competitive with comparable on-premise applications" (Kulkarni,et al., 2012). This service in particular makes a defining movement in being able to transfer the control from the client domain to the service provider and that there is an economic incentive as well. SaaS is a recurring subscription model that is delivered in the option of "pay as you go" and the infrastructure is able to deliver one application to a variety of users, regardless of their true location. Since the SaaS model is delivered in such a way, the customer does not need to worry about installation of the software to servers, instead they are able to complete all necessary functions needed through the aptitudes of the developer, which in turn saves the organization cost expenditure. Due to the model having a large priority to supporting user demands at all hours of the day, it has been given the functionality to process a series of transactions in a secure environment (Kondraju, 2014). Applications within this service are ones that are no longer needed to be developed and are cloud based. As mentioned, there are a vast number of opportunities that come along with the use of SaaS. After thinking of the financial and infrastructure standpoints for an organization, how much more can SaaS do? The service has the opportunity to help with the speed of deployment, reduce burden and increase scalability. Deployment is increased due to the advantage of users being able to obtain access quicker to meet their technical needs, than having to wait for an infrastructure to be produced first for this to occur. Instructors are now able to receive approval in less than one day and begin courses that are taught at an 8-9 week speed, in consideration of new technological advances. However, with this new acceleration users are more up to date with advances that are being made and able to do so in a thorough fashion. As for the decrease in burden, since the service allows for low commitment, there is a low demand on technological resources or for an IT department all together. In the event that an organization has older computers for use, hardware upgrades are not seen necessary since SaaS can be used with compatible browsers. Lastly, scalability can be easily altered as needed for the organization. In the past, there would be a period of time needed specifically for license procurement and technical staff to integrate the software, but with SaaS being operated centrally these adjustments can be made instantly. With this quick turnaround it allows for more focus on productivity levels. In this model, the "focus is on sharing, processing, and classifying knowledge along with employee assessment based on cloud technology" (Sadeghzadeh et al., 2014).

Knowledge as a Service (KaaS), is the last service model that is prioritized to access very specific knowledge at any given time. Within this service model, cloud computing is used as a tool to secure and evaluate core competency. By adopting this service, it will further reduce the need for an in-house team and eliminate the possibility for human error. Leading into the idea and value of risk management. For an organization to be able to utilize their given knowledge and rely on risk management, is a vital aspect of keeping an organization whole. Fortunately, "KaaS is a combination of knowledge based processes and organizational systems which enable knowledge management at organizational level" (Sadeghzadeh et al., 2014). There is a prime focus on how an organization can use the knowledge that they already have and where they can improve or benefit from information that is efficient or required. If an organization is worried about knowledge overload, there is no need because this service model provides for quick access to information in a timely manner that is also in relation to, or considerate to, past experience as well. As stated by Barreto et al. (2018), KaaS architecture is made of three components, which are Data Owners who are responsible for documenting data from their daily transactions and protecting such information, Knowledge Service Providers who centralize knowledge through an algorithm based server, and Knowledge Consumers who use the said applications to help with their decision-making processes. In addition to this, Sadeghzadeh and team conducted interviews with senior managers, which "concluded that customer experience analysis, knowledge-rich articles research, various multimedia, workflow assessment, events analysis, risk management, environment analysis, costs management, successful business model analysis, business cycles analysis, utilization of successful business managers experiences, and applied business intelligence are some of the most significant issues in KaaS concept" (Sadeghzadeh et al., 2014). All in all, KaaS will be beneficial to an organization as it will help eliminate the issue of repetitive behavior or more room for error. These advancements in technology for an organization is ideal in order to reach optimal results and success for growth.

HOW HAS CLOUD COMPUTING IMPROVED KNOWLEDGE MANAGEMENT?

It is important for organizations to be able to obtain valuable information from senior management and employees before they retire or leave the organization. This is done so that values of an organization can be upheld or so that knowledge of past information can help in reform for an organization. Cloud computing supports knowledge management with technology and enables organizations to overcome challenges. It is more likely that by using cloud computing, knowledge management systems would be able to overcome security hurdles (Aksoy & Algawiaz, 2014).

Emerging technologies such as cloud computing have aided organizations, especially small and medium enterprises by reducing the costs of setup and maintenance fees. Cloud computing is not only convenient, but offers on demand self-service, the ability to share IT resources, rapid elasticity ability and a model subscription of "pay-as-you- go." New practices may emerge when knowledge management is combined with cloud computing. It raises the opportunity for organizations to discover and apply new business models and the ability to exchange

and share information throughout the organization (Rafiq, Bashar, & Shaikh, 2014). Having the ability to do so, will increase the value that cloud adoption brings to an organization and its employees.

Compatibility is achieved due to cloud computing having features that facilitates the use and understanding of using it. Users are able to retrieve data and information from any wireless device or personal computer as they please when cloud computing is applied to knowledge management (Daud & Rahman, 2017). This mobility increases convenience and decreases the amount of time wasted if the knowledge management data would only be accessible through a single office computer and the accessible applications that can be shared.

The cloud environment does invite a degree of risk due to sharing resources and information through applications and systems managed by third party vendors. The risk of data leakage would be minimized if the organization would utilize their own servers and resources instead of relying on cloud computing for knowledge management. If the organization relies heavily on cloud computing, then there is a risk of job risk for employees within the IT department. There would be a fewer need for the personnel to go over the maintenance, technological deployment, application development and infrastructure management. Hence, causing low morale and commitment of the IT personnel remaining (Aksoy & Algawiaz, 2014). Although there is this downside to not having in-house staff members, it would also bring the advantage of decrease of cost. If managed appropriately and the organizational leaders attend the intended training sessions before and during adoption, the organization will know how to fulfill any concerns that they may come across.

Depending on the cloud computing vendor the organization uses, the vendor may be a relatively new company compared to the established organization or compatibility within systems may not be achieved. The projected profitability and longevity of cloud computing may potentially be questionable. There may be an operational interruption during the transition of traditional knowledge management systems to cloud computing causing additional time needed to implement, thus increasing expenses (Aksoy & Algawiaz, 2014).

A research project done by APQC surveyed 300+ professionals involved with using the cloud for their knowledge management stated there were different reasons why they changed their strategy. Most advised the reason why the change to the cloud was due to being able to access the data “from anywhere on any device.” Which in turn, refers back to the service models that cloud computing offers. With the help of the models, there is the increased activity of accessibility from any location and platform. The first model in particular, IaaS will be the most helpful in this case, as it primarily functions with no given infrastructure. The service model would have to help the customer become knowledgeable on accessing information accurately and efficiently. Knowing that one has access to organizational information and applications at their fingertips, from any given location, changes everything that an employee or customer has to offer in terms of reaching success, milestones, benchmarks or goals that the department or organization is wanting to obtain. Organizations will be able to administer and reach success at a quicker rate. As illustrated in figure 3, other

reasons included reduction of costs, improved information visibility and the sharing of the information, the flexibility to add storage, apps and features when needed, and ultimately to provide better real-time collaboration capabilities (Trees, 2019).

The ability of the cloud platform to reduce costs by not having to purchase high-price software licenses, on-site cost of employees and uncertain upgrade costs make the cloud highly appealing, but it is not the number one reason these professionals made the switch to cloud. The main reason professionals migrate knowledge management to the cloud is the ability to access the data from different devices and the ability to expand access to business applications (Trees, 2019).

Figure 3: Key objectives for moving content and collaboration to the cloud

In regard to the improved information visibility, the cloud allows for greater avoidance of silos, but only if the organization has well-established cross-company partnerships and modernizes or reorganizes security accesses and data allocation (Trees, 2019). Real-time collaboration capabilities will work with the benefits of the cloud, if the infrastructure of the organization allows it. The organization's culture has a lot to do with the success of the implementation of technological changes within the company. The organization personnel have to have the ability to collaborate with each other for the migration of knowledge management on the cloud to be able to be effective.

IT and KM professionals are in more need than ever before for greater agility and the flexibility to add storage, apps and features. These leaders want to be able to have the flexibility and swift ability to act and make any necessary changes when technological advances and innovations come up. With the advancements of IT in this ever growing industry, the need for cloud adoption is evident and real. The potential that IT and KM professionals hold with this adoption,

will change all decision making processes and the duration as well.

IT relies on modern technology and best practices within the industry. Industry-standard methodologies would consider moving to the cloud as a best practice approach to handling knowledge management. Agility would be allowed by promoting and facilitating knowledge management through the cloud. If the IT department wants to improve their overall organizational performance, they would highly consider the cloud to close any gaps in their knowledge management. Cloud computing is defined by the National Institute of Standards and Technology as on-demand self-service, broad network access, rapid elasticity, measurable service, and resource pooling (Orr, n.d).

The cloud is able to improve knowledge management, thus improving demand management, capital, operational cost management and customer satisfaction overall. On top of that, software development and testing on any potential risk management and sudden changes in the industry due to technology advancements can assist with the agility to recover quickly, improve training and personnel development. In order for the organization to have a competitive advantage over its competitors, it must be able to have a clear understanding of their value network. Unison and collaboration between their personnel, partners, processes, and technology would only empower the usage of cloud computing to achieve their business goals and strategies.

The usage of cloud computing fosters an environment of overall cohesion and unity. It creates a trusting and collaborative medium where it benefits the overall supply chain integration (Daud & Rahman, 2017). In order to handle the data better in the knowledge management system, the organization will fare better if the data is able to be looked up quicker and establish stronger access approaches. The cloud will help with deploying solutions faster, maintaining knowledge with ease, web services will connect technology quicker, and will merge the digital and human capital channels (Simone, 2018).

As illustrated in figure 4, organizations still have reservations about moving knowledge management to the cloud. One of the main concerns is moving sensitive and confidential information over virtually. Theft of intellectual property is highly possible, for this reason organizations should do their due diligence when evaluating and accessing security reviews of vendors when selecting a cloud web service. The terms and conditions on the contract should also be reviewed carefully because the vendor may later be able to claim confidential information.

Compliance violations such as violating certain government violations could occur when all staff share the same cloud base web service. This can lead to loss of control over confidential data. An example of this, could be a former employee may steal sensitive information and share it with competitors. The conversion of data exfiltration techniques from attackers could encode confidential information into video files such as video-sharing platforms like YouTube. Knowledge management systems that have certain authorization requirements have to be considered when selecting a cloud vendor due to an unauthorized employee inputting restricted data into the cloud. Cloud Industry Forum alleges that regardless of the data security concerns,

99% of cloud based knowledge management system users have not experienced any breaches (Batia, 2016).

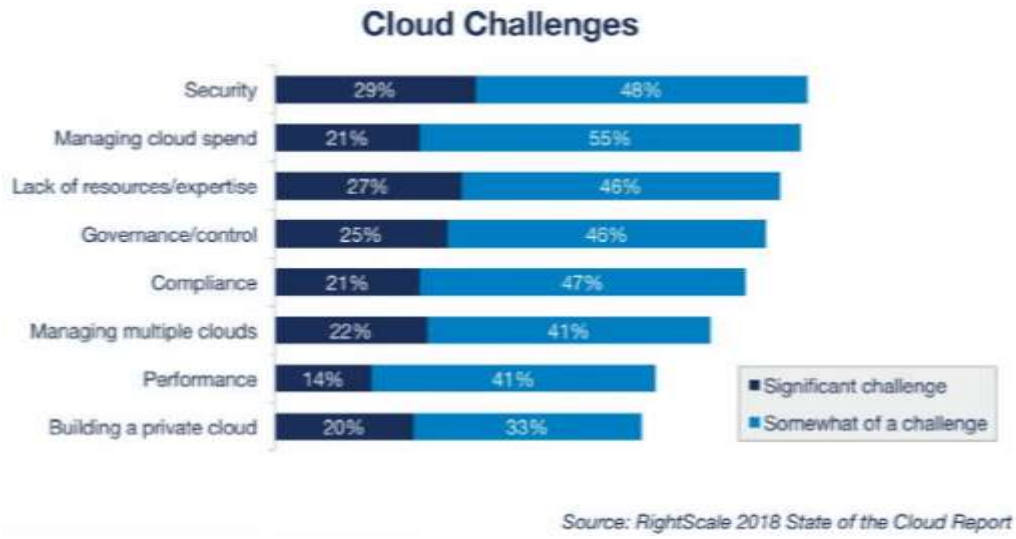

Figure 4: Challenges of Cloud Computing

Some organizations will find the need to manage more than one cloud, combining public and private clouds. Enterprises could find themselves lagging behind cloud technologies advances due to lack of resources and expertise, yet depending heavily on cloud computing. Investing in training of IT professionals could ease the workload dependency on the cloud. If an organization is considering building a private cloud to have all data in-house, it may take a large amount of time invested to achieve this (Durcevic, 2020).

QUALITY CONTROL

Lean six sigma is a method used to improve a process and prevent or minimize errors as much as possible. The process reviews the complexity of any issues from a customer's standpoint and then evaluates the data to identify the main issue the organization is facing. Companies skilled in quality improvement practices outperform their competitors in profitability and overall growth (Powers, 2014). Knowledge management can be improved through cloud computing by leveraging the use of six sigma. Through cloud computing, six sigma will grant the organization to track, analyze, detect and adjust any results more efficiently (2018).

Cloud computing supports security and quality control by providing a space to back up data. The cloud provides additional transparency and control which is favorable to organizations that work with eco-friendly products. Quality control combined with the cloud allows big enterprises as well as small and medium organizations to handle knowledge management efficiently and effectively while saving costs. The end effect would be the consumer benefitting from the quality of the organization's knowledge management which produces better, safer and superb products and services (Arsene, 2020).

Cloud computing is able to help with quality control because it will be able to handle knowledge management more efficiently. This will be able to improve productivity because the processes and procedures will be able to achieve steady and exceptional results. The cloud helps with quality control when it deals with security measures by protecting the digital safety of the organization's assets.

The cloud is able to secure and protect data by not granting access to personnel not authorized to handle certain information. This will secure access to such data and not compromise delicate information. The way that quality control can be enabled by cloud computing is the cloud will use different methods to secure data that would not be possible with just using a network or single server. The cloud would allow for greater security and hackers would have a harder time accessing the organization's data and information.

Quality control with the cloud would have the capability to back up data, garnering greater security. Quality control and assurance makes sure that the product or service that the organization offers does not produce or at the very least minimizes the likelihood of producing unsafe, expired or outdated nor ineffective products or services. Having good quality control helps protect and keep the customer in the long run and keep customers safe (Arsene, 2020).

With cloud computing, easier scalability is possible. If the company is growing rapidly, then cloud computing makes it more accessible to quickly scale up the capacity to work with more extensive data. Another advantage with cloud computing is that if any scale-down is needed then it is possible to do so as well. The storage and control of the knowledge management system benefits from cloud computing because it allows for personnel to have a better hold on the data, storing information and overall security of the knowledge management. Any sort of filing needed would not really be needed for storage since information would be stored in the cloud. This would reduce any potential human errors and increase accuracy. It causes a reduction in the carbon footprint because with the cloud, as stated earlier, consumption on any files or paper is greatly reduced. The ability to scale up and down on the cloud also reduces the amount of energy used for the knowledge management process (Outsource to India, (n.d.).

A research carried out by Infosys on the parameters of the cloud such as business risk, business value, relative simplicity and cloud technology maturity for cloud adoption based its analysis on the cloud as a software, platform and infrastructure. It compared SaaS on the areas of collaboration, enterprise applications, business and industry applications, PaaS on web 2.0 applications, databases, and middleware and lastly IaaS on QA/DEV environments, storage, servers, networks and production custom applications. Table 1 compares and rates the cloud type against each parameter evaluated. Organizations run a high business risk migrating live applications to the cloud, but they can minimize the risk when adapting the cloud with quality assurance (QA) environments (Naganathan, 2012).

	Typical Cloud Use Cases	Risk	Business Value	Relative Simplicity	Cloud Tech Maturity	Overall
SaaS	Collaboration	M	M	M	H	M
	Enterprise Applications	M	H	L	M	M
	Business / Industry Applications	M	H	L	M	M
PaaS	Web 2.0 Applications	L	M	H	H	M
	Databases	M	M	L	H	L
	Middleware	L	M	L	M	L
	QA/DEV Environments	L	H	H	H	H
IaaS	Storage, Servers, Networks	M	M	M	H	M
	Production Custom Applications	H	M	L	L	L

Table 1: The use case evaluation for cloud adoption

Business value benefits from the SaaS platform for its ability to be a market ready solution with a short turnaround time. The organization gains with SaaS when used in cloud form for their QA environment usage due to an increase in asset utilization, reduced proliferation, increased serviceability and agility. Cloud adoption for QA environments in SaaS and PaaS assists with greater ease of implementation of secure authentication and secure policy enforcement. Vendors such as SalesForce CRM (SaaS), Windows Azure (PaaS), Amazon EC2 (IaaS) proves the maturity of cloud technology. Among all the parameters, adopting the cloud in QA/Dev environment had the advantages of increased asset utilization, reduced proliferation, increased agility in service delivery and quicker release cycle times (Naganathan, 2012).

The benefits delivered by cloud-based QA environments are the dynamic and scalable provisioning, reducing implementation from months to just a few minutes. This enables organizations to deliver high quality services. It also assists organizations in focusing less on procurement operations and more on core areas. Greater productivity is carried out with shorter life cycles for application development and testing, reducing time to market a product or service. QA environments in cloud adaptation will allow for greater environment control by reducing the amount of servers and applications used. Projects are able to be consolidated into a single channel. Total cost of ownership is reduced, and resource utilization is improved with cloud-based QA environments. The reduced costs of hardware and software licenses by using cloud computing allows for cost savings of about 50% on IT support expenses (Naganathan, 2012).

CONCLUSION AND IMPLICATIONS FOR THEORY AND PRACTICE

Cloud computing is the forefront of the technological revolution. With its advances, organizations are able to make an immense amount of change in their level of productivity, shareability, and overall security of their information. The switch from knowledge management to cloud

computing is ever growing and organizations will need to learn the capabilities that it has to offer. Although there is a decrease in job availability due to the technological advancement of cloud computing and some fear of if the service will be able to hold up a large duty of an organization's information. It should be heavily noted that the service is well thought out and filled with skilled professionals in relation to training and servicing any concerns the customer may have.

In addition, this is all achieved through the three service models that cloud computing is made up of, Infrastructure as a Service, Platform as a Service, Software as a Service and Knowledge as a Service. The service of these four models is what makes the move to cloud computing that much more exciting and inviting, because there are intriguing pulls behind each. With the running knowledge of knowing that there is an incentive with each service, an organization has no worry when it comes to having to prioritize a buildout, taking a hit in revenue, creating their own applications based on personal preference, or being on knowledge overload. The models cater to the customer's needs and carries out the daily functions of those that are actively using them. Even though each model has its own function, it is important to understand as to how they flow into each other and fill any gaps that the other may have, in order to be a success.

There are a variety of reasons why organizations should move knowledge management to the cloud. The main benefit of moving knowledge management to the cloud is the decrease in time business leaders will need to find and access information. The ability to login into any device from any location to access the information through the cloud offers flexibility and accommodates personnel, which increases productivity. Using cloud for knowledge management allows organizations to have a greater likelihood of compatible system integration among customers, suppliers and business partners within the supply chain. New developments within the personnel and projects are able to be facilitated and created within the cloud with much more ease and due to the cloud being web-based, cost is greatly reduced.

However, with certain benefits, also comes certain challenges when handling knowledge management within the cloud. Although data security may be guaranteed with the cloud, there also is a risk that because the cloud is a web base service offered by a third party vendor, chances of data breach are higher. If the vendor has any issues with the cloud base service it may interrupt business processes, especially causing major disruption at inconvenient times. The potential lack of reliability could be a threat to business operations. Even though cost should be reduced by using the cloud, for small and medium enterprises having to purchase licenses for this service could be costly, especially if their operations are not compatible with the vendor of the cloud service. When the organization decides to move knowledge management to the cloud, they will be reducing the cost of IT personnel, set up and maintenance fees which produces job risk for the organization's employees, ultimately affecting morale.

Another way that organizations are able to reduce their costs is through quality control. Knowledge management is improved through cloud computing when six sigma methodology is used. Cloud computing merged with knowledge management will

allow the organization to keep better track, detect, adjust and analyze any results more efficiently. Security can also be more accomplished due to the cloud being able to store and back up information. Six sigma will cause better productivity and efficiency for the organization and improve overall knowledge management. The organization's products and services will be able to serve customers more effectively. Using six sigma methods for knowledge management through the cloud reduces errors in general and produces greater end results. There is a greater lead way for accuracy of data and information when six sigma is involved.

Ideally, organizations will need to heavily evaluate the possible adoption of cloud computing and all of the many aspects that are entailed within it. Without doing so, can be detrimental to an organization and their goals as a whole. Through the points that this paper highlights upon, there should be a clear understanding on where an organization should begin in the evaluation process and what determinants will come into play.

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GMetrix: IS THERE AN ROI?

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INTRODUCTION

As the cost to attend college continues to be ever-increasing, faculty are often tasked with finding ways to help reduce expenses allocated to students. The School of Business (SOB) at a regional, four-year public university in Louisiana offers AACSB accredited programs in Accounting, Business Administration, and Computer Information Systems. A large cross-section of the students that attend this university are economically disadvantaged. In recent years, encouraged by students, higher education administrators, and government officials, the SOB faculty has been seeking ways to address rising costs across the university without causing the students to be without needed materials.

The SOB has also been investigating means to help their students earn degrees by eliminating obstacles that may lengthen the time-to-graduation. Books and fees continue to be one of the greatest financial roadblocks to graduation that fall directly on their students themselves each semester. This study examines whether the additional cost associated with a test preparation tool, GMetrix, provides a return on investment for students in the SOB's introductory computer applications class, BUAD 1800 - Introduction to Information Technology (Stauffer, 2021). At the conclusion of this course, students are required to take the Microsoft Office Specialist (MOS) Certification Exam for Word 2019.

For the purposes of this study, a return on investment would indicate the students successfully passing the MOS exam after using GMetrix with a passing score of 700 out of a possible 1000.

PROBLEM

With the increasing costs of attending college, is the additional expense of the test preparation tool GMetrix worth the investment for SOB students? Does using this tool increase the likelihood that the student will pass the Microsoft Office Specialist (MOS) Certification Exam for Word 2019?

The purpose of this study was to try to answer these and other related questions by altering the time of delivery of the GMetrix product to two classes of BUAD 1800 - Introduction to Introduction Technology students. All students completed the course assignments offered through the "Exploring Series" of *MyLabIT* from Pearson Education, but the MOS exam was administered to one of those classes before they had the opportunity to use the GMetrix test prep. Objectives of the study were: (1) to gather and report information about the students' scores on the MOS exam with and without the use of GMetrix, and (2) to compare those students' retake scores with their first score once they have received the GMetrix training, and finally, (3) to determine if the faculty should continue requiring the purchase of the GMetrix tool.

Background

In 2015, the institution's faculty implemented a requirement that all students taking the BUAD 1800 - Introduction to Information Technology class be given the Microsoft Office Specialist (MOS) certification exam for Word as the final exam in the course. Though passing the exam was not mandatory, taking the exam was required. This class was specifically tailored to prepare students for taking the certification exam at the end of the semester and implemented the use of the GMetrix test preparation tool to help them be successful in obtaining a passing score of 700.

The way students have purchased the GMetrix test preparation tool has changed since it became needed for BUAD 1800. Originally, faculty required students to buy GMetrix themselves as a single license or a suite at the cost of $40 - $120. As of Fall 2017, students paid a lab fee of $120.00 that incorporated the cost of both the certification voucher and the GMetrix license.

In response to the voiced concerns about the prohibitive materials costs, the department invested in a GMetrix site license. In doing so, the departmental faculty incorporated the cost of GMetrix into the course fees. Thus, the costs for each student in the class is currently $228.25 of which approximately $40 is the GMetrix license. The cost of the course led investigators to question if these added fees were worth the potential increase in student success.

Industry partners and employers have expressed interest in certifications, including the Microsoft Word certification, for graduates of the university's business program. The BUAD 1800 course is the first certification class taken by students in the program. The SOB faculty also sought to validate whether the students were learning the needed skills to pass the MOS Word certification exam using the test prep tool GMetrix.

Business and industry have made certification an important qualification for employment, where often an employee is required to have a certification at the time of hire, or employees must obtain certification upon hire (Schlichting & Mason, 2004). IT hiring managers have used certification as a differentiator between job candidates with similar levels of experience, and salary surveys have shown that certified employees are compensated at a higher salary than non-certified employees are compensated (Hunsinger & Smith, 2008).

A need exists for certified Information Technology professionals in the workplace. As the university prepares students for employment in areas requiring certifications, it is increasingly important for those educational institutes to provide adequate and effective training through the course work offered.

This study focused on recent high school graduates who entered a regional public university as freshmen in the Fall 2021 semester. This study was an attempt by SOB faculty to help reduce the cost of the introductory computer applications course in the curriculum - BUAD 1800 - Introduction to Information Technology. This effort focused on whether requiring students to purchase a GMetrix code is a necessary expense to ensure passage of a MOS Word certification exam.

This study will help us determine whether the cost of the GMetrix Prep tool is

providing a good Return on Investment (ROI) in the form of more success with the students passing the MOS Word certification exam.

Instrument

The instruments used for the study were the GMetrix test preparation tool and the Microsoft Office Specialist Word certification exam, offered through Certiport. A short Google form survey was also created to gather basic demographic information about each student. A copy of the survey used for the study can be provided upon request.

Population

The accessible population was 59 students enrolled in two face-to-face sections of the introductory computer applications course BUAD 1800 during the Fall 2021 semester. Of the 59 enrolled students, a total of 52 were given the final MOS Word certification exam. Of those, 51 or 98% graduated high school in the Spring of 2021. The other 1 student graduated in 2020. Seven students did not complete the course.

The students were enrolled in two sections of BUAD 1800 for the Fall semester of 2021. Classroom A (Section 02) was used as the control group. The data for 25 students in this section was examined. Classroom B (Section 03) was used as the experimental section. Twenty-seven students in this section were given the exam twice - once before GMetrix and once after. The data for these students was extracted for comparison purposes to conduct this study. The students that did not complete the final MOS exam were not included.

METHODOLOGY AND DATA ANALYSIS

During the Fall of 2021 those university students enrolled in the university's School of Business freshmen Introduction to Information Technology course (BUAD 1800), sections 02 and 03, were analyzed.

In this exploratory study, the data was collected by the instructor of the two courses. Students in two face-to-face BUAD 1800 courses were instructed by the same instructor through the first six chapters of the *Microsoft Office 365 Comprehensive Word 2019 Exploring Series* by Poatsy. The book is published by Pearson Education. The students used the *MyLabIT* learning program associated with the textbook. The study was conducted during the Fall 2021 semester.

After approximated 10 weeks of instruction students in Classroom B (Section 03) were given the MOS exam in class during a regular class period. These students had only completed assignments from the textbook and simulation tool. Scores were recorded on the MOS Word 2019 exam. The students were then given the GMetrix codes and assigned five practice exams. They were then retested during the last week of the semester.

Students in Classroom A (section 02) completed 10 weeks of instruction and were given the access codes for GMetrix. They were not tested until they completed five practice GMetrix exams. Testing was completed during the last week of the semester. Some demographic data was also collected. The scores were downloaded into an Excel spreadsheet for analysis. For this exploratory study, we reported the findings using descriptive statistics in the form of

bullet points. Some demographic data was also reported.

Students in both sections also completed a short Google form survey about their history with this type of course and past Word certification exams. Data was analyzed to answer the specific questions of this study.

Findings

Classroom A (section 02) students completed all assignments from the textbook after approximately ten (10) weeks of class. These students were presented with the codes for GMetrix and were instructed in how to complete the exams. Five exams were assigned. Students were given the MOS Word certification exam during the last week of the course. This exam counted at the final for the course. Thirty (30) students were enrolled in this section. Twenty-five (25) students took the final exam, while five (5) students did not take the final exam or use the GMetrix code provided. Overall, this section of students had a lower final grade average than the students in Classroom B, indicating that they were overall academically a weaker class.

Overall results from Classroom A, were as follows:

- 25 students took the final exam during the last week of class - after they had been given the opportunity to complete the 5 practice exams on GMetrix
- 16 (64%) of the students passed the exam with a score of 700 or better
- 9 (36%) of the students did not pass the exam with a score of 700 or more
- Of the 9 students who did not pass the exam, a further look at the data revealed that 6 of the 9 did not attempt the GMetrix assignments. The other 3 only partially completed the assigned exams.
- 100% of the students that passed the MOS word exam did complete the GMetrix assignments.
- Overall average for the class for the final exam was 660
- Average score for those passing the exam was 804
- Average score for those failing the exam was 372
- Highest score was 914
- Lowest score was 166
- Overall class final grade average was 69%

Classroom B (section 03) students completed all work from the textbook at approximately the same time as the students in Classroom A. However, on the day the students in Classroom A received their GMetrix codes, the students in Classroom B were given the MOS exam. The students had no prior knowledge that they would be tested and only the students present on that day were given the MOS exam. Scores were recorded. The students scoring over 900 were not required to complete the GMetrix assignment and their first MOS score was used as their final. Students scoring 899 and below had to complete the GMetrix homework and retake the MOS exam.

Overall results from Classroom B from the first attempt were as follows:

- 22 students were present on the day of the first MOS exam. Six students were absent on that first test day.
- Of the 22 students attempting the MOS exam before the GMetrix exercises 15 (68%) did pass the exam with a score of 700 or better. Two students scored over 900 and were then exempt from having to

complete GMetrix exams. Seven students (32%) scored below 700.

- The overall average score for this first attempt was 683.5
- The average score for the students passing was 793
- The average score for the students failing the first attempt was 450

Overall results from Classroom B from the second attempt are as follows:

- 27 students received final grades in this course
- 24 students tested on the second attempt day. The second attempt was given after the students were allowed the opportunity to complete 5 practice exams in GMetrix.
- 3 students elected to use their first attempt as their final grade for the MOS exam and did not attempt a retest.
- The overall average score for the final attempt was 760
- 19 students passed the second attempt with an average score of 814
- 5 students failed the second attempt with an average score of 411
- 3 of the 5 students that failed the second attempt did not complete any of the GMetrix assignments.
- Highest score was 914
- Lowest score was 266
- The average for the exam increased from 683.5 to 760. There was a 36% increase in test scores when comparing first attempt to second attempt.
- Overall class final grade average was 85%

General information

- Even though 15 students did pass the exam on the first day, without the aid of GMetrix, there was a 36% increase in scores when those students retested.
- Six of the students in Classroom B already had MOS certification in Word 2013 or 2016.
- Seven of the students in Classroom A already had MOS certification in Word 2013 or 2016.

CONCLUSIONS

Based on the results of this exploratory study, a difference does exist between the first score on the MOS exam and the second score on the MOS exam for classroom B. However, other causes, such as pre-existing academic success and prior instruction through high school courses, cannot be excluded as the cause for higher scores on the MOS exam. A positive return on investment does seem to be indicated for the usefulness of the GMetrix exam in increasing scores on the MOS exam, but it is not conclusive. If only looking at the increase in test percentage, then a 36% return on investment looks good, and a reason to continue with the required GMetrix purchase for students.

IMPLICATIONS FOR FUTURE RESEARCH

Given the results indicating some support for the expense of the GMetrix exams, but a lack of a clear answer, a need for additional research is apparent. Researchers will conduct additional experiments comparing students who took the MOS Word Certification exam without GMetrix practice exams with students who take the exam after they have completed the assignments using the GMetrix test prep tool. It is hoped that

two more similar populations could be found to repeat the experiment. The two sample classes used in this exploratory study were not as similar as one would like for them to be.

Since one of the two groups will have had "practice" taking the exam, researchers would need to work out the ethical concerns of excluding a group of students from a practice material. The ability to conduct a true experimental study with a control group and an experimental group would provide Since one of the two groups will have had "practice" taking the exam, researchers would need to work out the ethical concerns of excluding a group of students from a practice material. The ability to conduct a true experimental study with a control group and an experimental group would provide additional clarity to the research questions in this study. Given these internal ethical concerns, one avenue of future research may be to compare the results with other universities who require the MOS exam, but do not require GMetrix.

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EXAMINING STUDENT ENGAGEMENT FROM A SOCIAL NETWORK ANALYSIS PERSPECTIVE

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ABSTRACT

Evidence in the extant literature indicate that student engagement is an important indicator of student performance and positive learning experience. This proposed study will use social network analysis to examine student engagement. Many online courses rely on discussion forums to engage students, and these forums generate structural ties among students. Student engagement is reflected in the patterns, intensity, and frequency of these structural ties. Analyzing and visualizing these structural ties using social network analysis can yield insights into student engagement and how it can influence learning outcomes. Furthermore, using insights from social network analysis, instructors can use these forums more effectively to facilitate student engagement and improve learning outcomes.

INTRODUCTION AND BACKGROUND

Evidence in prior studies suggest that student engagement can influence learning outcomes. With the increasing popularity of online courses, student engagement is becoming more important in the delivery of courses (Koranteng et al., 2019; Croxton, 2014). Prior studies suggest that engaged students perform better academically and have positive learning experience than disengaged students (Russo, T., Koesten, J., 2005).

However, measuring engagement is challenging because it is difficult to precisely gauge student engagement, especially in online classes. Prior studies have used summary statistics derived from assessment to measure engagement. These measures, often related to grades, do not accurately capture the social dimensions of student engagement.

This study relies on social network analysis (SNA)to uncover the structures and relations underlying discussion forums in online classes and explain how these relations can inform instructors and instructional designers on how to better engage students in online classes to improve learning outcomes.

RESEARCH QUESTION

The study examines relations among students in a discussion forum. In an online class discussion forum, student post comments and respond to comments by their peers. With limited instructor involvement, these forums can generate substantial amount of content and communication and influence learning outcomes (Gaggioli et al., 2013).

Using summary statistics to evaluate student engagement in discussion forums fails to capture the social and structural dimensions underlying discussion forums and student engagement. Network visualization tools are much better in exploring the communication

relations among students in a discussion forum than summary statistics of activities.

Thus, the goal of this study is to use SNA and examine these social relations and structures and investigate how they can improve learning outcomes. To accomplish these goals, this study relies on SNA to examine and explore the underlying social structure in discussion forum in an online class to identify patterns and trends of communications relations can provides instructors and course designers insights into student engagement. Hence, the study examines 2 research questions.

1. How can SNA uncover the communication structure and relations in discussion forums?

2. How those structures and relations inform student engagement strategies in online classes?

PROPOSED STUDY

In many online courses, social networks are part of the learner experience. Many of these courses use discussion forums to encourage learner-to-learner engagement and interactions (Shadiev et al., 2014; Akcaoglu, and Lee, 2016). These discussion forums require students to share their thoughts or ideas, thus, social relationships are created and sustained in these forums.

These discussion forums provide learners with the opportunity to reflect on their experience, as they share their knowledge and learn from others. These interactions can generate significant amount of content, sometimes making it extremely difficult for teachers and instructors to monitor the forums effectively. When instructors do monitor these forums, for the most part it is either done on an individual basis or using summary statistics which are not adequate or meaningful measures of student engagement. Furthermore, these summary statistic measures overlook the relations and structures that have evolved as the forums unfold and students post comments and respond to other posts. To understand how student interactions and communication in discuss forums influence learning outcomes, measures using summary statistics should be complemented with other forms of analysis. Investigating the network relationships underlying these discussion forums can yield interesting insights into student engagement.

Using network analysis visualization tools, the proposed study will analyze the structural composition of these forums to understand how they influence learning outcomes. SNA can provide insights into patterns and structures on interaction that are difficult to obtain by other means of analysis. Using social relations and structures to examines student engagement, rather than focusing individual student activities can shed more light on the social aspect of the learning process (Cela et al., 2015).

Social interactions engender patterns and trends that reflect the density, frequency of interactions, and the strength of social ties among members. Visualization and analysis of these network patterns and trends in a discussion forum can yield insights into how students engage in discussion forums and

how these patterns and structures influence learning outcomes.

STUDY METHOD

This study will use historical data from a discussion forum in an online class on Information Management Resources. A forum was created in the class and each student was required to post at least two comments, an original post, and a response to one other post.

Information from the discussion forum was used to generate a matrix for analyzing the communication relations among students in the class. This study examines the direction, strength, intensity, and frequency of student interactions to better understand the underlying social structures in the discussion forum and how these structures can influence learning outcomes.

Visualizing a social network can be useful for examining the discussion forums at a high level, additionally, the underlying structure can be described mathematically, using measures of centrality. For example, centrally positioned students are strategically positioned than students on the periphery of the network (Laat et al., 2007). The three main types of centrality measures are degree centrality, betweenness centrality, and closeness centrality.

Centrality measures are indicators for multiple dimensions of importance in a social network. Degree centrality shows how many connections a student has. A student may be connected to lots of other students at the center of the network, but he or she might also be far off on the edge of the network. Although degree centrality accurately tells us who has a lot of social connections, it does not necessarily show who is centrally positioned in the network. Degree centrality can be used to identify very connected popular students or students who can quickly connect with other students.

Closeness centrality is an evaluation of the proximity of a student to all other students in a network. The closeness centrality of a student is the inverse of the average length of the shortest paths to or from all the other students in the network. Closeness centrality scores each student based on their 'closeness' to all other students in the network.

This measure calculates the shortest paths between all students and assigns each student a score based on its sum of shortest paths. The measure can be used to identify students best placed to influence the class.

Betweenness centrality is another measure of centrality. Betweenness centrality measures the number of times a student lies on the shortest path between other students. The measure identifies students that affect/influence the flow within the forum. There are weakly connected students who are indispensable. Although these students may not have a high level of degree centrality, they may be chokepoints within the network that can limit information flow. A high betweenness count could indicate a student with authority in the forum or just a student on the periphery.

Communities and cliques may also evolve from a discussion forum in online classes. These cliques and communities are cohesive groups of students connected more densely to each other than to the students in other communities. Identifying these sub-structures within a network can provide

insight into how to manage class interactions. For example, these communities and cliques can inform instructors when creating teams for class projects or how leadership on these teams are selected.

CONCLUSIONS

Accurately measuring and visualizing student engagement in a learner-to-learner discussion forum can inform educators on how to stimulate student engagement, and effectively use feedback in these discussion forums to encourage student engagement to improve positive learning outcomes.

SNA reveals patterns of communication that shows the social nature of group learning and tutoring. If instructors can identify students who excel in engagement and those that do not, then instructors can devise appropriate intervention to encourage and promote student engagement. Perhaps, students who are disengaged can be motivated with positive feedbacks and comments that acknowledge their contributions and comments in the forums.

Furthermore, instructors can use these communication relations and structures to examine how they limit or advance positive learning outcomes for students and the whole class.

It is likely that students with a high aptitude for learning may also be more willing to engage their peers by asking questions or responding to questions. . Thus, a causal inference should not be drawn from these results, but rather a focus on how these structures may support or limit positive learning outcomes. If the social network position of students in discussion forums network can influence learning outcomes, then it is useful for instructors to understand these structures and communication relations.

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STUDENTS' SUCCESSES AND CHALLENGES IN COMPRESSED COURSE FORMATS COMPARED TO TRADITIONAL PROGRAM STUDENTS

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ABSTRACT

The successes and challenges of students in totally online college degree programs continue to be important research topics in higher education. The authors of this study analyzed institutional research data from a two-year period and compared students in the traditional business administration (BABS) degree program with 16-week course format and students in the online (BABX) degree program with 8-week course format. Independent variables of gender, classification, and age were used in the comparison. Additionally, faculty members who taught core courses in both formats were interviewed to gain insight on differences in course content, assessment methods, drop rates, student preparation for the course, student performance, cheating, student excuses, class sizes, and other differences in the 16-week versus 8-week courses and students.

INTRODUCTION

Universities offering fully online degree programs continuously address a number of educational issues. Maintaining a quality program in an online format is paramount to the ongoing success of any program, and performance of students in the online degree environment is a critical component to be monitored.

However, many of the online degree programs are structured differently than the traditional programs. The differences lie not only in the delivery of the course content, but often in duration of the course and the course content as well. While mini terms have been offered to students for decades, this format has become more prevalent in the online setting. This can lead faculty and administration to question the difference in student outcomes in the different settings.

Like many universities, the number of students enrolled in a fully online business degree has grown over the last few years at the researchers' university (a mid-sized public university in the south). The University's College of Business employs a full-time business advisor for the students in the fully online Bachelor of Business Administration degree (coded as BABX), as well as having a Director of Online Business Education within the college. Frequent discussions between these two individuals have focused on BABX students' successes and failures. The advisor and director have questioned whether faculty teaching in both the BABX and non-BABX classes noticed a difference between the students in terms of drop rates, class preparation, class performance, excuses, cheating, and other possible differences. In addition, do faculty report any difference in the content of their courses and class size when comparing the two student populations. While the advisor and director have observed certain things, they question whether their thoughts and concerns match those of faculty teaching the

core courses required for all college of business majors.

STATEMENT OF THE PROBLEM

This paper provides an overview of what business faculty at a mid-sized public university in the south perceive to be differences in courses delivered in an 8-week format versus courses delivered in a 16-week format. Representative faculty teaching numerous courses in the College of Business core curriculum were interviewed to gain their thoughts and opinions based on their knowledge and experience in teaching both traditional students (typically taught in a 16-week format) and those that include only online degree business administration students (all taught in an 8-week format). Specific questions in the interviews asked faculty opinions to gather the following information:

- What, if any, differences are there in the amount of content presented in the 16-week (traditional degree program course) versus 8-week (online degree only course) formats?
- What, if any, differences are there in the methods used to assess student learning in the 16-week versus 8-week formats?
- How do the drop rates compare in the 16-week versus 8-week formats?
- How does student preparation for the course compare in the 16-week versus 8-week formats?
- How does student performance in the class compare in the 16-week and 8-week formats?
- Is there more cheating in one course format versus the other format? Also, how does cheating impact students' final grades?
- How do the types and numbers of student excuses compare in the 16-week and 8-week formats?
- Are there any other differences when comparing the 16-week and 8-week formats and students?
- What is the average class size in the 16-week versus 8-week formats?

Additionally, the researchers looked at demographic information provided by the Institutional Research Office concerning BABX and other business majors, comparing demographics of the two groups by gender, year classification, major, age, parish of residence, GPA, and hours carried per semester.

LITERATURE REVIEW

Numerous issues must be considered when designing and executing a fully online degree. Over the past two decades many articles have been published related to online instruction. Kebritchi, Lipschuetz, and Santiague's 2017 article provided a synthesis of prior studies and the challenges of online instruction. Their research identified key issues in three major categories: issues related to online learners, issues related to online instructors, and content development. While several issues were identified in each of the three categories, one key issue for learners was readiness, and two key issues for instructors included teaching style and changing faculty roles. In the area of content development, integration of multimedia into content was a key issue. All three of these issues relate to the focus of the current study.

When designing an online program, the length of courses must also be considered. Prior to the growth of online courses, Austin and Gustafson (2006) found that three-, four-, and eight-week courses significantly

increase student performance over those in a traditional sixteen-week format. Their research further analyzed if this success showed greater learning of course material or if the bar was lowered in the accelerated courses; findings revealed that in classes with identical course content, the students did show greater learning of the material in compressed formats. In a study by Ferguson and DeFelice (2010), students perceived a higher level of learning in the compressed format course, but the data did not support those perceptions.

Gillett-Swan (2017) reminds us of the important reality that the one size fits all approach to any format or structure of a class can present barriers to success for online students, while face-to-face students might better succeed in such a design. If the barriers impact online student success in a course that in turn is a prerequisite for a later course, the learning challenges can compound for the online students as they progress in their degree programs.

Looking at online course instruction from the perspective of faculty, Sithole, Mupinga, Kibirige, Manyanga, and Bucklein (2019) shared survey findings from faculty at four universities in the midwestern U.S. Among key challenges identified were large class size, lack of communication with students (yet too many emails), and lack of student self-discipline. Terenko and Ogienko's survey of students found students themselves reported challenges of lack of self-study skills and lack of live communication. Ferguson and DeFelice (2010) found that students in "intensive" 8-week courses were less satisfied with the communication of faculty, but more satisfied with the communication among classmates.

Baum and McPherson (2019) also noted that students with more access and exposure to technology, who do have strong time management and self-directed learning skills typically perform better in online learning environments. Milman (2014) earlier noted that online students may struggle with inadequate preparation for specific courses, as well as struggle with insufficient guidance in how to be successful self-directed learners. These two challenges, coupled together, can significantly impact a student's ability to succeed in an online degree.

Moten, Fitterer, Brazier, Leonard, and Brown (2013) specifically looked at challenges of dealing with academic dishonesty in the online course environment. This eight-year-old study noted the problem as becoming more rampant in recent years. Given the significant developments in new technology since the publication of that study, it is not surprising that more recent studies such as Sithole, Mupinga, Kibirige, Manyanga, and Bucklein (2019) continue to find academic dishonesty in online courses a major challenge.

The studies cited above identify a number of challenges online degree students face, no matter what the length of the course. Thus, looking at the challenges and successes of online degree students working in an 8-week course structure is worth investigating. A further comparison with students who study in a traditional 16-week course format (with the same major) may reveal additional helpful findings for future curriculum design or faculty teaching strategies.

RESEARCH METHODOLOGY

Two of the authors work in the Office of Online Business Education. Their

conversations have turned to the question of how the online students compare to the traditional students in several settings. Using this concept, the authors determined what data to request from the university's Institutional Research Office along with questions to be used to interview faculty who teach in both settings.

The University's Institutional Research Office provided demographic information regarding business administration online degree students (BABX) and traditional business degree students concerning gender, year classification, major, age, parish of residence, GPA, and hours carried per semester.

Nine courses within the CBA core curriculum have been selected for this research project. Those nine courses include Intermediate Financial Accounting I (ACCT 321), Business Law (BSAD 221), Strategically Managing Organizations (BSAD 490), Management Information Systems (CIS 231), Principles of Microeconomics (ECON 211), Financial Management (FINC 302), Operations Management (MNGT 368), Marketing (MKTG 300), and Business Statistics II (QBA 283). This selection ensures that all disciplines within the core curriculum are included in the analysis of findings.

For each of the nine selected academic courses within the College's core curriculum, a representative faculty member who teaches both 16-week and 8-week students was interviewed. A list of interview questions was created by the authors. The University's Human Subjects Institutional Review Board reviewed the research plan and granted approval to proceed with the request of data from the Institutional Research Office. The requested data were analyzed using SPSS. The results are discussed below in the data analysis section of the paper.

DATA ANALYSIS

The Institutional Research Office data were tagged as to whether the student was in the traditional BABS program or the online BABX program. Data from fall 2018 through summer 2021 were collected. If a student was listed in more than one semester, only the most recent semester of information was used for that student. After exclusion of duplicates, five hundred twenty-five students were part of the BABS and 410 were enrolled in or had recently been a part of the BABX program.

Demographics

Three independent variables including gender, classification, and age group were analyzed in BABS and BABX groups. Of the 935 students compared, 311 were BABS males, 214 BABS females, 153 BABX males and 257 BABX females as shown in Figure 1. In BABS more males were enrolled; in BABX, more females were enrolled.

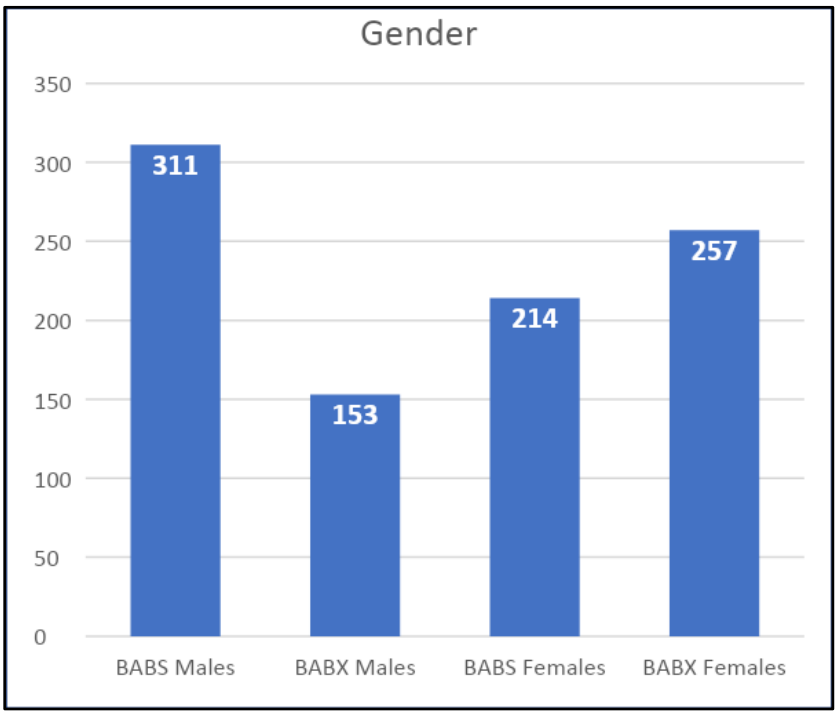

Figure 1. Gender Counts.

Looking at the Classification breakout, BABS Freshmen outnumber the BABX Freshmen with counts of 147 and 51, respectively. Closer counts existed between the remaining classifications with 97 BABS Sophomores, 80 BABX Sophomores, 93 BABS Juniors, 83 BABX Juniors, 188 BABS Seniors, and 196 BABX Seniors as shown in Figure 2.

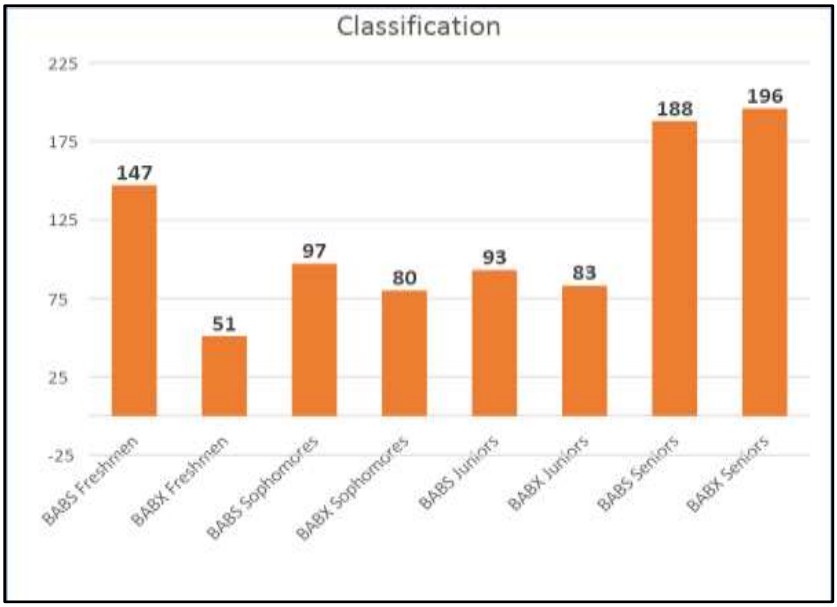

Figure 2. Classification Counts

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Disparity in the counts of different age groups existed in each pairing. Two hundred and fifty-two BABS students were 20 years of age or younger while only 45 BABX students were 20 years of age or younger. There were 213 BABS students 21 to 24 years of age and 99 BABX students in the same age group. Sixty BABS students were 25 years of age or older and 266 BABX students fell into the same age group. These values are shown in Figure 3.

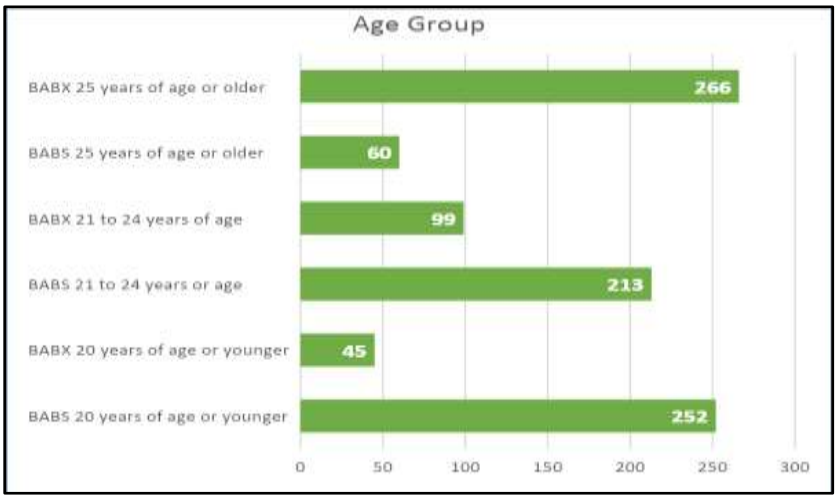

Figure 3. Age Group Counts.

Analysis of Variance

Further analysis was conducted for the variables gender, classification, and age.

Gender. A hypothesis was determined for the gender comparisons.

Ho: $\mu_{MB} = \mu_{MX} = \mu_{FB} = \mu_{FX}$, where MB – BABS Male, MX – BABX Male, FB – BAB Female, and FX – BABX Female.

Due to a failed Levene's test for homogeneity of variances, a Welch ANOVA was carried out instead of a one-way ANOVA on the **Gender** comparisons. There was a statistically significant difference between groups as determined by the Welch ANOVA ($F(3,464) = 9.346$, $p = .000$). The results of the ANOVA are shown below in Table 1. A Games-Howell post hoc test, used in conjunction with the Welch ANOVA, revealed that the GPA of the BABS females ($M = 2.81$, $SD = 0.66$) were statistically significantly higher than the BABS males ($M = 2.62$, $SD = 0.74$, $p = .012$), BABX females ($M = 2.59$, $SD = 0.62$, $p = .001$), and BABX males ($M = 2.45$, $SD = 0.65$, $p = .000$). There was no statistically significant difference between the BABS males and BABX males ($p = .067$) and BABX females ($p = .936$).

Table 1. Welch's ANOVA for Gender.

CUMULATIVE_GPA				
	Statistic[a]	df1	df2	Sig.
Welch	9.346	3	464.427	0.000
a. Asymptotically F distributed.				

Classification. For the classification comparisons, the following hypothesis was determined.

Ho: $\mu_{FRB} = \mu_{FRX} = \mu_{SOB} = \mu_{SOB} = \mu_{JRB} = \mu_{JRX} = \mu_{SRB} = \mu_{SRX}$, where FRB – BABS Freshmen, FRX – BABX Freshmen, SOB – BABX Sophomores, SOX – BABX Sophomores, JRB – BABS Juniors, JRX – BABX Juniors, SRB – BABX Seniors, and SRX – BABX Seniors.

There was a statistically significant difference between **Classification** groups as determined by the one-way ANOVA ($F(7,927) = 7.256$, $p = .000$). Table 2 shows the complete ANOVA results. Fisher's Least Significant Difference (LSD) post hoc test revealed that the GPAs of BABS freshmen ($M = 2.45$, $SD = 0.96$) were statistically significantly lower than the BABS sophomores ($M = 2.72$, $SD = 0.62$, $p = .002$), BABS juniors ($M = 2.78$, $SD = 0.59$, $p = .000$), BABS seniors ($M = 2.84$, $SD = 0.51$, $p = .000$), and BABX seniors ($M = 2.61$, $SD = 0.49$, $p = .024$). There was no statistically significant difference between the BABS freshmen and BABX freshmen ($p = .447$), BABX sophomores ($p = .972$), and BABX juniors ($p = .283$).

The GPAs of BABX freshmen ($M = 2.37$, $SD = 1.00$) were statistically significantly lower than the BABS sophomores ($M = 2.72$, $SD = 0.62$, $p = .002$), BABS juniors ($M = 2.78$, $SD = 0.59$, $p = .000$), BABS seniors ($M = 2.84$, $SD = 0.51$, $p = .000$), and BABX seniors ($M = 2.61$, $SD = 0.49$, $p = .024$). There was no statistically significant difference between the BABX freshmen and BABX sophomores ($p = .508$), and BABX juniors ($p = .128$).

THE GPAs of BABS sophomores ($M = 2.72$, $SD = 0.62$) were statistically significantly higher than the BABX sophomores ($M = 2.45$, $SD = 0.64$, $p = .006$). There was no statistically significant difference between the BABS sophomores and the BABS juniors ($p = .578$), BABX juniors ($p = .083$), BABS seniors ($p = .158$), and BABX seniors ($p = .197$).

BABX sophomores' GPAs ($M = 2.72$, $SD = 0.62$) were statistically significantly lower than the BABS juniors ($M = 2.78$, $SD = 0.59$, $p = .001$) and BABS seniors ($M = 2.84$, $SD = 0.51$, $p = .000$). There was no statistically significant difference between BABX sophomores and BABX juniors ($p = .331$) and BABX seniors ($p = .058$).

The GPAs of BABS juniors ($M = 2.78$, $SD = 0.59$) were statistically significantly higher than the BABX juniors ($M = 2.55$, $SD = 0.61$, $p = .024$). There was no statistically significant difference between the BABS juniors and BABS seniors ($p = .450$) and BABX seniors ($p = .056$).
BABX juniors' GPAs ($M = 2.55$, $SD = 0.62$) were statistically significantly lower than the BABS seniors ($M = 2.84$, $SD = 0.51$, $p = .001$). There was no statistically significant difference between the BABX juniors and BABX seniors ($p = .448$).

BABS seniors' GPAs (M = 2.82, SD = 0.51) were statistically significantly higher than the BABX seniors (M = 2.61, SD = 0.49, p = .001).

In summary, GPAs of BABS females were identified as higher than BABS males and BABX males and females. No significant differences in GPAs were found between the BABS and BABX freshmen. BABS students' GPAs were identified as higher than BABX students.

Table 2. One-way ANOVA for Classification.

CUMULATIVE_GPA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.689	7	3.241	7.256	0.000
Within Groups	414.107	927	0.447		
Total	436.796	934			

Age Groups. A final hypothesis for age group comparisons was developed.

Ho: $\mu_{1B} = \mu_{1X} = \mu_{2B} = \mu_{2B} = \mu_{3B} = \mu_{3X}$, where 1B – BABS 20 years of age or younger, 1X – BABX 20 years of age or younger, 2B – BABS 21 to 24 years of age, 2X – BABX 21 to 24 years of age, 3B – BABS 25 years of age or older, and 3X – BABX 25 years of age or older.

There was a statistically significant difference between **Age Groups** as determined by the one-way ANOVA (F(5,929) = 2.811, p = .016). The results are shown in Table 3. Fisher's Least Significant Difference (LSD) post hoc test revealed that the GPA of the BABS 20 years of age or younger (M = 2.69, SD = 0.82) were statistically significantly higher than the BABS 21 to 24 years of age (M = 2.52, SD = 0.54, p = .033) and BABS 25 years of age or older (M = 2.54, SD = 0.62, p = .014). There was no statistically significant difference between the BABS 20 years of age or younger and BABX 20 years of age or younger (p = .290), BABS 21 to 24 years of age (p = .514), and BABS 25 years of age or older (p = .544).

The GPA of the BABS 21 to 24 years of age (M = 2.73, SD = 0.61) were statistically significantly higher than the BABX 21 to 24 years of age (M = 2.52, SD = 0.54, p = .010) and BABX 25 years of age or older (M = 2.54, SD = 0.62, p = .003). There was no statistically significant difference between the BABS 21 to 24 years of age and BABS 20 years of age or younger (p = 0.514), BABX 20 years of age or younger (p = .157), and BABS 25 years of age or older (p = .544). There were no other statistically significant differences between age groups found.

Table 3. One-way ANOVA for Age Groups

CUMULATIVE_GPA					
	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	6.510	5	1.302	2.811	0.016
Within Groups	430.286	929	0.463		
Total	436.796	934			

Interview Findings

Faculty members who teach both in the traditional (16-week) and online (8-week) formats of nine core College of Business courses were asked to answer the questions comparing the courses formats in regards to course contact and assessment, student success, student behavior, and noticeable difference in course due to formats. Those nine courses include Intermediate Financial Accounting I (ACCT 321), Business Law (BSAD 221), Strategically Managing Organizations (BSAD 490), Management Information Systems (CIS 231), Principles of Microeconomics (ECON 211), Financial Management (FINC 302), Operations Management (MNGT 368), Marketing (MKTG 300), and Business Statistics II (QBA 283).

The initial questions of the survey discussed course content and assessments When asked, "*What, if any, differences are there in the amount of content presented in the 16-week (traditional degree program course) versus 8-week (online degree only course) format*?" the majority of the faculty stated that the course had exactly the same content. Within the QBA 283 course, a data analytics project was dropped, but skills from that project were still applied in assignments and assessments. When asked, "*What, if any, differences are there in the methods used to assess student learning in the 16-week versus 8-week format*?" answers varied a little more. Three courses were assessed in the exact same manner, regardless of the 16- or 8-week format. Others stated differences such as participation credit and differences in the format and quantity of assessments. Next the questions focused on student success in the courses. When asked, "*How do the drop rates compare in the 16-week versus 8-week format?"* two faculty members observed that the drop rate in the condensed 8 week online course was considerably higher than that in the traditional 16-week course. The majority of the other faculty reported that the drop rate was about the same. However, some stated that students in the condensed course seem to drop more quickly compared to those in the traditional setting. When asked, "*How does student preparation for the course compare in the 16-week versus 8-week formats?"* faculty perceptions were again very mixed. Some faculty believed that online students were more prepared for their course, and having more non-traditional students allowed for more discussion and real world experiences. Other faculty reported that students were less prepared for the course; this could be due to the workload of the course or the material covered in the course. One example is ACCT 321; this course is the follow-up to the introductory Financial Accounting course. Many non-

traditional students took the introductory course several years ago and, therefore, are not comfortable with the course material nor are they prepared to move at the pace the course requires. This ties into the student's performance in the course. Again, the majority of the faculty stated that they saw similar student performance in both formats of the course. A few faculty stated poorer performance of students in their online course.

Additional questions focused on student behavior in the courses. When asked, "*Is there more cheating in one course format versus the other format? Also, how does the cheating impact students' final grades?"* faculty were divided on this answer. Half perceived that the online format led to more cheating incidents. Others, perhaps those who revised their assessment methods to have more discussion, open book, and stricter proctoring to offset such events, stated that the cheating was about the same. When comparing student excuses with, "How *do the types and numbers of student excuses compare in the 16-week and 8-week formats?"* Most found that traditional students still had the "traditional" excuses, including poor time management, athletics, overslept, car broke, and the like. However, online students were more likely to ask for extensions due to jobs, family, or health reasons.

The last questions focused on the noticeable difference between the class formats and the class sizes. When asked, "*Are there any other differences when comparing the 16-week and 8-week formats and students?*" faculty discussed the age and experience of the student. The condensed courses had more non-traditional students which allowed for more real-world discussions and experiences, and often a more focused and serious student. However, the format often makes faculty and student engagement more challenging, as well as student-to-student interactions. The condensed format also causes increased stress levels. For the faculty, the condensed format usually had half the number of students as the traditional format, which in a normal setting would allow time for more student interactions. However, at the authors' university, all 8-week online courses are taught as overload. Thus the smaller class size is helpful while juggling an already full schedule.

CONCLUSIONS

In most cases when the designated group of BABS students were compared to BABX students, the BABS students had the higher GPA. The authors speculate that this could be due to the fact most of the BABX students are older when compared to their BABS counterpoints. In addition, some BABX students are having to adjust to college-life again, are working, possibly full-time, and may have family responsibilities besides themselves.

As for faculty teaching in both formats, many similarities were stated in the course content and student performance. Some modifications were made to assessment methods, and various feedback was given regarding cheating, student preparation, and student excuses. One thing that was consistent was the class sizes of the 8-week courses were roughly half the size of those same courses in a traditional setting.

FUTURE RESEARCH

A further investigation of BABX students concerning their perception of level of learning achieved in the 8-week format and their satisfaction with faculty

communication, faculty assessment methods, and communication with other students in the course could reveal helpful information for curriculum planners and faculty. Other future research would dig deeper and compare the performances of all the majors within the College of Business. The majors include Accounting, Business Administration, Business Administration Online, Computer Information Systems, Finance, Marketing, and Management. There would be a repeat of the same comparison using GPA to determine if there are any differences in performance by major using the independent variables of gender, classification, and age group. In addition, for non-traditional students that are returning to complete a degree, a comparison of GPA before returning to school compared to GPA after returning to a program may provide additional insight. Lastly, while there are less courses being taught in-person in an 8-week format, the performance of students in similar 8-week courses online and in-person could be compared to see what impact the delivery method has on the overall grade and student performance.

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