

# Journal of Research in Business Information Systems

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## **Journal Profile**

The *Journal of Research in Business Information Systems* (JRBIS) is a national blind-reviewed, refereed publication published annually by the Association of Business Information Systems. This refereed journal includes articles from fields associated with business information systems focusing on theory, problems associated with information systems and information resources in education, business and industry, government, and the professions.

Manuscripts are selected using a blind review process. The first issue of the Journal was available Spring 2008. The Journal is listed in the ERIC Database and Cabell's Directory of Publishing Opportunities in Accounting, Computer Information Systems, Education, Instructional Technology, and Management.

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The readership is comprised of college and university faculty, administrators, staff, practitioners, and students engaged in business information systems or preparing for careers in fields related to information resources. The journal is distributed electronically annually to all Association of Business Information Systems members as part of conference registration or membership. The journal is also available online at <http://www.abis-fbd.org>.

# Call for Manuscripts

*2017 Journal of Research in Business Information Systems (JRBIS)*

**Deadline:** October 1, 2016

You are invited to submit manuscripts for publication consideration in the 2017 issue of the *Journal of Research in Business Information Systems (JRBIS)*, a national blind-reviewed, refereed journal published annually by the Association of Business Information Systems (ABIS). According to the Constitution and Bylaws of ABIS, the published articles of JRBIS are limited to the papers presented at the previous ABIS Annual Conference and/or published in the *ABIS Proceedings*.

This refereed journal includes articles from fields associated with business information systems focusing on theory; issues associated with information systems; and information resources in education, business and industry, government, and the professions. Manuscripts should address topics of interest to the wide-ranging interdisciplinary and practitioners who read *JRBIS*. The readership is comprised of college and university faculty, administrators, staff, practitioners, and students engaged in business information systems or preparing for careers in fields related to information resources. The journal is distributed electronically annually to all Association of Business Information Systems members as part of conference registration or membership. The journal is also available on the ABIS website for public scrutiny.

Submissions of manuscripts relating to topics, along with research findings, theoretical and practical applications, discussions of issues and methods for teaching and assessing instructional technology, and reviews of textbooks are encouraged. The *JRBIS* is listed in the ERIC Database and five separate volumes of *Cabell's Directory of Publishing Opportunities*, including Accounting, Computer Information Systems, Education, Instructional Technology, and Management. Manuscripts will be selected using a blind review process. Manuscripts should not have been published or be under current consideration for publication by another journal.

## Submission and Formatting Guidelines

All manuscripts must be submitted electronically in Microsoft Word format. Manuscripts, citations, and references must use the style format of the 2010 *Publication Manual of the American Psychological Association* (6th edition).

Submissions should include a separate file attachment for the title page that contains the following information in this exact order:

- Title of the manuscript
- Each author's full name; position/title; institutional affiliation, including address, city, state, zip code; home, office, and cell phone numbers; and e-mail addresses (identify the main author who should receive all correspondence).
- Number of words in the article (including all parts--everything)

- Biographical paragraph (50-60 words) for each author
- Any acknowledgments or information about manuscript history (e.g., basis in a conference presentation)

The second separate file attachment should be the manuscript file that begins with the title of the article, a 50-100 word abstract, 3-5 keywords or phrases describing the focus of the article, and the body of the manuscript. **Do not include any identifying information in this file. Do not include any personal identification or institutional affiliation in this file.**

The manuscript body must adhere to the following guidelines:

- 10-25 double-spaced pages (3,000-6,000 words)
- 1” margins all around
- Times New Roman, 12 font-size text within article
- Bold and center primary headings, with major words capitalized
- Bold and left-align secondary headings, with major words capitalized
- No footnotes
- or endnotes
- No page numbers or headers or footers

Tables and figures may have varying font sizes (but must adhere to APA Style). Include tables or figures formatted and placed correctly within the manuscript.

Include the References page (Works Cited only) at the end of the manuscript, followed by any appendix information, if necessary.

All submissions will be reviewed by the editor and two reviewers, using a blind-review process. Authors will receive feedback 6-8 weeks after the initial peer review. Manuscripts will be “accepted,” “accepted with minor revisions,” “possibly accepted after major revision and resubmission for further peer review,” or “rejected.”

The editor reserves the right to edit selected/accepted manuscripts for publication as deemed appropriate and necessary for the optimization of journal publication and format. The author of the manuscript retains responsibility for the accuracy of a manuscript published in the *Journal of Research in Business Information Systems*.

**To ensure your manuscript is considered for publication in the 2017 Journal of Research in Business Information Systems, submit manuscript by October 1, 2016, to [lori.soule@nicholls.edu](mailto:lori.soule@nicholls.edu).**

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Volume 9, Number 9

Spring 2016

## Table of Contents

Journal Profile .....	ii
Call for Manuscripts .....	iii
<b>Integration of Business Analytics Knowledge and Skill Development into the Undergraduate Business Core .....</b>	<b>1</b>
Robert B. Mitchell, University of Arkansas at Little Rock	
Ravi Thambusamy, University of Arkansas at Little Rock	
<b>Do University Websites Provide Necessary Information Regarding Selection Factors for Prospective Online Program Students? .....</b>	<b>33</b>
Sherry R. Rodrigue, Nicholls State University	
Ronnie Fanguy, Nicholls State University	
Lori C. Soule, Nicholls State University	
Betty A. Kleen, Nicholls State University	
<b>Examining the Relationships of University Student Characteristics and Motivation in a Blended Digital Literacy Course Using the Keller ARCS Motivation Model .....</b>	<b>54</b>
Shane Schartz, Fort Hays State University	
<b>“On Call” Online Instructors? An Investigation of Faculty and Student Perspectives on Appropriate Response Times .....</b>	<b>84</b>
Ashley A Hall, Stephen F. Austin State University	
Susan Evans Jennings, Stephen F. Austin State University	
<b>Identifying Job Focus and Course Priorities in IS Curriculum Development Using Online Job Advertisements .....</b>	<b>111</b>
Richard W. Woolridge, University of Arkansas at Little Rock	
Kun-hee Kim, University of Arkansas at Little Rock	
<b>An Analysis of the Team Experiences of Face-to-Face and Online Business Students .....</b>	<b>131</b>
Marsha L. Bayless, Stephen F. Austin State University	
Carol Wright, Stephen F. Austin State University	
<b>Potential Employer Internet Screening of Job Applicants .....</b>	<b>149</b>
Marcel Robles, Eastern Kentucky University	

**Customer Relationship Management: A Model for Small Business Development  
Centers ..... 170**  
Degan Kettles, Brigham Young University

# **Integration of Business Analytics Knowledge and Skill Development into the Undergraduate Business Core**

Robert B. Mitchell, University of Arkansas at Little Rock  
Ravi Thambusamy, University of Arkansas at Little Rock

## **Abstract**

Today's job market reflects an increasing demand for business graduates with business analytics knowledge and skill. An analysis of baccalaureate business curriculum in public institutions in a group of seven southern states indicated limited integration of business analytics into the curriculum. This paper analyzes these current analytics offerings and illustrates how one institution has redesigned information systems courses within the business core to assure all business graduates have an identified level of analytics competency. Provided are a sample course syllabus and sources of instructional materials and training resources.

**Keywords:** *business analytics, business curriculum, industry needs, skills gap.*

## **Introduction**

Business analytics refers to “a new resolve to apply powerful data-gathering and analysis methods not just to a company's operations but also to its offerings—to embed data smartness into the products and services customers buy” (Davenport, 2013, pp. 3–4). A 2015 Forbes Insights survey of 316 executives in large global organizations found that 59 percent of the respondents identified big data and analytics among the top five ways to achieve a corporate competitive advantage (Press, 2015). Organizations globally are using analytics to improve decision-making, cut costs, and create new products and services (Davenport, 2014). Growth projections of the big data market vary among technology services firms, but all projections indicate a steady annual growth over the next decade. For example, Gartner projected the business intelligence and analytics market to reach \$16.9 billion in 2016 (Moore, 2016). IDC

forecasts the value of the big data technology and associated services market to reach \$46.34 billion by 2018, a 23.1 percent annual growth rate from 2014 to 2018 (Columbus, 2015).

The challenge facing colleges of business is to be a leader in preparing university graduates for employment in this high-growth field. Analytical talent, which refers to people who use statistical, analytical, and data modeling skills to make data-driven business decisions, is in short supply compared to its projected demand (Craig, Smith, Mulani, & Thomas, 2012). In order to address this mismatch between the demand and supply of analytics talent, colleges of business need to assess the specific talent-based needs of their industry partners and develop interdisciplinary curricular experiences that prepare their graduates for the analytics-based skills demanded in industry segments (Wixom et al., 2011).

### **Literature Review**

A 2014 TDWI global survey of 328 analytics professionals in varied industries and company sizes found the following types of analytics being performed currently or planned within the next three years by 70 percent or more of the respondents: dashboards, dashboards with key performance indicators (KPIs) and metrics, visualization, descriptive analysis, self-service business intelligence (BI), data discovery, forecasting, continuous monitoring and alerting, and real time reporting (Halper, 2015). The study identified that advanced analytics tools/techniques such as predictive analysis, modeling, and operational intelligence are being used or will be within the next three years in marketing and/or marketing analysis (78 percent), sales (68 percent), finance (70 percent), operations management (69 percent), network/computer management (64 percent), and human resource management (52 percent), to name a few.

This increasing use of data analytics is impacting job demand for business graduates with analytics expertise. A Forbes report, based on one billion job listings worldwide, projected a

142.64 percent growth in job demand in 2016 over 2015 for systems analysts, a 162.92 percent growth for management analysts—both analytics-based positions (Columbus, 2015). By one estimate, a shortage of 140,000 to 190,000 analytics professionals and 1.5 million analytics managers will exist by 2018 (McKinsey, 2011).

In a 2015 McKinsey & Company survey of 519 executives worldwide, 48 percent of the respondents indicated their organization's ability to attract and retain data analytics talent to be more difficult than other types of talent (Brown & Gottlieb, 2016). In an interview with McKinsey & Company, Ruben Sigala, chief analytics officer at Caesars Entertainment, stated, "Competition for analytical talent is extreme" (Buluswar, Campisi, Gupta, Karu, Nilson, & Sigala, 2016, para 16). To address the shortage of talent, organizations are investing heavily in business analytics skill development. Victor Nilson, senior vice president of big data at AT&T, indicated that in 2016 alone the organization had delivered over 50,000 big data training classes. GE invested more than \$2 billion in a new analytics center in the Bay Area to develop skilled analytics workers (Davenport, 2013).

Ian Bertram, managing vice president at Gartner, has indicated that the modern business intelligence and analytics platform has evolved to create deeper value from diverse data sources (Moore, 2016). Thus "analytics has become increasingly strategic to most businesses and central to most business roles, every business is an analytics business, every business process is an analytics process and every person is an analytics user" (Moore, 2016, para 5). For value to be gained from analytics, however, appropriate talent and skill set is required. Zoher Karu, vice president of global customer optimization and data at eBay, indicated that the type of talent recruited in this environment must have both analytics-related technical skills and discipline-based knowledge and skills (Buluswar et al., 2016); for example, an analytics degree should be

supported by a business concentration/minor such as marketing, finance, or human resource management. Analytics staff must be able to talk the language of business as well as that of technology.

Woolridge, Thambusamy, and Mitchell (2015) reported the design of a business analytics undergraduate (UG) degree, at a metropolitan university in the southeastern United States, which focuses on preparing graduates with foundational analytical skills identified as important for business analytics professionals. As part of continuing development and assessment of this program, this research seeks to answer the following questions:

- What undergraduate business analytics courses are being taught in schools of business in public universities in the following states: Alabama, Arkansas, Louisiana, Missouri, Oklahoma, Tennessee, and Texas?
- To what extent is analytics content being integrated into the core curriculum of these schools of business?
- Does the observed analytics curriculum parallel the evolving needs of industry?
- How can business analytics be integrated into business core to provide all business students exposure to business analytics skill development?

Based on the research findings, this paper recommends an approach to integrating analytics skill and business discipline-based knowledge development into undergraduate business curriculum for graduates in all business majors.

### **Research Methodology**

The primary goal of this research is to analyze business analytics courses currently being taught in business schools at public universities in a cluster of seven states representing the southern region of the U.S. in order to examine to what extent business analytics content is being

integrated into the core curriculum of these schools of business and whether the observed business analytics curricula address the evolving needs of the industry.

To address the research questions in this study, the researchers reviewed the business analytics curriculum taught in business schools at public universities in the following seven states: Alabama, Arkansas, Louisiana, Missouri, Oklahoma, Tennessee, and Texas. These states were included as a part of the data collection since they fall in the same region as the state to which the researchers' public university belongs. Once the states were selected, the second step was to identify all public universities in those states offering four-year degree programs through their business schools. The next step was to review the schools' websites to collect the following information:

- State
- University name
- University main website address
- Student enrollment
- Association to Advance Collegiate Schools of Business (AACSB) accreditation  
(Yes/No)
- Representative introduction to computer applications course
- Representative management information systems class
- Data analytics taught at the undergraduate level (Yes/No)
- Department where the analytics course is taught
- Analytics course is a part of the business core (Yes/No)
- Course identifier
- Course title

- Course catalog description
- Course catalog website address

Once the above information was collected and stored in Excel workbooks, the data was analyzed in order to address the research questions in the study. Based on the findings, a plan for integrating business analytics into the business core was then developed.

In terms of the data analysis, first, a cloud-based code cloud generator was used to identify what specific business analytics courses are being taught in schools of business in public universities across seven states surveyed in this study. Next, Microsoft Excel was used to analyze the collected information from a demographics perspective to get a better idea of the public universities included in the study. In the third and final step of the data analysis, Dedoose (version 7.1.3), a qualitative analysis software, was used for coding and content analysis of the collected course catalog descriptions in order to identify business analytics areas of skill development that were the main focus of those courses. Data analysis results are presented in the following section.

## **Findings**

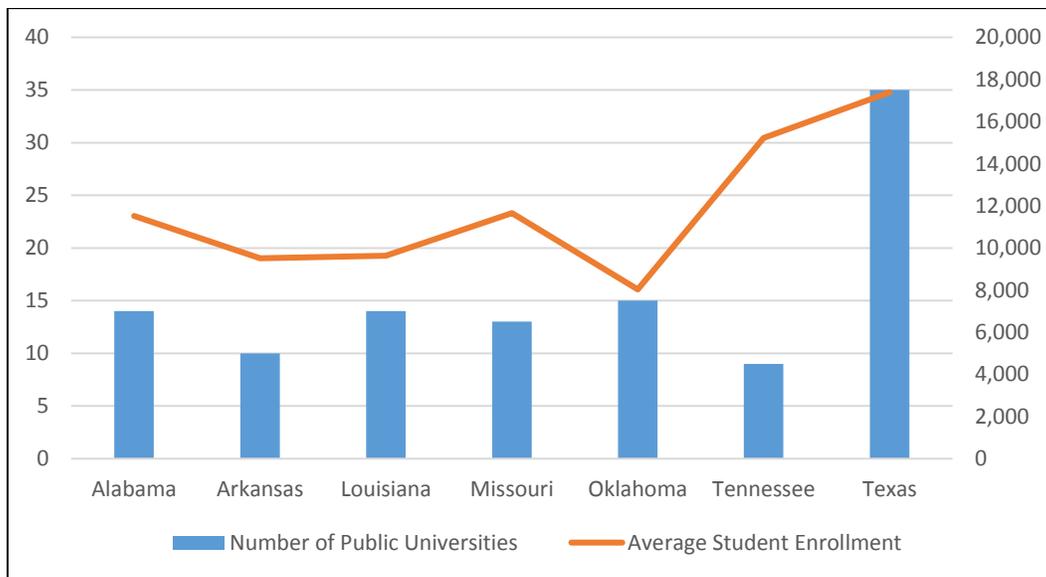
The results of the analysis provide a view of the demographics of universities integrating business analytics into their undergraduate business curriculum and the depth of knowledge and skill development provided.

### ***Course Offerings Analysis***

The *first research question* in this study was to explore *what undergraduate business analytics courses are being taught currently in schools of business in public universities across the seven states surveyed in this study*. Figure 1 represents a code cloud based on an analysis of the course titles across all seven states.

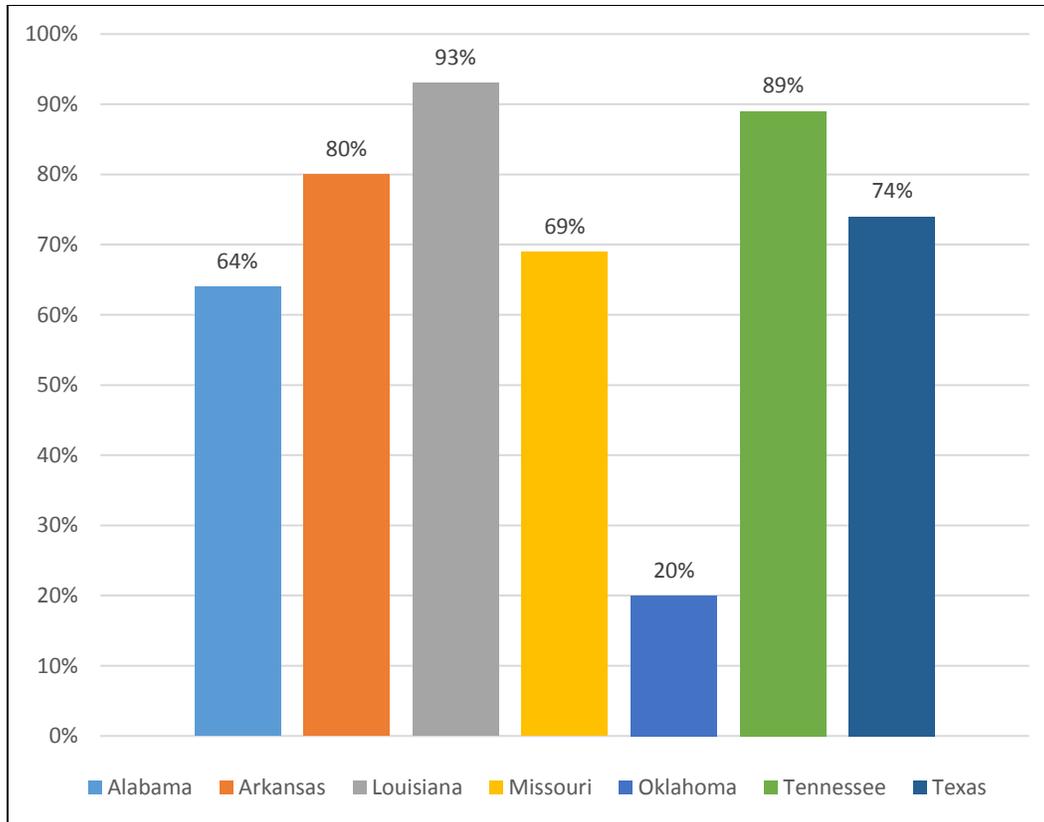


A drilldown of the summary information presented in Table I is presented in Figures 2, 3, and 4. As shown in Figure 2, Texas has the most number of public universities (35) and Tennessee has the least number of public universities (9) among the states surveyed. In terms of the average student enrollment, Texas has the highest average student enrollment (17,389) while Oklahoma has the lowest average student enrollment (8,034). While Tennessee has the least number of public universities (9), it still has the second highest average student enrollment (15,223).



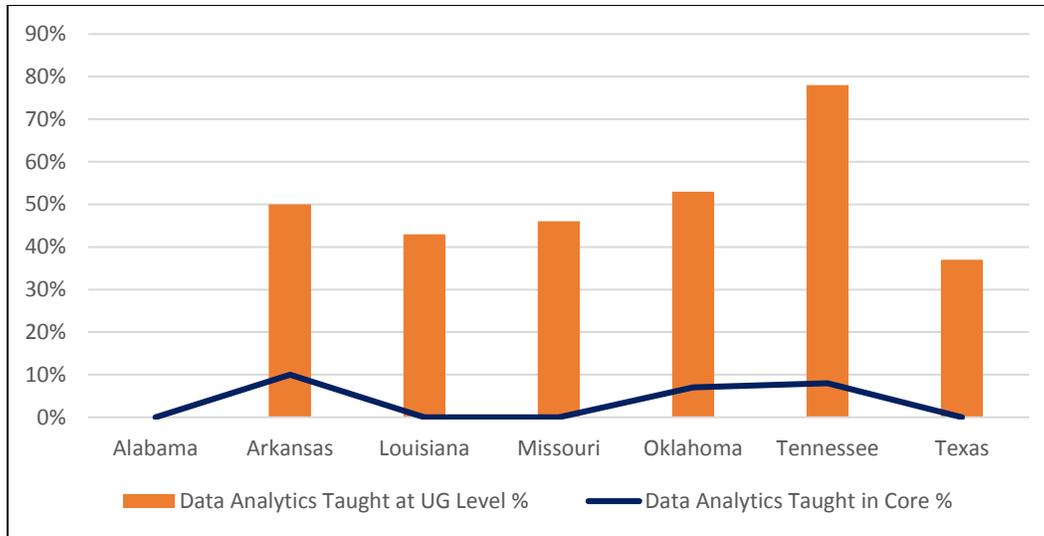
**Figure 2.** Public Universities and Average Enrollment by State

As shown in Figure 3, Louisiana has the highest AACSB accreditation percentage with 13 out of the 14 business schools (93 percent) having received the accreditation, while Oklahoma has the least AACSB accreditation percentage with only 3 out of the 15 business schools (20 percent) having received AACSB accreditation. Each of the remaining states analyzed had at least 64 percent AACSB accreditation.



**Figure 3.** AACSB Accreditation Percentage by State

The *second research question* addressed in this study is *to what extent is analytics content being integrated into the core curriculum of these schools of business*. In terms of the percentage of data analytics courses integrated into the business core at the UG level, Arkansas has the highest percentage of business analytics taught in the UG business core (10 percent) while 4 out of the 7 states analyzed (Alabama, Louisiana, Missouri, and Texas) did not have business analytics courses included in the business core as shown in Figure 4.



**Figure 4:** Business Analytics Integrated into UG Curriculum by State

As shown in Figure 4, some schools in all states but Alabama have integrated business analytics into the undergraduate curriculum. Schools in only three states have business analytics integrated into the undergraduate business core. Tennessee has the highest percent of business analytics courses taught at the UG level (78 percent). The percentage of business analytics courses taught in the remaining states surveyed falls between 37 percent and 53 percent.

### ***Qualitative Analysis – Coding***

The *third research question* in this study was *to investigate whether the observed business analytics curriculum across all seven states parallel the evolving needs of industry*. Qualitative analysis using coding and content analysis was used to answer this research question.

Coding is the first step in qualitative analysis (Rubin & Rubin, 1995). A code is a concise description or phrase that summarizes the essence of textual or visual data (Saldaña, 2009). Dedoose, a qualitative analysis software, was used for coding. Topical coding is a process where the collected course catalog descriptions were reviewed for *a priori* codes from the literature and for new codes which emerged. The process is iterative and the newly emerged codes were applied to the previously reviewed course catalog descriptions until no new codes

emerge and all course catalog descriptions have been reviewed. The *a priori* codes used in this study based on the topical codes identified by Woolridge et al. (2015) are presented in Table 2.

**Table 2. A Priori Codes**

Code Category	Codes	
Business Competencies	Data-driven decision making	Knowledge management
	Strategic and tactical thinking	Acquaintance with digital media
	Domain knowledge	Interact with clients
	Work experience	IS integration
	Global business environment	IT-business unit collaboration
	Strategic and tactical thinking	
Technical Skills	Programming	Database design
	Basic statistics	Database management
	Charting data	Drill-down data
	Data analysis	Data validation
	What-if analysis	Predictive analytics
	Data mining	Problem solving
	Data modeling	Project management
	Data visualization	Requirements gathering
	Data reporting	System analysis and design
	Data warehousing	Text mining
	Extrapolation	Trend analysis
Software Tools	Hadoop (R, HIVE, PIG)	Access
	COGNOS	Crystal Reports
	Cloud 9	DB2
	MicroStrategy	Oracle
	QuickView	SQL Server
	SAP BusinessObjects	Excel
	SAS	PowerPoint
	Tableau	Oracle
	IBM datawarehousing	Geomapping
Personal Characteristics	Be quick to respond	Multi-tasking
	Competitiveness	Professionalism
	Confidence	Self-motivated
	Detail-oriented	Team player
	Like challenges	Well-rounded
	Maturity	Work well under pressure
Soft Skills	Writing skills	Ability to present narrative around numbers

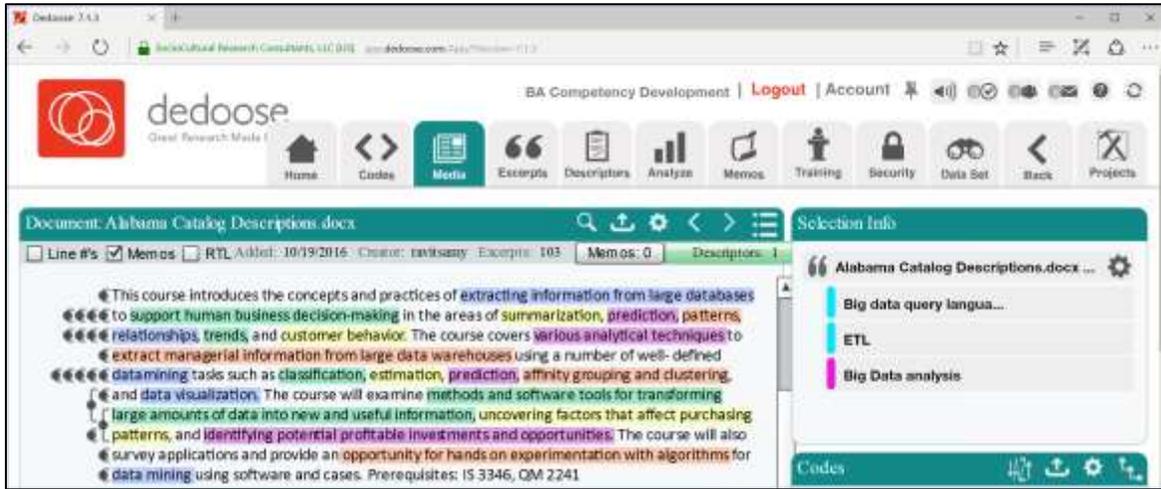
The collected course catalog descriptions were reviewed and the above codes were applied where appropriate. When the *a priori* codes did not match specific portions of the course catalog descriptions, new codes were created and added to the *a priori* code list based on the four *a priori* pattern coding categories (business competencies, technical skills, software tools, and personal characteristics). No new codes emerged in the fifth pattern coding category (soft skills). The new codes that emerged from this study are presented in Table 3.

**Table 3.** *Newly Emerged Codes*

Pattern Coding Category	Newly Emerged Codes	
Business Competencies	Change management	Big data culture
	Enterprise-wide perspective	Ethics
	Business performance management	
Technical Skills	Behavior analysis	Personalization
	Big data analysis	Results interpretation
	Classification analysis	Theories
	Cluster analysis	Hands-on experience
	Location analysis	Logic
	Needs analysis	User interface design
	Sentiment analysis	Forecasting
	Relationship analysis	Querying data
	Unstructured data analysis	Web mining
	Descriptive analytics	Business intelligence
	Prescriptive analytics	Artificial intelligence
	ETL	Problem definition
	Software Tools	R
XLMiner		GDSS
Cloud-based tools		Visual Basic
Personal Characteristics	Reasoning	
Soft Skills	No new codes emerged	

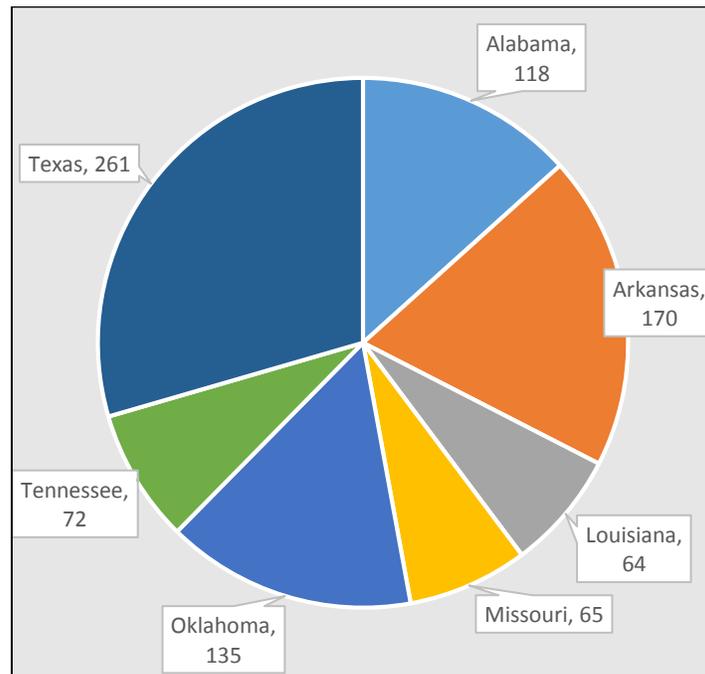
An example of the code application process using Dedoose is shown in Figure 5. As shown in the left section of the figure, several codes were applied to this course catalog description for the state of Arkansas. The right section of the figure shows that three codes (big

data query languages, ETL (extraction, transformation, and loading), big data analysis) were applied to the selected portion of this specific course catalog description.



**Figure 5.** Code Application Process

This coding process continued until all course catalog descriptions from the seven states included in this study were reviewed and the appropriate codes were applied. The state-wise application of both the *a priori* and the newly emerged codes is presented in Figure 6.



**Figure 6.** Code Application by State

The course catalog descriptions from the state of Texas had the most codes applied to them (261), followed by the states of Arkansas (170), Oklahoma (135), and Alabama (118). The bottom three states with the fewest codes applied to their course catalog descriptions were Louisiana (64), Missouri (65), and Tennessee (72).

### *Qualitative Analysis – Content Analysis*

Content analysis was the next step in qualitative analysis. Content analysis was conducted in Dedoose using code frequency analysis, which is a way of identifying codes that are more important than other codes by counting the number of times those codes are repeated across all course catalog descriptions from public universities in all seven states surveyed. The code frequency analysis for this study is presented in Table 4.

**Table 4.** *Code Frequency Analysis*

Code	AL	AR	LA	MO	OK	TN	TX	Total
<i>Business competencies</i>								
Change management	1							1
Big data culture	1							1
Business performance management	3	2	2	2	5	3	7	24
Ethics		2						2
IS integration	3	5	1		1	1		11
Global business environment	3	3		1		2	3	12
Enterprise-wide perspective	2	1		2	2	1	1	9
Data-driven decision making	10	8	4	3	5	8	24	62
Knowledge management	3	4	3		3	1	4	18
Strategic and tactical thinking	9	4		2		2	7	24
Acquaintance with digital media				1				1
Domain knowledge		2			7	2	5	16
Work experience		3						3
IT-business unit collaboration	1	1						3
Interact with clients		1						1
<i>Technical skills</i>								
Artificial Intelligence (AI)		1	1	1	1	1	3	8
Personalization		1					1	2
Business Intelligence (BI)	6	15	2	4		3	12	42

Results interpretation		1	1		14	2	1	19
Data validation			1		2		1	4
Theories		2		1			3	6
Problem definition			1			1		2
ETL	3	3	4	2	2	4	13	31
Hands-on experience	4	4		2	8		2	20
Logic		1				1	2	4
User interface design		1					3	4
Data analysis	6	14	5	2	26	6	28	87
Behavior analysis	1	1	1				2	5
Big data analysis	4	1		5		1	6	17
Classification analysis	2						5	7
Cluster analysis	1	1					3	5
Descriptive analytics			1			1		2
Prescriptive analytics			1		1	1	1	4
Forecasting	2	2			2		3	9
Location analysis					1		1	2
Needs analysis		1				1	2	4
Sentiment analysis				1				1
What-if analysis		1			3		3	7
Relationship analysis	2	1	2				4	9
Unstructured data analysis				1		1	2	4
Extrapolation								0
Trend analysis	2	1	1			3	4	11
Predictive analytics	4	2	2	2		3		13
Data warehousing	4	1	3	1		1	7	17
Database design	4	3	2	1			2	12
Data reporting	6	5	1	3	6	1	5	27
Data visualization	3	6		4		1	8	22
Database management	2	12	5	3	5	3	5	35
Data modeling	1	5	1	3	6	3	20	39
Charting data			1					1
Querying data		3		1	1		2	7
Data mining	5	5	7	3	1		13	34
Web mining	1			1			8	10
Text mining	1						1	2
Drill-down data								0
Basic statistics	1	3	1	2	1	2	6	16
Programming	2	1	3	3	2		8	19
Project management		4	3		2	1	1	11
System analysis and design					1			1
Requirements gathering	1						1	2

Problem solving	1	12	3	1	13	2	5	37
<i>Software Tools</i>	AL	AR	LA	MO	OK	TN	TX	Total
DSS	1	1		2	2	2	5	13
GDSS						1		1
XLMiner							1	1
R				2			1	3
Cloud-based tools							1	1
Visual Basic	1	1				1		3
Excel	8	8		1	11	4		32
Access								0
Oracle								0
DB2								0
Crystal reports								0
SQL Server							1	1
Big data query languages	1							1
Hadoop								0
COGNOS								0
IBM data warehousing								0
Geomapping								0
Data visualization								0
Tableau								0
SAS		1					2	3
Cloud 9								0
MicroStrategy								0
SAP								0
QuickView								0
PowerPoint								0
<i>Soft Skills</i>	AL	AR	LA	MO	OK	TN	TX	Total
Ability to present narrative around numbers	1	4					1	6
Writing skills	1	1			1		1	4
<i>Personal Characteristics</i>	AL	AR	LA	MO	OK	TN	TX	Total
Reasoning			1	1		1		3
Self-motivated								0
Team player		2						2
Professional		1						1
Like challenges								0
Multi-tasking								0
Be quick to respond								0

Competitive								0
Well-rounded								0
Detail-oriented								0
Mature								0
Work well under pressure								0
Confident								0
State-wise Total	118	170	64	65	135	72	261	

Coding frequency analysis confirmed that business competencies are generally well covered in the business school curriculum across the seven states. The top three business competencies in terms of coverage are *data-driven decision-making, strategic and tactical thinking, and business performance management*. The bottom three business competencies covered include *change management, big data culture, and client interaction*.

The top three skills covered in the current curriculum of surveyed business schools are *data analysis, business intelligence (BI), and data modeling*. The technical skills that are least emphasized include *drill-down ability, extrapolation, charting data, sentiment analysis, and system analysis and design*. Perhaps the biggest gap between the skills in demand and the skills supplied by current course offerings is in the area of software tools. The software tools *Access, Oracle, DB2, Crystal Reports, Hadoop, COGNOS, IBM data warehousing, Geomapping, Tableau, Cloud 9, SAP, QuickView, PowerPoint* receive no coverage across all seven states' current course offerings. *Excel* is the most widely covered software tool followed by *Decision Support Systems (DSS)*. In terms of soft skill development, the course offerings across the three states of Louisiana, Missouri, and Tennessee do not cover any soft skill development, while the remaining four states of Alabama, Arkansas, Oklahoma, and Texas have at least some coverage of soft skills development.

A big gap was also observed in personal characteristics development across current course offerings with three states (Alabama, Oklahoma, and Texas) indicating no development in





## Curriculum Evolution

The *fourth research question* in this study was to show how business analytics can be integrated into the business core in order to provide all business students exposure to business analytics skill development. Based on the findings from the first three research questions in this study, the following plan for integrating business analytics into the business core was developed.

### ***Redesign of Management Information Systems (MIS) Core Content***

Woolridge et al. (2015) reported the design of a business analytics undergraduate degree in a college of business. The study identified “*can analyze data*,” “*can retrieve data*,” and “*can model data*” as the three top-rated business analytics technical skill areas (4.59, 4.47, and 3.88 mean rating respectively on a 5-point scale). In terms of the importance of potential courses in an undergraduate business analytics curriculum, the top three were “*database reporting*,” receiving a 4.38 rating; “*data analysis with Excel*,” receiving a 4.35 rating; and “*data visualization with Excel*,” receiving a 4.12 rating.

Based upon the analytics career projections and the research findings, business core technology content was redeveloped to incorporate business analytics.

- In the information systems course Business Information Systems 3305, Management Information Systems, students are introduced to database design and report generation. Issues relating to data quality and integration are emphasized. Skill in developing and using a data model is developed.
- In the business computer applications course Business Information Systems 3352, Business Data Analysis and Visualization, students develop business analytic skills in Excel focusing on for data analysis and visualization to complement their statistics skills. The course description, course objectives, and course schedule for Business

Information Systems 3352 are presented in Appendix A. This course is designed to develop the following:

- Knowledge of the value added by analytics-based decision making in carried industries.
- Skill in using Excel tools to develop applications based on data modeling.
- Appreciation of the value of data visualization.
- Understanding of how “big data” can be mined to provide information for decision-making.

### ***Data Analysis Project***

A required component of the Business Data Analysis and Visualization course is to complete a business data analysis project, which includes a complete analysis of a dataset with visualization components. This team project allows students the opportunity to identify a problem that can be addressed through data analysis, complete the analysis, interpret findings within the identified context, and effectively communicate the findings/conclusions. The required project deliverables are as follows:

1. Detailed/complete analysis of an identified dataset
  - a. Selection of dataset which provides sufficient information for a comparative analysis of identified factors
  - b. Identification of specific objectives/questions related to data which the analysis will address/answer
  - c. Development of workbook (containing multiple worksheets) which contains organized worksheets that logically develop analysis step by step (including documentation)

- d. Development of analytical short report which provides descriptive analysis, including appropriate visualization components
2. Submission to include
    - a. Analysis and visualization workbook (Excel)
    - b. Short report (Word)

### **Analytics Instructional Materials**

One of the recommendations Wixom et al. (2011) made in terms of improving the effectiveness of business analytics programs offered by business schools was to provide instructors who teach those courses to have better access to business analytics teaching resources. Many instructional resources are available which provide demonstrations of analytical tools, including advanced Excel applications. A few of the resources are as follows:

- Analyzing and Visualizing Data with Excel. (Hoter, 2015)
- Excel 2016 Pivot Table Data Crunching. (Jelen & Alexander, 2016)
- Data Visualizations with Power BI in Excel 2013. (Neeb, 2014)
- Faster Insights to Data with Power BI Jump Start. (Tejedor & Weyn, 2014)
- From Data to Insight and Impact: The BI Revolution. (Reguera, 2014)
- Big Data Analytics. (Ramos & Sen, 2013)

The Microsoft Virtual academy (<http://www.microsoftvirtualacademy.com/>) provides numerous training courses and other resources such as the following:

- The Business Intelligence Revolution  
<https://www.microsoftvirtualacademy.com/en-US/training-courses/from-data-to-insight-and-impact-the-bi-revolution-8361>
- Power Query and PowerPivot in Excel

<https://www.microsoftvirtualacademy.com/en-US/training-courses/from-data-to-insight-and-impact-the-bi-revolution-8361>

- Data Visualization with Power Business Intelligence

<https://www.microsoftvirtualacademy.com/en-US/training-courses/from-data-to-insight-and-impact-the-bi-revolution-8361>

### **Discussion and Implications of Research**

The first research question was to explore what undergraduate business analytics courses are currently being taught in schools of business in public universities across the seven states of Alabama, Arkansas, Louisiana, Missouri, Oklahoma, Tennessee, and Texas. Results of data analysis showed that the terms that were most used to describe current business analytics course offerings across business schools from the seven states included *data, business, analysis, intelligence, analytics, decision, mining, systems, and management* to name a few. Woolridge et al. (2015) identified that the following courses need to be integrated into an interdisciplinary undergraduate business school curriculum: “data analytics/visualization, quantitative business analysis, business communication, management information systems, database management, data analysis and reporting, predictive modeling, market research, social media, small group communication, legal/ethical issues, and experiential capstone” (p. 30). Results from this research confirm the findings of Woolridge et al. (2015).

The second research question this study sought to address is to what extent analytics content is being integrated into the core curriculum of these schools of business. Findings from this study show that there is very little to no integration of business analytics content into the business school core curriculum. Arkansas has the highest percentage of data analytics taught in the UG business core (10 percent) followed by Tennessee (8 percent) and Oklahoma (7 percent). Business schools from the states of Alabama, Louisiana, Missouri, and Texas do not integrate

any business analytics courses in their business core. The lack of integration of business analytics courses in the business school curriculum indicates that analytics programs taught in the business schools surveyed are not truly interdisciplinary. By identifying these gaps in business school core curriculum, this research confirms the immediate need to ensure that business analytics programs are interdisciplinary in nature (Wixom et al., 2011).

The third research question in this study was to investigate whether the observed business analytics curriculum across all seven states parallels the evolving needs of industry. Coding and content analysis was used to address this research question. Findings from this study revealed that the areas of business competencies (data-driven decision-making, strategic and tactical thinking, and business performance management) and technical skills (data analysis, business intelligence, and data modeling) are well covered in the business school curriculum across the seven states. This is good news for industry leaders such as Zoher Karu, Vice President, Global Customer Optimization and Data at eBay, who called for analytics talent to have both analytics-related technical skills and discipline-based knowledge (Buluswar et al., 2016). Data analysis results indicate huge gaps in current course offerings in the areas of software tools, soft skill development, and personal characteristics development. This study used *a priori* codes developed by Woolridge et al. (2015) based on their interviews with business analytics professionals and adds to that literature by incorporating several newly emerged codes in the categories of business competencies, technical skills, software tools, soft skills, and personal characteristics. By adding newly emerged codes, this research addresses calls by Wixom et al. (2011) to provide a broader range of business analytics skills. This study also adds to research done by Hsinchun et al. (2012) who identified prerequisite business analytics skills (domain knowledge, analytical skills, IT skills, communication skills) demanded of business school

graduates. Shirani and Roldan (2009) examined business analytics job postings in order to identify the demand for analytics talent. While Shirani and Roldan (2009) have identified just the analytical skills in demand, this study identifies both the skills in demand and the skills offered through current business school curriculum in order to identify the gaps between the supply and demand for analytics talent. Such gaps in analytics talent may explain why organizations like General Electric (GE) have invested more than \$2 billion in a training center to develop analytics talent (Davenport, 2013).

The fourth research question was aimed at addressing how business analytics can be integrated into the business core in order to provide all business students exposure to business analytics skill development. A detailed plan is provided in terms of how to design an analytics-based computer applications course and how to redesign an existing MIS course in order to incorporate development of analytics talent.

Wixom et al. (2011) recommended that instructors who teach analytics in business schools be provided with business analytics teaching resources. This call was addressed by providing a variety of web-based resources on business analytics.

### **Limitations and Future Research**

This study has three overall limitations. First, the study used *a priori* codes from Woolridge et al. (2015). Those a priori codes were based on interviews with business analytics professionals from the state of Arkansas. As a consequence, the findings of this research are somewhat limited in terms of their generalizability. Second, the data collected in this study is secondary data collected from the websites of the respective business schools surveyed across the seven states. Third, this study used data collection at a finite point in time and hence is considered cross-sectional.

Future research should use primary data collection methodologies to thoroughly investigate the analytics talent skills gaps in order to test the validity of the findings from this study. Another potential avenue for future research is to expand the states surveyed to cover the whole United States. Future investigations should also use a longitudinal approach to examine how the business analytics skills supply and demand change over time.

### **Conclusion**

Business analytics has been identified as one of the top five ways in which organizations can achieve competitive advantage (Press, 2015). This trend has led to an increasing demand for business graduates with analytics talent (Columbus, 2015). However, analytical talent is in short supply compared to its projected demand (Craig et al., 2012). This study examines this mismatch between the supply and demand of analytics talent by analyzing the undergraduate business school curriculum in state universities across a cluster of seven states in the southern United States.

Findings from this study provide a better understanding of business analytics courses that are currently being taught in schools of business in public universities across the seven states analyzed. Results of the data analysis also indicate that business analytics content is not being integrated into the core curriculum of these schools of business at a high level and that the observed business analytics curriculum matches industry needs in some areas (business competencies, technical skills) but not in others (software tools, soft skills, personal characteristics).

This research provides business schools a better idea of what their peers in other states are focusing on in terms of the business analytics curriculum. It also highlights the urgent need to integrate business analytics curriculum into the business core in order to better develop analytics talent. This study offers business schools insights into what skills business schools

need to incorporate through their course offerings if they are to meet the evolving needs of the industry in terms of analytics talent. In addition to identifying what skills business schools need to integrate into their core, this research also shows how to do so by creating an analytics-based computer applications course and by redesigning an existing MIS course.

By exploring the mismatch between the demand and supply of analytics talent, this research addresses the calls by Wixom et al. (2011) for colleges of business to assess the specific talent-based needs of their industry partners and prepare business school graduates for the analytics-based skills demanded in industry segments by developing interdisciplinary curricular experiences.

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**Appendix A. Business Information Systems 3352  
Business Data Analysis and Visualization – Syllabus**

**COURSE DESCRIPTION:**

Development of analytical, data visualization and reporting, and collaboration skills necessary for success in a data driven business environment. Focus on cutting-edge technologies in a business context.

**COURSE OBJECTIVES:**

1. To effectively design spreadsheets for long-term viability.
2. To apply Excel functions and analysis tools to business problem solving and critical thinking scenarios.
3. To use advanced Excel tools for data analytics.
4. To critically analyze appropriateness of data analysis techniques.
5. To use visualization tools for business communication and reporting.
6. To communicate effectively in a virtual environment.

**COURSE SCHEDULE:**

	<b>Related Objectives</b>	<b>Time Allocation</b>
<i><u>Data Analysis (Excel):</u></i>		
Excel customization: options, Quick Access toolbar, ribbon; effective spreadsheet design; introduction to data cleansing using Flash Fill; viewing data options using Quick Analysis; navigating Big Grid; file formats; cloud storage/linking/information sharing	1, 2, 6	1.5 weeks
Functions and complex formulas: financial, logical, lookup, Database; 3-D and array formulas Automating repetitive functions (macros)	2, 3, 4	4 weeks
Table Intelligence: PivotTables and Pivot Charts (including Slicers and Quick Explore), PowerPivot (Mashing), Interactive Dashboards (Power View, GeoFlow)	3, 4	3 weeks
What-If Analysis: Goal Seek, Scenario Manager, Solver	2, 4	1.5 weeks
Visual Presentation/Data Visualization: Flash Fill/Quick Analysis, conditional formatting, data bars, sparklines, charting	3	1 week
<i><u>Data Visualization (Word):</u></i>		
Word customization: options, Quick Access toolbar, ribbon, templates/themes/styles; Document design: multiple-page documents/sections, headers/footers, pagination, custom forms	5	2 weeks

Visualization: graphics and related features		
Research tools: citations, referencing, hyperlinks/cross referencing		
Collaboration, security, cloud resources: Document Inspector, track changes, document comparing/combining, digital signatures, Sky Drive, resource and document sharing, Print to Blog feature, Microsoft Presentation Service	5, 6	1 week
<i>Integration of Office Applications</i>	1, 2, 5	1 week

### End Notes

#### **Dr. Robert B Mitchell**

Chairperson and Professor of Business Information Systems  
 Department of Business Information Systems  
 College of Business  
 University of Arkansas at Little Rock  
 2801 S. University Avenue, Little Rock, AR 72204  
 Phone: (501) 569-8854  
 Email: rbmitchell@ualr.edu

#### **Dr. Ravi Thambusamy**

Assistant Professor of Business Information Systems  
 Department of Business Information Systems  
 College of Business  
 University of Arkansas at Little Rock  
 2801 S. University Avenue, Little Rock, AR 72204  
 Phone: (501) 569-8882  
 Email: rxthambusamy@ualr.edu

## **Do University Websites Provide Necessary Information Regarding Selection Factors for Prospective Online Program Students?**

Sherry R. Rodrigue, Nicholls State University  
Ronnie Fanguy, Nicholls State University  
Lori C. Soule, Nicholls State University  
Betty A. Kleen, Nicholls State University

### **Abstract**

As more and more colleges and universities focus on offering totally online programs and enrollment in online programs continues to grow, the process of selecting a quality online program remains important. What are important selection factors when comparing schools and programs, and how much information do universities provide on their own websites to assist prospective students in their comparisons? How much comparison information can website visitors find without committing to providing personal contact information? This study compared websites of the 50 schools identified as the best online colleges for 2015-2016 by Thebestschools.org. Findings reveal opportunities for more information to become available in future website upgrades and/or revisions.

**Keywords:** *Online degrees, online learning, online program selection factors*

### **Introduction**

Each year more universities and academic programs are joining the list of online degree offerings in addition to retaining their traditional face-to-face delivery programs. A university wishing to research its own online structure and procedures has many programs to investigate as it plans everything from its administrative structure to support services to academic programs to specific website content. Websites of hundreds of schools can be studied for layout and content best practices, as well as internal design for online degree administration, academic services, and student services offered to online students.

More bachelor's degrees have been awarded in business than in any other discipline in recent years, according to the National Center for Education Statistics (2013). Based on research related to demand for such a program, the authors' mid-sized public university in the south also added a fully online business degree within the past three years. The business major was not part of the initial offerings in the "Nicholls Online" degree offerings when the university's fully online program opened for enrollment in 2012.

Given the number of well-established online degree programs in the country, the authors' university initially looked at many materials and websites to help those tasked with designing both operational procedures and structure of the original online division. Given the subsequent student response to the online programs, the University is reviewing policies, structures, and procedures to determine whether any changes are needed to support the growth potential. As an example of why it is time to question such structure, the enrollment in the online business degree program now represents approximately one-third of all students enrolled in fully online programs at the University. Some other issues have also emerged, including the following: a single faculty member within the Computer Information Systems department advises all the online business degree students; in addition to advising needs, students continue to have questions that suggest certain administrative, student, and academic information is not getting to them expediently; students are not allowed to self-enroll in courses. Both administrators and faculty are questioning whether best practices are being employed in all aspects of the online programs. This also includes a need to review the website structure, design, and content.

### **Literature Review**

Much has been written about online programs at the postsecondary level over the past fifteen years. One topic within the numerous subtopics related to online programs specifically

relates to program selection factors. Of particular value is a 2010 Noel-Levitz higher education consulting group report entitled “National Online Learners’ Priorities” (Noel-Levitz, Inc., 2010). This report presented findings from a survey of over 84,000 students from 97 different higher education institutions over a three-year period including fall 2007 – spring 2010. As indicated by survey participants, eleven selection factors were identified as important when choosing an online college. Those eleven factors in rank order included convenience, flexible pacing, work schedules, program requirements, reputation of institution, cost, financial assistance available, availability to transfer credits, future employment activities, distance from physical campus, and recommendations from an employer. As the Noel-Levitz report noted, some of these factors are under control of the school and some link to various constraints defined by individual students.

A simple web search can identify numerous sites with articles presented in easy-to-understand terms that help guide a student in how to pick the right online degree program and school. Websites specifically focusing on online education such as [OnlineCollege.org](http://OnlineCollege.org), [mycollegeguide.org](http://mycollegeguide.org), [distancelearningportal.com](http://distancelearningportal.com), and [educationonline.com](http://educationonline.com) all offer articles containing helpful tips for anyone wanting guidance on important factors to research prior to selecting a particular school and online program. More general periodical sources such *US News* have also provided guidance in distinguishing the good from the bad schools and programs (Sheehy, 2012). [Distancelearningportal.com](http://Distancelearningportal.com) offers five important criteria, including accreditation of institution and program, flexibility of program, tuition/fees, personal support and service, and quality of study material and the digital learning environment. [Mycollegeguide.com](http://Mycollegeguide.com) also lists five tips, including confirming the program’s accreditation, checking degree requirements closely, asking about student support services, inquiring about technical support,

and finding out about financial aid. Onlinecollege.org includes the eleven factors previously identified in the 2010 Noel-Levitz study in its list of valuable program selection factors.

Another potentially useful source for comparison factors in choosing an online program may be found at certain university websites as well. Using a somewhat different organizational structure for important selection factors, the University of Colorado-Denver CU Online website groups nine different factors under the following topics: “Resume Worthy,” “Affordability,” “Worth the Money,” “Options and Choices,” “Equal=Equal,” and “Safety Net” ([www.ucdenver.edu/academics](http://www.ucdenver.edu/academics)). While some of these topics may be self-explanatory, UC-Denver identifies accreditation and school reputation under the “Resume Worthy” topic, and “Worth the Money” suggests the prospective student research whether the quality of the online program is at least equal to or greater than any traditional campus experience for that program. UC-Denver suggests the student investigate whether online and campus courses are interchangeable under the “Equal=Equal” topic, and “Safety Net” suggests the prospective student investigate whether a brick and mortar office to meet the professor is available and what types of customer service and tech support are available for online students.

Articles such as the above focus on the need for prospective students to consider issues such as school accreditation, program offerings, credit for prior courses, ability to transfer courses completed online to other schools, quality of support service, academic counseling, financial aid information without “pushy” counselors, technical support, and even completion rates and student reviews. By looking at a number of websites, a potential online student can create a fairly comprehensive list of factors to compare as different online programs at various schools are being researched and evaluated.

Another segment of the online education research focuses on various administrator and administrative structure of successful online programs (Alexander, 2015; Allen & Seaman, 2013; Buckley & Narang, 2014; Chambers, 2004; Davis, 2011; Hoey, McCracken, Gehrett, & Snoeyink, 2014; and Kuruvilla, Norton, Chalasani, & Gee, 2012). Consistent themes in these articles support the need for careful design of administrative structures and academic structures that best support online learners to ensure quality programs and good completion rates. Yet other articles focus more directly on the importance of supporting online students through the student services aspect of a postsecondary institution (Crawley, 2012), and importance of effective student-advisor interaction to retain online students (Gravel, 2012; Ragin, Burrell, & Flowers, 2014).

Effective orientation for online learners has received less attention in the literature, although Cho's developmental study (2012), reported on the usefulness of a four-module student orientation program. The modules included (1) the nature of online learning, (2) how to learn in a course management system, (3) technical requirements students must have/meet, and (4) learning skills and motivations students need to succeed in online learning.

Various organizations also provide annual "best schools" lists, including best online schools, which can also provide helpful information to prospective online learners. One such organization is thebestschools.org, which provides in-depth rankings and generates a listing of "The 50 Best Online Colleges" (2015). Using a multicriteria evaluation, thebestschools.org balances such things as academic excellence, a student's return on investment, and other indirect or secondary benefits in determining these rankings. Factors such as scholarly strength of faculty, online teaching methods, tuition costs, reputation, awards, financial aid, and range of degree programs were also considered in this ranking system. The most recent list largely

encompasses traditional campus-based schools that now also offer totally online degrees instead of those for-profit schools offering online degrees only. Most of the schools on the 2015-2016 list are public institutions.

Overall many factors impact whether an online school's programs offer quality to meet the individual student's needs and desires, considering both factors under a school's control and those factors that are influenced by a student's own constraints. Many of the comparison factors can impact a student's successful completion of the programs. A school wishing to assist an online visitor in assessing both the value and fit of its online programs has numerous guidelines to follow in determining what content to post on its website to provide a wealth of information for visitors who want to do their own research prior to calling a specific school's distance learning office.

### **Purpose of the Study**

Because of the abundance of literature related to establishing and maintaining effective online degree programs and the abundance of websites of postsecondary institutions supporting online programs, the authors assessed that a review of schools identified as top online schools could potentially provide examples of best practices, procedures, and structure which could in turn help the researchers identify suggestions for change at their university. The authors elected to review websites of the top 50 online universities as identified by thebestschools.org. Once this project was underway and shared with an administrator group on campus, a university-wide committee became interested in learning of the findings.

### **Methodology**

The Nicholls State University online program website provides the following links: welcome, online degrees available, courses and schedule, tuition and fees, calendar, apply for

admissions, frequently asked questions, where to go (lists where to go for help for numerous issues), student resources, video tutorials, and a “is Nicholls Online Right for Me” quiz ([www.nicholls.edu/online](http://www.nicholls.edu/online), 2015). Considering those links, as well as the types of questions the business faculty advisor reports students raising throughout a semester, the authors created a list of website comparison factors and entered them into a spreadsheet to be used for data gathering. The authors also devised a coding system to use in recording data collected at the various sites. Drawing from [thebestschools.org](http://thebestschools.org)'s 2015 listing of the 50 top online schools, 50 schools were used in the study. The authors chose this list in part because the focus is on recognizable colleges and universities in various states that are also known for their face-to-face, traditional structure for degree programs. The complete list of schools and their identified websites provided by [thebestschools.org](http://thebestschools.org) can be found in Appendix A.

Each of the authors completed a review of one-fourth of the schools; once data were collected, the authors met to identify questions and/or inconsistencies in the data collection prior to data analysis. The study did not investigate academic excellence or return on investment of the schools reviewed. The focus of the study was to identify common and best practices concerning such things as program structure and conveyance of important information for prospective online students.

### **Findings**

Using the list of “The 50 Best Online Colleges for 2015-2016” as researched and rated by [www.thebestschools.org](http://www.thebestschools.org), the authors reviewed all 50 websites and recorded findings on an Excel worksheet containing the list of programs and topics to be researched. All 50 schools offered various bachelor's degrees through online programs, with 94 percent also offering various master's degrees, and 58 percent offering doctoral degrees. Over three-fourths (78 percent) of

the schools also offered various post baccalaureate and post graduate certificates through their online programs.

As a means of testing how quickly a prospective student might find a school's website, a Google search was conducted using "online degrees in [state]." As reported in a conference presentation (Rodrigue, Fanguy, Soule, & Kleen, 2015), 68 percent of the schools were listed as the first result for their state, and the other 32 percent were somewhere on the initial results page. In that same conference presentation paper, the authors reported that when each school's website was reviewed, 50 percent of the schools listed the online program on the main webpage. When looking to see if the online program was located on a drop-down menu on the main school webpage, 58 percent of the schools did have the online program listed.

The authors' university invites online students to connect with the school's community through Facebook, Twitter, and YouTube, and another question in the study gathered information as to what social media other universities were using to connect with online students. In this review of 50 university websites, only 84 percent clearly listed social media in use within the online programs site, with Facebook (84 percent), Twitter (78 percent), and YouTube (64 percent), being the most often used. One school clearly identified the use of an online community specifically for distant learners.

Another important segment of the research addressed in this paper looked at each school's website to address whether a school provided prominent program and school selection information on key topics of importance to prospective students, either through a main FAQ section or clearly identified links from a main online program page. These topics had been identified by the authors as important questions prospective students want to read about and research on their own before actually selecting their final choice of an online school and

program. The websites were reviewed to determine what information students could find by themselves, before committing their name and contact information to an email information request and a potential “hard sell” by an institution’s staff. Topics included financial aid, admissions, transfer credits, course completion structure (such as quarter, semester, or short term), fees due, data of next term, advising, registration, and drop dates.

For comparison purposes, data is broken down to reflect numbers for all 50 of the schools reviewed, as well as the top 10 and the bottom 10 of the 50. Additionally, the authors’ university comparison is also included. Table 1 provides a comparison on topics available at (1) the authors’ university, (2) the percentage of the entire 50 schools researched, (3) the percentage of schools 1-10 of the 50 schools list, and (4) the percentage of schools 41-50 of the 50 schools list. As Table 1 displays, financial aid help or FAQs (92 percent) and admission information or FAQs (88 percent) were typically offered. Although readily available guidelines found in numerous articles on the web concerning choosing an online school remind students to check for transfer credit capability and fees, less than 75 percent of the school websites provided this information for prospective students. Only a little more than half even identified dates of next term in an easy to find manner. The majority of the websites, 98 percent, provided a contact phone number, while only 14 percent provided a specific contact name or office with which the student could communicate. Emails were apparently preferred so they could perhaps be monitored or addressed by more than a single staff person. Providing immediately accessible information about the graduation process is apparently not a high priority for many online programs.

**Table 1.** Information Readily Available for Website Visitors without Phone Calls or Email Inquiry

<u>Topic</u>	<u>Authors' U</u>	<u>50 Best Schools</u>	<u>Schools 1-10</u>	<u>Schools 41-50</u>
Financial Aid	Y	92%	100%	90%
Admission	Y	88%	100%	80%
Fees Due	Y	74%	100%	90%
Transfer Credit	N	64%	50%	70%
Registration	Y	64%	80%	30%
Advising	Y	56%	50%	60%
Dates of Next Term	Y	54%	60%	80%
Drop Dates	Y	54%	60%	50%
Graduation Process	N	30%	30%	10%
Contact Phone No.	Y	98%	10%	90%
Contact Office/ Person	Y	14%	10%	10%

When comparing the top 10 schools on the list (1-10) to the bottom 10 (41-50) for items reported in Table 1, there was not much difference found. The topic with the most variance was registration; 80 percent of the 10 top schools provided information while only 30 percent of the 10 bottom schools did. The authors' school compared favorably to the 50 best schools, providing information about 9 of the 11 topics listed.

The authors' university follows a short-term structure of five eight-week sessions, with classes beginning in January, March, June, August, and October for the online degree programs; this information is clearly presented in the online program webpage. This structure has created some challenges for faculty, and some question whether this structure should be changed to simply match the regular 15-16-week semester structure. A review of the 50 best online schools revealed that 50 percent offered special online terms, while 56 percent followed a typical university semester term (a few schools offered flexibility of either typical semester terms or special online terms depending on program selected). In some instances, the information was not readily available unless a prospective student placed a phone call or sent an email inquiry.

Since numerous sources suggest that prospective students research to identify what technology would be required to complete a school's online degree and the level of support

available, a section of the overall analysis looked at various online training for the technology available on the websites. The authors' university provides several training videos that prospective online students can review, including use of the course management system, time management tips, computer skills, communication strategies, and access for the Banner system and email. As displayed in Table 2, the most frequent training provided by the 50 schools focused on the specific course management system the students would be using for their coursework. Sixty-eight percent of the schools provide prospective students with information about the course management system (CMS), either as an overview of how to use the specific CMS of the school, or even a demonstration online course. Slightly more than 50 percent provided a variety of other training support, and slightly less than 50 percent provided some training related to registration for coursework. When comparing the top 10 schools on the list (1-10) to the bottom 10 (41-50), several areas were noticeably different. More of the top 10 schools provided website assistance with registration and email, while more of the bottom 10 schools provided website assistance with login help and general online training concepts.

**Table 2.** Types of Support Readily Available for Website Visitors without Phone Calls or Email Inquiry

<u>Type of Support</u>	<u>Authors' U</u>	<u>50 Schools</u>	<u>Schools 1-10</u>	<u>Schools 41-50</u>
Course Management System	Y	68%	80%	80%
Login	Y	64%	60%	90%
Training	Y	52%	50%	90%
Registration	N	48%	80%	30%
Email	Y	36%	50%	10%

Because the authors were initially concerned about the advising load of one business faculty member for all business majors, specific degrees offered in a totally online format and advising procedures were also researched on each website. In addition to several non-business degrees, the authors' university currently offers a single business degree, business

administration, in a fully online format. As Table 3 displays, 76 percent of the 50 best online schools offered an online MBA. At the undergraduate level, the most popular degree was a general business (or generalist business administration), with 60 percent of schools offering that degree. The degrees of computer information systems, management, marketing, and accounting were available at 54 percent, 52 percent, 46 percent, and 40 percent of the schools, respectively. The degrees of finance and economics were only available at 16 percent and 10 percent, respectively. When comparing the top 10 schools on the list (1-10) to the bottom 10 (41-50), differences were found in availability of Management and Marketing degrees; significantly more were offered at the schools ranked 41-50. Economics was the only degree offered at 2 of the 10 top schools and not at any of the bottom 10 listed schools.

**Table 3.** Types of Business Degrees Awarded

<u><i>Business Degrees</i></u>	<u>Authors' U</u>	<u>50 Best Schools</u>	<u>Schools 1-10</u>	<u>Schools 41-50</u>
MBA	N	76%	90%	90%
General Business	Y	60%	60%	60%
Computer Info. Systems	N	54%	70%	60%
Management	N	52%	20%	100%
Marketing	N	46%	10%	60%
Accounting	N	40%	20%	30%
Finance	N	16%	10%	10%
Economics	N	10%	20%	0%

The authors researched two questions concerning advising and registration. The first question focused on whether there was a dedicated advisor for online business students. Again, this information was not readily available on all school websites. Twenty-eight percent of the schools did have a dedicated business advisor while 36 percent did not. The information available to prospective students did not reveal whether the dedicated business advisor was a full-time advisor (staff) or a faculty member. The availability of a dedicated online advisor

could not be determined at the remaining 36 percent of the schools without a specific email inquiry or phone call.

A related question concerned whether students could self-enroll in their courses; online students are not permitted to self-enroll at the authors' university. Fifty-eight percent of the 50 schools did allow students to self-enroll while 4 percent clearly did not. The process of a student being able to self-enroll could not be determined at 36 percent of the schools. When comparing the top 10 schools on the list (1-10) to the bottom 10 (41-50), in only 1 of the top 10 schools was an advisor for business students clearly identified, while 4 of the bottom 10 schools listed such an advisor. In addition, 8 of the top 10 schools allowed students to self-enroll in courses in the online program, while it was only 3 of the bottom 10 websites that clearly stated online students had that capability.

**Table 4.** Online Advising for Business Students and Student Registration

	<u>Authors' U</u>	<u>50 Best Schools</u>	<u>Schools 1-10</u>	<u>Schools 41-50</u>
<b>Dedicated advisor for business students?</b>				
Yes	Y	28%	10%	30%
No		36%		10%
Unknown		36%	90%	60%
<b>Student self-enrollment in courses?</b>				
Yes		58%	80%	30%
No	N	4%		10%
Unknown		36%	20%	60%

## **Conclusions, Implications, and Future Research**

This study specifically looked at information prospective online students could gather from university websites about their online programs prior to selection of a particular school or program. As online programs continue to grow, schools will choose different approaches for administration, academic structure, and student support services. Schools will also choose different approaches as to what content is available on their websites prior to a prospective student directly providing his or her contact information to the school. For those prospective students who have researched and identified various comparison factors for which they seek information, a website that is hard to navigate or one that simply does not provide key comparison information may be missing opportunities to attract more online students.

As this study revealed, although the majority of the 50 schools researched did provide answers to some of the key frequently asked questions such as admissions, registration, financial aid, and schedules, by no means was the information easy to find in all instances. Many schools omitted information regarding some of the key program selection questions, creating a situation where a student would have to submit an email inquiry or place a phone call for more information. While the authors' university provided information for 9 of the 11 topics, information about transfer credits was not specifically present. Prospective online students could find a variety of training videos and/or information sheets on many of the websites, but some schools provided little or no materials, missing an opportunity to help a prospective student feel confident about the student support the university might provide to online students. The authors' university had a good variety of videos and provided a quiz prospective students could take to help them determine if they were a good fit for online learning.

In an era of shrinking state budgets to support higher education, the number of faculty available to help with advising and actual registration of students in courses is often shrinking, especially since faculty are being asked to do more than ever before in many cases. Initial investigation of the websites of online business programs reveals that advising approaches vary among schools, but more than half do allow online students to self-register in courses, thus reducing staff and/or faculty time involvement in this aspect of online learning.

Since the authors' university online degree web page does not directly address the issue of transfer credits, one specific recommendation would be to add some information on this topic to the materials prospective students can review, especially since that is a topic frequently identified as a factor that should be researched prior to student selection of an online program. Because the information about advisors and self-registration capabilities were not readily identified in approximately one-third of the websites, more depth of research should be conducted to better determine how these processes are handled in more schools. New approaches and ideas can be gathered from such research.

Based on this initial review of the 50 best online schools' websites, no single approach in providing initial information on websites was identified. Since key information was sometimes missing or difficult to find, more information on these topics can be gathered through phone interviews with the appropriate online learning administrators at each of the 50 schools whose websites were reviewed in this study. This will allow more depth of understanding concerning such issues as frequency of communication with online students and specifics of policies and procedures not identified through visual review of the websites. Interview questions can also be expanded to address topics of special interest to administrators and faculty such as online faculty

composition and backgrounds, faculty pay structures, and internal administrative organization and personnel for online programs.

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## APPENDIX A

### List of Schools Researched and their Website Addresses

List obtained from: [www.thebestschools.org/rankings/best-online-colleges/](http://www.thebestschools.org/rankings/best-online-colleges/)

1. Penn State World Campus, [www.worldcampus.psu.edu](http://www.worldcampus.psu.edu)
2. University of Florida distance Learning, [www.distance.ufl.edu](http://www.distance.ufl.edu)
3. UMass Online, [umasonline.net/](http://umasonline.net/)
4. Boston University, [www.bu.edu/online/](http://www.bu.edu/online/)
5. Northeastern University, [northeastern.edu](http://northeastern.edu)
6. Indiana University, IU Online, [online.iu.edu](http://online.iu.edu)
7. Arizona State University, ASU Online, [asuonline.asu.edu/](http://asuonline.asu.edu/)
8. Florida State Univ. Office of Distance Learning, [www.fsu.edu](http://www.fsu.edu)
9. Drexel University, Drexel Online, [www.drexel.edu](http://www.drexel.edu)
10. Oregon State University, OSU Ecampus, [ecampus.oregonstate.edu](http://ecampus.oregonstate.edu)
11. Rochester Institute of Technology, RIT Online, [rit.edu/ritonline/](http://rit.edu/ritonline/)
12. Washington State University Global Campus, [globalcampus.wsu.edu](http://globalcampus.wsu.edu)
13. Mizzou Online, University of Missouri, [online.missouri.edu](http://online.missouri.edu)
14. Colorado State University-Global Campus, <https://csuglobal.edu>
15. University of Central Florida, [ucf.edu](http://ucf.edu)
16. Liberty University Online, <https://www.liberty.edu/ms/libertyonlinedegrees/>
17. Robert Morris University, RMU Online, [rmu.edu](http://rmu.edu)
18. Univ. of AL Birmingham, UAB Online,  
<https://www.uab.edu/students/academics/item/959-online-courses>
19. University of Minnesota Crookston, [www1.crk.umn.edu](http://www1.crk.umn.edu)
20. Northern Arizona University, NAU-Extended Campuses  
[ec.nau.edu/OnlineDegrees.aspx](http://ec.nau.edu/OnlineDegrees.aspx)
21. Florida Institute of Technology, Florida Tech University Online  
[floridatechonline.com](http://floridatechonline.com)
22. University of North Dakota, [und.edu](http://und.edu)
23. Everglades University, [evergladesuniversity.edu/index.asp](http://evergladesuniversity.edu/index.asp)
24. University of Illinois Springfield, [uis.edu](http://uis.edu)
25. Western Kentucky University, [wku.edu](http://wku.edu)
26. Regis University, [regis.edu](http://regis.edu)
27. Missouri State University, [missouristate.edu](http://missouristate.edu)
28. New Mexico State University, [nmsu.edu](http://nmsu.edu)
29. Fort Hays State University, Virtual College, [fhsu.edu/virtualcollege/](http://fhsu.edu/virtualcollege/)
30. University of Louisiana at Monroe, [ulm.edu](http://ulm.edu)
31. Lewis University, [lewisu.edu](http://lewisu.edu)
32. Huntington University, [huntington.edu](http://huntington.edu)
33. University of Southern Mississippi, [usm.edu](http://usm.edu)
34. Indiana Wesleyan University, [indwes.edu](http://indwes.edu)
35. California Baptist University, CBU Online, [cbuonline.edu](http://cbuonline.edu)

36. Regent University, Regent Online,  
[regent.edu/academics/online\\_courses/regent\\_online\\_overview.cfm](http://regent.edu/academics/online_courses/regent_online_overview.cfm)
37. Upper Iowa University, [uiu.edu](http://uiu.edu)
38. Champlain College, [champlain.edu](http://champlain.edu)
39. Dakota State University (in Madison, SD), [dsu.edu](http://dsu.edu)
40. University of Memphis, UM Online, [Memphis.edu/uofmonline/](http://Memphis.edu/uofmonline/)
41. Lamar University, [lamar.edu](http://lamar.edu)
42. Florida International University, [fiu.edu](http://fiu.edu)
43. East Carolina University, [ecu.edu](http://ecu.edu)
44. Nova Southeastern University, [nova.edu](http://nova.edu)
45. Brenau University, [brenaudegree.com](http://brenaudegree.com)
46. Saint Leo University Online, [online.saintleo.edu](http://online.saintleo.edu)
47. Limestone College, [limestone.edu](http://limestone.edu)
48. Kennesaw State University, [Kennesaw.edu](http://Kennesaw.edu)
49. Old Dominion University, [odu.edu/#prospective](http://odu.edu/#prospective)
50. Concordia University-Saint Paul, [csp.edu](http://csp.edu)

## End Notes

### **Sherry A. Rodrigue, MBA**

Argent Bank Endowed Professor  
Instructor, Department of Business Administration and Computer Information Systems  
Nicholls State University, Thibodaux, Louisiana, 70310  
Office phone: 985-448-4749  
sherry.rodrigue@nicholls.edu

### **Ronnie Fanguy, Ph.D.**

Andie Bollinger Endowed Professor in Business  
Head, Department of Business Administration and Computer Information Systems  
Nicholls State University, Thibodaux, Louisiana, 70310  
Office Phone: 985-448-4971  
ronnie.fanguy@nicholls.edu

### **Lori C. Soule, Ph. D.**

Director of Online Business Education  
Assistant Professor of Computer Information Systems  
Nicholls State University, Thibodaux, Louisiana, 70310  
Office Phone: 985-448-4242  
lori.soule@nicholls.edu

### **Betty A. Kleen, Ed.D.**

Professor Emeritus and Alcee Fortier Professor  
Department of Business Administration and Computer Information Systems  
Nicholls State University, Thibodaux, Louisiana, 70310  
Office Phone: 985-448-4191  
Cell phone: 985-414-4016  
betty.kleen@nicholls.edu

An earlier version of this manuscript was presented at the ABIS Conference in the spring of 2016. It was published under the title, "Information Available for Prospective Online Students on University Websites." In this revision, the literature review has been somewhat expanded and a few other areas edited for greater clarity or expansion of discussion.

# **Examining the Relationships of University Student Characteristics and Motivation in a Blended Digital Literacy Course Using the Keller ARCS Motivation Model**

Shane Schartz, Fort Hays State University

## **Abstract**

The purpose of this study was to examine student motivation in a blended learning digital literacy course and its relation to non-performance-based and performance-based student characteristics. The study consisted of 136 student participants enrolled in a blended learning digital literacy course at a Midwestern university. The Keller ARCS Motivation Model served as the theoretical framework for the study. The study examined the four motivational categories of the model (Attention, Relevance, Confidence, Satisfaction) and how they related to non-performance student characteristics, pre-course performance student characteristics, and post-course performance student characteristics.

**Keywords:** *Blended Learning, Keller ARCS, Digital Literacy, Instructional Technology, Motivation*

## **Introduction**

University enrollment growth in the United States is expected to increase by nearly 14% in the next decade (Hussar & Bailey, 2014). In 2009, it was reported that approximately 55% of employment in the United States required postsecondary education and is expected to continue to rise (Oblinger, 2012). This increase in enrollment, along with innovations in technology and information systems, has encouraged universities to expand and deviate from two course types: on-campus and online, to four course types: traditional, web-facilitated, blended/hybrid, and online. Traditional courses deliver zero content online, and web-facilitated courses deliver up to 29% of the content online. Blended courses deliver up to 79% of content online, and online courses deliver 80% or more of the content online (Allen & Seaman, 2013).

This study focused on the blended course type, commonly referred to as blended learning. Blended learning is the most preferred learning model for college students (Dahlstrom, Walker, & Dziuban, 2013). This term is defined as “the range of possibilities presented by combining Internet and digital media with established classroom forms that require the physical co-presence of teachers and students” (Friesen, 2012). While blended learning can deliver a large portion of content online (up to 79%), the reduced face-to-face time is important to blended learning (Allen, Seaman & Garrett, 2007; Sahare & Thampi, 2010).

To examine student motivation in the blended digital literacy course, the Keller ARCS Motivation Model provided the framework to measure motivation. Keller (2006) lists four factors of motivation: Attention, Relevance, Confidence, and Satisfaction. These motivational factors, along with student characteristics, were analyzed in the study to examine the possibilities of certain student characteristics being related to motivational measures from the Keller ARCS Motivation Model.

### **Purpose of the Study**

The purpose of this study was to examine the possible relationships of university student characteristics and perceived motivation in a blended digital literacy course. By examining these possible relationships, faculty may gain a better understanding of how student characteristics may impact motivation in a blended course design. This study attempted to increase understanding of motivation in today’s university students, as well as help to provide a process for faculty to examine motivational levels of students in a blended course design.

### **Limitations of the Study**

Participants may have shared desirable responses instead of honest responses with the researcher due to the researcher being an instructor at the university. Students may have developed adequate knowledge and use of available web-based technologies beyond the content of the course, and may not have been motivated by the course. Participants existed only within the on-campus population of the university. Virtual students may not perceive the same motivational elements as on-campus students, and

the findings may not pertain to all populations of students due to the nature of the survey instrument. This study was conducted at a single university; the research findings may not be transferrable to other universities. This study may only provide a small glimpse into the complexities of motivation. Other student characteristics may exist that have a significant impact upon the results. Some on-campus university students may have been excluded from the study due to an insufficient number of class sections being offered for enrollment. Some students may have dropped the course before the survey was administered. This could have been due to lack of motivation by the course and would not be included in the findings.

### **Delimitation of the Study**

The researcher limited the population of the study to on-campus university students, as the on-campus sections of the digital literacy course were the only sections that used a blended learning model.

## **Literature Review**

### **The Digital Native**

Technology has become an essential part of postsecondary education and has forced universities to change, adapt, and innovate into new areas through new instructional designs (Craig, 2007; Pritchett, Wohleb, & Prichett, 2013). Incorporating technology into the learning environments has not been without reason. Students in postsecondary education today are digital natives; they can inherently use technology (Prensky, 2001). These students have used technology in many aspects of their lives, for their entire lives, especially for learning (Barton & Skiba, 2006; Palfrey & Gasser, 2008; Martinez, 2009; Koutropoulos, 2011). Considered anyone born after 1980, digital natives react well to technology-infused learning environments and typically possess an array of technology skills (Prensky, 2001; Palfrey & Gasser, 2008; Allen & Seaman, 2014). However, these digital natives vary largely when demographical factors are considered, such as race, gender, location, socioeconomic status, and educational background (Koutropoulos, 2011). The challenge for faculty is how to motivate these ‘new’ students with ‘new’ learning models.

## **Integrating Technology into New Learning Models**

With technology use as a common characteristic of digital natives, courses are being redesigned and enhanced to accommodate technology into learning environments. Using technologies such as wikis, learning management systems, interactive modules, web-based tools, laptops, tablets, etc., educators have enhanced motivation and student learning in the United States (Hazari, North, & Moreland, 2009), Australia (Shih, 2011) and the United Kingdom (Prescott, 2014). As faculty become more skilled with these technologies, the average faculty reported high technology use (72%) and a positive attitude towards technology (70%) (Allen and Seaman, 2014). This suggests not only student support, but also faculty support for technology in education.

For this study, the focus was on student characteristics and motivation within a blended learning environment. Blended learning instruction includes more than 29% (up to 79%) of the content to be delivered by web-based technologies, it also reduces the amount of face-to-face instruction that occurs in the course (Allen & Seaman, 2014). Reduced face-to-face time is an essential part of blended learning (Allen, Seaman & Garrett, 2007; Sahare & Thampi, 2010). An important reason to focus on blended learning is that it is the most preferred learning model for college students (Dahlstrom, Walker, & Dziuban, 2013).

## **Keller ARCS Motivation Model**

The final form of the Keller ARCS Motivation Model incorporates four main categories to assess motivation, and these include Attention, Relevance, Confidence, and Satisfaction (Keller, 2010). This model was evolved from the Expectancy-Value Theory developed by John Atkinson in 1964, and first used in education in 1983 to explain how motivation can relate to expected values and outcomes (Eccles, 1983). The final categories in the Keller ARCS Motivation Model were created by moving ‘value’ to the beginning of the model and dividing value into two categories, Attention and Relevance. ‘Expectancy’ became Confidence, and Satisfaction was added to the end of the model (Keller, 1987).



**Figure 1.** Keller ARCS Motivation Model Categories

*Note: From Ridley, M. (2014). <http://mariannaridley.com/2014/02/24/transfer-of-training-leveraging-gagnes-nine-events-and-kellers-arcs-model/>*

Johnson (2012) developed a summary of each category and subcategory, along with motivational strategies, presented in Table 1. An important concept in the Keller ARCS Motivation Model is that the presence of motivational elements within the learning environment can lead to increased motivation. It is also important to note that Keller (1987) defined the model as a method for improving the motivational appeal of instructional materials. To better define the motivational process, Keller (1987) defined three features of the ARCS Motivational Model that are important:

1. Establish connections to motivational theory by using the ARCS model.
2. Enhance the appeal of instruction by using ARCS strategies.
3. Utilize a systematic design process in applying ARCS.

Table 1 summarizes these features by providing components and constructs that relate to multiple motivational theories, but also providing various motivational strategies in each category. Keller (2006) emphasized that the ARCS Model of Motivation should be part of an empirical approach to instructional design, and that the design process is ultimately in the hands of the instructional designer as part of a systematic design process.

**Table 1.** Keller ARCS Components of Motivation and Motivational Strategies

ARCS Elements	Components	Psychological Constructs	Motivational Strategies
<b>Attention</b> – Get the learners attention and then guide and maintain it though the instruction. Use “surprise” and “curiosity” in the instruction to engage the learner.	<ol style="list-style-type: none"> <li>Variability</li> <li>Humor</li> <li>Concreteness</li> <li>Cognitive Conflict</li> <li>Inquiry</li> <li>Participation</li> </ol>	A1-Perceptual Arousal A2-Inquiry Arousal A3-Variability	<ol style="list-style-type: none"> <li>A change in instruction, such as short video clips, discussions, or team projects.</li> <li>Use humor as a strategy to introduce the material, or to break-up instruction and refocus student attention.</li> <li>Link from the topic to a real-world example.</li> <li>Debate and student discovery of the topic.</li> <li>Ask questions or problems for students to analyze and solve.</li> <li>Allow students to be actively involved through simulations, games, labs, teamwork/groups, etc.</li> </ol>
<b>Relevance</b> – Show the learners the benefits to them and how the instruction is relevant to their personal situation and future goals.	<ol style="list-style-type: none"> <li>Experience</li> <li>Present Worth</li> <li>Future</li> <li>Need Matching</li> <li>Modeling</li> <li>Choice</li> </ol>	R1-Goal Orientation R2-Motive Matching R3-Familiarity	<ol style="list-style-type: none"> <li>Show how prior knowledge will assist in comprehending new material.</li> <li>Set up scenarios that show how the students’ current situation may be changed by learning new material.</li> <li>Make course materials relevant to students’ future goals. Help students make the link between the material and future goals.</li> <li>Organize instruction so that learners may demonstrate personal need factors such as taking risks, achievement, etc.</li> <li>Model instructional activities, such as guest speakers, videos, tutoring, etc.</li> <li>Provide activities which allow students choice.</li> </ol>
<b>Confidence</b> – Develop learner confidence and help student to understand how to be successful in the class. Learners must feel that the time and effort will be worthwhile.	<ol style="list-style-type: none"> <li>Learning Requirements</li> <li>Difficulty</li> <li>Expectations</li> <li>Attributions</li> <li>Self-Confidence</li> </ol>	C1-Learning Requirements C2-Success Opportunities C3-Personal Control	<ol style="list-style-type: none"> <li>Set clear learner objectives and prerequisites for each instructional activity. Provide examples and rubrics</li> <li>Organize learning for success along the way. Start with activities that build confidence and then make activities progressively more difficult as students progress.</li> <li>Help students develop realistic expectations about the amount of time and effort required to be successful.</li> <li>Show how previous work correlates to knowledge to be gained. Share previous students’ work and their achievements.</li> <li>Provide feedback and opportunities to share success.</li> <li>Allow opportunities to practice new knowledge. Students must feel successful before applying it to settings beyond class.</li> </ol>
<b>Satisfaction</b> - Learners must perceive some type of satisfaction from the experience. A passing grade, praise or positive feedback, will spur interest in immediate use of knowledge.	<ol style="list-style-type: none"> <li>Natural Consequences</li> <li>Unexpected Rewards</li> <li>Positive Outcomes</li> <li>Avoiding Negative Influences</li> <li>Scheduling Reinforcements</li> </ol>	S1-Intrinsic Reinforcement S2-Extrinsic Rewards S3-Equity	<ol style="list-style-type: none"> <li>Instruction must allow content use in natural setting. Instruction may include simulations, projects and other real-life activities.</li> <li>Success should be rewarded. Offset tasks with anticipated rewards, as well as unforeseen rewards. Do not over simplify success or reward too often. Reward should match task difficulty.</li> <li>Provide learners with intrinsic and extrinsic rewards, such as praise, or positive feedback for task. Feedback must be within a reasonable time of task completion.</li> <li>Threats or negative consequences beyond appropriate levels should be avoided, as well as public evaluations.</li> <li>Provide opportunities for practice. Organize reinforcements with more opportunities when material is introduced and less as material is learned.</li> </ol>

*Note:* From “Community College First-Year Business Student Online Course Motivation.” By R. Johnson, 2012.

Keller (2010) referred to Attention as the most important category of the Keller ARCS Motivation Model, as without Attention the other categories cannot be attained. Keller (2010) further defined Attention as “Capturing the interest of learners; stimulating the curiosity to learn” (p. 45). This definition of Attention suggests that the blended learning environment may provide Attention-based motivation to students. In previous research, students have reacted positively to blended learning (Uğur, Akkoyunlu, & Kurbanoglu, 2009; Echo360, 2011), suggesting that blended learning as a course design could increase Attention for typical university students.

Relevance is defined as “meeting the personal needs/goals of the learner to affect a positive attitude” (Keller, 2010, p. 45). It should be noted that Relevance refers to perceived needs and not to the actual needs of the learner. The most preferred learning model for students today is the blended learning model (Dahlstrom et al., 2013). Familiarity, a construct of Relevance, is dependent upon the learning environment design. Net Generation learners are considered to have an aptitude towards technology (Barton & Skiba, 2006), and by design, a blended learning course incorporates a substantial set of technology through web-based technologies.

“Helping the learners believe/feel that they will succeed and control their success” is the definition of Confidence (Keller, 2010, p. 45). Confidence is created using learning requirements, success opportunities, and personal control. Learning requirements can exist in different forms, but generally let the student clearly know what is expected of them during the course. Typically, the Instructor has control over the learning environment, but should attempt to allow the learner to have as much control over the learning experience as possible (Keller, 2010).

Satisfaction is defined as “reinforcing accomplishment with rewards (internal and external)” (Keller, 2010, p. 45). A reward or praise will provide less Satisfaction if it is perceived by the recipient

that it is ‘lesser’ than a reward received by another learner for reaching a comparable goal or achievement (Keller, 2010).

This motivation model also provides researchers with survey instruments allowing measurement and assessment of motivation overall and within the four categories. The instrument used in this study was the Course Interest Survey. The survey was slightly modified with permission and designed to provide motivational scores of students in the blended learning digital literacy course examined in the study. The Course Interest Survey was designed by Keller to help measure students’ reactions to instructor-led instruction. This survey was not designed to measure generalized levels of motivation, but instead, is designed to measure levels of motivation within a specific course.

### **Blended Learning and Motivation**

A blended learning environment is characterized as an environment with significant amount of course material delivered online with reduced face-to-face instruction (Allen & Seaman, 2013). The concept of blended learning, relative to research, is still new. Bluic, Goodyear, and Ellis (2007) suggested in their review that research on blended learning was rare before the 21<sup>st</sup> century. However, some studies have been conducted to examine motivation in blended learning.

In a 2009 study by Ugur, Akkoyunlu, and Kurbanoglu of 31 senior students in Turkey, the study revealed that the use of blended learning was considered highly positive in their learning environment. Other research has shown similar results. A 2011 study by Echo360, a major software and lecture capture company, surveyed 11 major institutions located throughout the world found that of 2,420 student respondents, 84% agreed that blended learning improved their understanding of course material. The same study also found that 72% of students liked the flexibility of blended learning, and 68% would recommend peers to take a course using a blended learning format.

A recent research dissertation that examined blended learning in higher education, as a mixed methods study, focused on students from underrepresented populations in a community college environment (Perlas, 2010). The traditional course sample consisted of 49 students, compared to 40 students in the blended course. The study compared a traditional course and a blended course and found no statistical difference in motivation at the  $p < .05$  level utilizing quantitative methods. However, the qualitative portion of the study found that the blended course did provide a positive impact of providing motivation to students. This suggests that although a blended course may not provide significant quantitative results in motivation for a special population of students, qualitative research did provide the possibility that motivation exists from a blended learning model.

At the community college level, Johnson (2012) studied first-year business students' motivational perceptions using a case study analysis of 18 first-year business students and 3 faculty members in an online course setting. Johnson's research found coded themes for each motivational category based on the perceptions of motivation of the students. In the category of Attention, variability was found to be the significant theme. Variability in this research referred to the variability in the instructional items used in the course. In Relevance, the significant theme was providing choices to students in the course. In Confidence, the significant theme was progression of difficulty. Finally, in Satisfaction, the significant theme was the ability for students to practice activities prior to grading. Johnson suggested in his research that further research should be conducted, particularly studies that focus on learning management systems and other virtual settings.

## **Research Methodology**

### **Data Collection**

Data was collected from available sources (university and course data) and from collected data through the distribution of the Course Interest Survey. IRB permission was obtained prior to data collection, and all participation was voluntary in the study.

Available data was collected through the learning management system and consisted of performance scores for participants. These scores consisted of a pretest administered at the beginning of the course and a posttest at the end of the course, both using the Atomic Learning Technology Skills Assessment (ALTSA). The ALTSA test is a standardized test that aligns with ISTE NETS-S 2007 standards (Atomic Learning, 2013). It is designed to measure the digital literacy level of students. Other available data for the study was made available to the researcher through participant consent.

Collected data consisted of surveys that were administered to voluntary participants in the course. The total ‘population’ of students (as defined by the Course Interest Survey that limits the population to one course with one instructor (Keller, 2010)), was 240 students. Of these students, 170 agreed to participate in the study, ultimately leading to available data for 136 participants.

### **Research Setting**

The research study was conducted at a medium-sized, four-year public university with a 2014 enrollment of 13,411 students. Of these students, 36.6% were classified as on-campus students while 73.4% were classified as virtual students. The undergraduate student population totaled 85.3% of the university student population in 2014. Of the undergraduate student population, 56% were declared as White, 5% declared as Hispanic, 4% declared as African American, and 1% as Asian. 31% of students were declared as simply “International”. In the undergraduate population, 59% were female, and 41% were male. It was also reported that within the undergraduate population, 50% of students referred to Kansas as their home and 31%

of students declared another country besides the United States as their country of origin. The average age of an undergraduate student was 24 (FHSU College Portrait, 2014).

### **Research Questions**

Research Question 1: Do statistically significant relationships exist between non-performance student characteristics (age, gender, academic rank, race/ethnicity) and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course?

Research Question 2: Do statistically significant relationships exist between pre-course performance student characteristics (pre-course digital literacy, high school GPA, ACT score) and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course?

Research Question 3: Do statistically significant relationships exist between post-course performance student characteristics (post-course digital literacy, change in digital literacy) and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course?

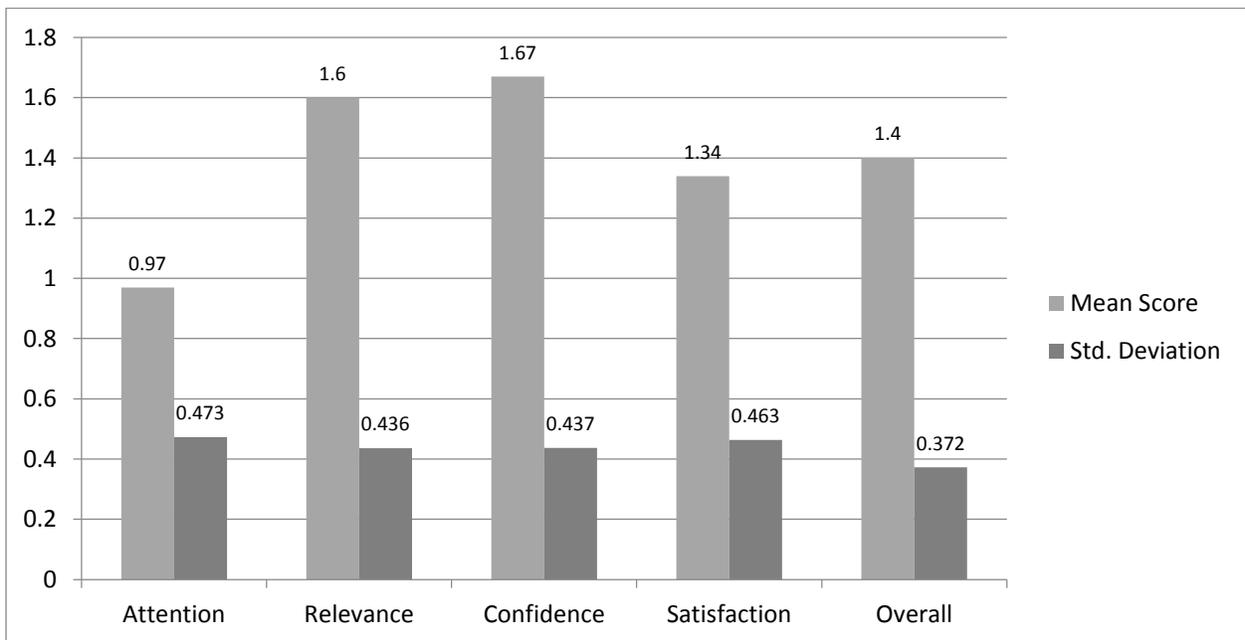
### **Data Analysis**

A quantitative design was used in the study based upon the research questions and the structure/availability of the data. Multiple one-way multivariate analyses of variances (MANOVAs) were used to determine significant differences. If found, an ANOVA and Scheffe post hoc tests were used to further define these differences.

## Motivational Measures

The following mean motivation scores were found using descriptive statistics. In this study, the range of mean scores is from 0-3. A 0 represents non-motivation, and a 3 represents high motivation.

- Attention: The mean score was .97, with a standard deviation of .473.
- Relevance: The mean score was 1.60, with a standard deviation of .436.
- Confidence: The mean score was 1.67, with a standard deviation of .437.
- Satisfaction: The mean score was 1.34, with a standard deviation of .463.
- Overall: The overall score consisted of the average of all scores. The mean score was 1.40, with a standard deviation of .372.



**Figure 2.** Motivational Scores

A Pearson correlation bivariate analysis was conducted to address possible concerns of multicollinearity. No issues of multicollinearity were found in the study.

### **Non-Performance Characteristics**

**Age.** Participants ranged in age from 18 to 50, with 17.6% age 18, 40.4% age 19, 24% age 20, 14% age 22, 2.2% age 23, .7% age 24, .7% age 25, .7% age 27, and .7% age 50. Three participants did not report their age. The average age based upon 133 values, was 19.84 with a standard deviation of 3.015. The data values of age were divided into 5 groups, age 18, 19, 20, 21, and 22+ for preparation for statistical analysis.

**Gender.** The participants were 42.6% male, 47.8% female, and 9.6% unknown. Participants were grouped into 3 groups (Male, Female, Unknown) for statistical analysis

**Academic Rank.** Participants in the study were 47.1% Freshmen, 30.1% Sophomores, 11.8% Juniors, 6.6% Seniors, and 2.2% Other. Other was removed from the study as ‘other’ contained a very small group of participants and was not a category of investigation for the study.

Participants were grouped as reported, based upon rank.

**Race/Ethnicity.** The participants were 81.6% White/Caucasian, 3.7% Hispanic or Latino, 3.7% Black or African American, 2.2% Asian, 1.5% American Indian or Alaska Native, .7% Native Hawaiian or Other Pacific Islander, and 6.6% chose not to disclose a race/ethnicity. Participants were grouped as reported.

### **Pre-course Performance Characteristics**

**ACT Score.** ACT scores were provided for the study by the university with permission from the participants. The average ACT score for 114 of 136 participants was 21.85, with a standard deviation of 3.58. Participants were grouped by ACT scores in groups 15 and below, 16-17, 18-19, 20-21, 22-23, 24-25, 26-27, 28-29, and 30 and above.

**High School GPA.** High School GPA was provided for the study by the university with permission from the participants. The average high school GPA for 105 of 136 participants was

3.40, with a standard deviation of .486. Participants were grouped by high school GPA in groups, 2.25 and below, 2.26-2.5, 2.51-2.75, 2.76-3.00, 3.01-3.25, 3.26-3.5, 3.51-3.75, and 3.76-4.00.

**ALTSA Pretest Scores.** Participants completed the ATLSA pretest at the beginning of the blended digital literacy course. These scores were obtained from the Instructor of the course with permission from the participants. The average pretest score of 131 of 136 participants was 71.95, with a standard deviation of 11.694. Participants were grouped by pretest ALTSA scores into groups 50 and lower, 51-55, 56-60, 61-65, 66-70, 71-75, 76-80, 81-85, 86-90, 91-95, 96-100.

#### **Post-course Performance Characteristics**

**ALTSA Posttest Scores.** Participants completed the ALTSA posttest at the end of the blended digital literacy course. These scores were obtained from the Instructor of the course with permission from the participants. The average pretest score of 125 of 136 participants was 78.75, with a standard deviation of 9.059. Participants were grouped by the same groups as pretest ALTSA scores for analysis.

**Change in Digital Literacy Scores.** The change in digital literacy was calculated by subtracting the posttest ALTSA score from the pretest ALTSA score. This value gives the overall improvement or decline of a participant after completing the blended digital literacy course. The average change in digital literacy of 121 of 136 participants was 6.64, with a standard deviation of 9.392. Participants were grouped by the change in ALTSA scores into groups -10 and below, 9.99 to 0.00, 0.01 to 10, 10.01 to 20, and 20.01 and above.

**Table 2.** Summary of Quantitative Measures

<b>Summary of Quantitative Measures</b>				
<b>Category</b>	<b>Variable</b>	<b>Mean Score</b>	<b>Std. Deviation</b>	<b>Most Common</b>
<b>Non-Performance</b>				
	Age	19.84	3.015	19
	Gender	N/A	N/A	Female
	Academic Rank	N/A	N/A	Freshmen
	Race / Ethnicity	N/A	N/A	White/Caucasian
<b>Pre-Course Performance</b>				
	ACT Score	21.85	3.58	22-23
	High School GPA	3.4	0.486	3.76-4.00
	AL TSA Pretest	71.95	11.694	71-75, 76-80, 81-85
<b>Post-Course Performance</b>				
	AL TSA Posttest	78.75	9.059	86-90
	Change in DL	6.64	9.392	.01-10.00
<b>Motivation</b>				
	Attention	0.97	0.473	
	Relevance	1.6	0.436	
	Confidence	1.67	0.437	
	Satisfaction	1.34	0.463	
	Overall	1.4	0.372	

## **Results**

For each research question, null hypotheses were created. A one-way multivariate analysis of variance was conducted to determine the relationship between the motivational variables and the student characteristics for each question.

### **Research Question 1: Non-performance Characteristics**

*Ho 1.1.* There are no statistically significant differences between student age and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Attention, Relevance, and Confidence were normally distributed, as assessed by Shapiro-Wilk test ( $p > .05$ ). The differences between age groups and the combined dependent variables was not statistically significant,  $F(16, 512) = .696$ ,  $p < .05$ ; Wilks' Lambda = .917; partial Eta Squared = .021. The null hypothesis *Ho 1.1* was not rejected.

*Ho 1.2.* There are no statistically significant differences between student gender and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Attention, Relevance, Confidence, and Satisfaction were normally distributed for unknown gender, as assessed by Shapiro-Wilk test ( $p > .05$ ). Attention, Confidence, and Satisfaction were normally distributed for male gender, as assessed by Shapiro-Wilk test ( $p > .05$ ). After removal of a multivariate outlier, Satisfaction was normally distributed for female gender, as assessed by Shapiro-Wilk test ( $p > .05$ ). The differences between gender and the combined dependent variables was not statistically significant,  $F(8, 258) = 1.094$ ,  $p < .05$ ; Wilks' Lambda = .935; partial Eta Squared = .033. The null hypothesis *Ho 1.2* was not rejected.

*Ho 1.3.* There are no statistically significant differences between student academic rank and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Attention, Relevance, and Satisfaction were not normally distributed for freshmen, and Satisfaction was not normally distributed for Seniors, as assessed by Shapiro-Wilk test ( $p > .05$ ). The differences between academic rank and the combined dependent variables was statistically significant,  $F(12, 323.073) = 2.426$ ,  $p < .05$ ; Wilks' Lambda = .796; partial Eta Squared = .033. Follow-up ANOVAS showed that Confidence was statistically significant ( $F(3, 125) = 3.899$ ;  $p < .05$ ; partial Eta Squared = .086). A Scheffe post hoc test showed that for Confidence, Seniors had statistically higher mean scores (.4799) than Freshmen ( $p < .05$ ). The  $H_0$  1.3 null hypothesis was rejected.

*Ho 1.4.* There are no statistically significant differences between student race/ethnicity and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Attention, Relevance, and Satisfaction were not normally distributed for white/Caucasian, and Confidence for 'choose not to disclose', as assessed by Shapiro-Wilk test ( $p > .05$ ). The differences between race/ethnicity groups and the combined dependent variables was not statistically significant,  $F(12, 320.427) = .857$ ,  $p < .05$ ; Wilks' Lambda = .920; partial Eta Squared = .027. The null hypothesis  $H_0$  1.1 was not rejected.

### **Research Question 2: Pre-course Performance Characteristics**

*Ho 2.1.* There are no statistically significant differences between student pre-course digital literacy and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Relevance, Confidence, and Satisfaction were not normally distributed in some groups, as assessed by Shapiro-Wilk test ( $p > .05$ ). The differences between ALTSA pretest scores and the dependent variables was not statistically

significant,  $F(36, 391.473) = 1.253$ ,  $p < .05$ ; Wilks' Lambda = .665; partial Eta Squared = .097. The null hypothesis Ho 2.1 was not rejected.

*Ho 2.2.* There are no statistically significant differences between student high school GPAs and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Relevance, Confidence, and Satisfaction were not normally distributed in some groups, as assessed by Shapiro-Wilk test ( $p > .05$ ). The differences between High School GPA and the dependent variables was not statistically significant,  $F(28, 336.738) = 1.320$ ,  $p < .05$ ; Wilks' Lambda = .687; partial Eta Squared = .090. The null hypothesis Ho 2.2 was not rejected.

*Ho 2.3.* There are no statistically significant differences between student ACT scores and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Relevance, Confidence, and Satisfaction were not normally distributed in some groups, as assessed by Shapiro-Wilk test ( $p > .05$ ). The differences between ACT scores and the dependent variables was not statistically significant,  $F(32, 455.197) = 1.097$ ,  $p < .05$ ; Wilks' Lambda = .760; partial Eta Squared = .066. The null hypothesis Ho 2.3 was not rejected.

### **Research Question 3: Post-course Performance Characteristics**

*Ho 3.1.* There are no statistically significant differences between student post-course digital literacy and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Relevance, Confidence, and Satisfaction were not normally distributed in some groups, as assessed by Shapiro-Wilk test ( $p > .05$ ). The

differences between ALTSA posttest scores and the dependent variables was not statistically significant,  $F(32, 414.631) = 1.133$ ,  $p < .05$ ; Wilks' Lambda = .734; partial Eta Squared = .074.

The null hypothesis Ho 3.1 was not rejected.

*Ho 3.2.* There are no statistically significant differences between student change in digital literacy and Keller ARCS Course Interest Survey scores for Attention, Relevance, Confidence, and Satisfaction in a blended digital literacy course.

Preliminary assumption checking revealed that Confidence was not normally distributed in one group, as assessed by Shapiro-Wilk test ( $p > .05$ ). The differences between changes in digital literacy and the dependent variables was not statistically significant,  $F(16, 345.858) = .914$ ,  $p < .05$ ; Wilks' Lambda = .882; partial Eta Squared = .031. The null hypothesis Ho 3.2 was not rejected.

**Table 3.** Research Question Results

<b>RQ</b>	<b>Null Hypotheses</b>	<b>Action</b>
<b>RQ1</b>	<b>Non-Performance Characteristics</b>	
	Age	Ho 1.1 Not Rejected
	Gender	Ho 1.2 Not Rejected
	Academic Rank	Ho 1.3 <b>Rejected</b>
	Race / Ethnicity	Ho 1.4 Not Rejected
<b>RQ2</b>	<b>Pre-course Performance Characteristics</b>	
	Pre-course Digital Literacy	Ho 2.1 Not Rejected
	High School GPA	Ho 2.2 Not Rejected
	ACT Score	Ho 2.3 Not Rejected
<b>RQ3</b>	<b>Post-course Performance Characteristics</b>	
	Post-course Digital Literacy	Ho 3.1 Not Rejected
	Change in Digital Literacy	Ho 3.2 Not Rejected

*Note:* Modified from Bakor, K. (2013). Concerns and professional development needs of faculty at King Abdul-Aziz University in Saudi Arabia in adopting online teaching. *Dissertation*.

## Discussion

### Non-Performance Characteristics

Age was found to not have a significant relationship with the Keller ARCS Motivation Model categories. While the participants ranged in age from 18 to 50, 97% of the participants reported an age of 23 or under, and the average age was 19.84. The lower mean age of 19.84 in the study is consistent with the research setting.

Gender was found to not have a significant relationship with the Keller ARCS Motivation Model categories. The participants in the study reported 42.6% male, 47.8% female, and 9.6% unknown/other. At the research setting, the entire student population was reported as 41% male, and 59% female (College Portrait, 2014).

Academic rank was found to not have a significant relationship with the Keller ARCS Motivation Model Categories of Attention, Relevance, and Satisfaction. A significant relationship was found between academic rank and Confidence ( $F(3,125) = 3.899$ ;  $p < .05$ ; partial Eta Squared = .086). A Scheffe post hoc test resulted in Seniors having statistically higher Confidence mean scores (.4799) than Freshmen. The higher Confidence score for Seniors may be attributed to Seniors having more experience in the university system compared to Freshmen. Confidence is typically created using learning requirements, success opportunities, and personal control (Keller, 2010). With nearly 50% of the participants classified as Freshmen, and the other ranks decreasing in percentage for each rank, this level of freshmen participants seemed consistent to general expectations of a freshman-level course.

Race/ethnicity was found to not have a significant relationship with the Keller ARCS Motivation Model categories. The participants of the study contained a higher population of White/Caucasian students compared to the research setting. However, at the research setting

31% were reported as “international” race, which could be any race and change the proportions of race. When comparing the university students to the study participants for all other categories besides White/Caucasian, the numbers are consistent.

### **Pre-course Performance Characteristics**

Pre-course digital literacy was found to not have a significant relationship with the Keller ARCS Motivation Model categories. The average score for 131 of the 136 participants was 71.95%, with a standard deviation of 11.694. No comparison data was available to the researcher to compare to previous semesters, national averages, etc.

High school GPA was found to not have a significant relationship with the Keller ARCS Motivation Model categories. High school GPA data for the participants was provided by the research setting for 105 of the 136 participants. The average high school GPA for the 105 participants was 3.40 with a standard deviation of .486. Over 68.3% of participants had a high school GPA above 3.0. No comparison data was available to the researcher to compare participants to the overall student population of the research setting. However, the Nation’s Report Card: America’s High School Graduates reported the national high school average GPA of graduates as 3.0 (Nord, Roey, Perkins, Lyons, Lemanski, & Schuknecht, 2011). The increase of participant high school GPA as compared to the 2011 average may be due to the high school GPA inflation of high school graduates.

ACT scores were found to not have a significant relationship with the Keller ARCS Motivation Model categories. ACT score data for the participants was provided by the research setting for 114 of the 136 participants. The average ACT score for the 114 participants was 21.85 with a standard deviation of 3.58. Over 47.4% of participants had an ACT score higher than 21. No comparison data was available to the researcher to compare participants to the

overall student population of the research setting. However, per the ACT website, the national composite ACT score average in 2013 was 20.9 (ACT, 2013). The participants in the study had a slightly higher (.95) ACT score average than the national average.

### **Post-course Performance Characteristics**

Post-course digital literacy was found to not have a significant relationship with the Keller ARCS Motivation Model categories. The post-course digital literacy measure was obtained by re-administering the Atomic Learning Technology Skills Assessment (ALTSA) at the end of the course. The average posttest score for 125 of the 136 participants was 78.75% with a standard deviation of 9.059. No comparison data was available to the researcher to compare to previous semesters, national averages, etc.

Change in digital literacy was found to not have a significant relationship with the Keller ARCS Motivation Model categories. Change in digital literacy was a calculated measure, obtained by subtracting pretest scores from posttest scores on the ALTSA assessment. This measure was available for 121 of 136 participants, as not all participants completed both exams. The average change in digital literacy was 6.64 with a standard deviation of 9.392. This suggests that a small increase in digital literacy was obtained, on average, for participants in the course. The increase may have occurred to testing, or the possibility of scoring higher on a repeated exam (Creswell, 2009). Testing is typically minimized with a significant length of time between exams. Due to the length of time (approximately one semester) between testing dates, ‘testing’ as a threat to internal validity is likely to not have occurred.

### **Keller ARCS Motivation Model Course Interest Survey Scores**

The overall motivational score consisted of the average of all scores on the Course Interest Survey (CIS). The mean overall score on the CIS was 1.4. The CIS maximum score in

this study is 3, and the minimum score is a 0. The standard deviation was .372. The survey consisted of 4 responses (Strongly Disagree to Strongly Agree), with a score of 0 representing no motivation, and a score of 3 representing maximum motivation. The mean score of 1.4 falls almost exactly in the middle, suggesting a mixture of motivation and non-motivation. However, the overall score can be greatly affected by Attention, the most important category, as without Attention the other categories can be 'lost' to participants. Attention is first needed before the other categories of motivation can be realized (Keller, 2010).

The mean score for participants in Attention was .97 with a standard deviation of .473. This score is low, and signifies that participants did not feel Attention was reached at a motivational level. When combined with the pre-course digital literacy mean of 71.95 and the small increase in change in digital literacy of 6.64, this suggests that the small increase may be due to students already being familiar with the content of the course and possibly finding the content non-motivating as it pertains to Attention.

The mean score in Relevance was 1.60 with a standard deviation of .436. This score is slightly higher than the overall mean and suggests that the course did provide Relevance. Research has shown that digital natives do relate positively to blended learning (Echo360, 2011) and technology (Barton & Skiba, 2006; Koutropoulos, 2011) – both present in the learning environment of the study.

The mean score in Confidence was 1.67 with a standard deviation of .437. This score is also higher than the overall mean for motivation. This suggests that the course has a clearer layout of requirements, and provides success opportunities for students. A significance was found between Seniors and Freshmen academic ranks in Confidence. Seniors typically scored higher in Confidence than Freshmen. This is likely due to the experiences and familiarity a

Senior would have developed from previously completed courses. These experiences may have developed a better view of what is expected throughout the course for Seniors.

The mean score in Satisfaction was 1.34 with a standard deviation of .463. This score was lower than the mean of the overall score, and suggests that Satisfaction was low in the course. A lower score in Satisfaction would suggest that the effort students put into the course may have been not rewarded as expected. Satisfaction can also exist in the form of praise and recognition, which may have not existed in the course, or did not exist to the extent that was expected from the students.

## **Recommendations**

### **Research Setting**

The following are recommendations for the research setting.

The study showed that the lowest score of all categories in the Course Interest Survey was Attention. Motivational strategies to help increase student Attention include changes in instruction, such as the inclusion of video, discussions, team projects, humor, real-world examples, and simulations/games. Other data in the study revealed a pre-course digital literacy mean score of 71.95 and a mean increase in digital literacy of 6.64. The content of the course may be 'on-level' with the students' previous knowledge of digital literacy, and the content may need revamped or updated to provide opportunity for an increase in digital literacy for students.

In the study a significance was found between Seniors and Freshmen in Confidence. Seniors, in general, felt more confident through the course than Freshmen. Confidence pertains to the learning requirements, and although the highest score, Freshmen scored significantly lower than Seniors. A recommendation would be to have Freshmen enroll in a 'university success'

course that explains the various learning models and what to expect from university courses before beginning the blended digital literacy course.

Introduce new or revamp existing rewards/praise: Participants of the study reported a lower level of Satisfaction. A recommendation is to increase the Satisfaction of the course by reviewing the current grading and feedback process, and implementing a reward/praise system for students.

Explore the blended course model. The current course model utilizes 1 hour of instruction for face-to-face delivery per week. It may be beneficial to review the amount of content that is delivered traditionally versus online. The current percentage of content delivery is between 30% to 79%, but is unknown to the researcher. One of these delivery models may be less motivating to students. By lessening the amount of content delivered through the less motivating model, motivation may be increased.

Examine current 'test-out' procedures. Of the participants, 27.4% scored higher than 80 on the pretest of digital literacy. Having a test-out procedure would allow students that already have skills and knowledge of digital literacy to avoid having to participate in what would likely be a non-motivating course.

### **Future Studies**

While research exists on the blended learning model, little research exists on the relationship of blended learning and student motivation. The following opportunities exist for future investigations:

Incorporate qualitative elements: This study was a quantitative study by design. Qualitative elements could be used in future studies to possibly explore and identify areas of motivation (or the lack of motivation) beyond the capabilities of the Course Interest Survey.

Utilize multiple learning models: The Course Interest Survey used in this study is limited to the Instructor, but it is possible for Instructors to teach in multiple learning models.

Examining courses taught by the same Instructor that use a mix of models such as traditional, web-facilitated, blended, and/or online, may provide insight to which learning model is most effective in terms of motivation.

Use the process in this study on multiple courses: Although the courses can't be compared using Course Interest Survey scores, a course that exhibits higher motivation than other courses can be analyzed by the categories of the Keller ARCS Motivation Model to help identify motivational course elements. These elements can then be incorporated into other courses and examined to see if they increase the motivation of students in the other courses.

Examine other student characteristics: The characteristics examined in this study were available to and chosen by the researcher, but other characteristics may exist that have a significant relationship to motivation.

Use an alternative scale for measurement: The Course Interest Survey is flexible in design, and allows the researcher to use different scales. This study used a 4-point scale (from Strongly Disagree to Strongly Agree). A scale that provides a larger range, such as a 7-point scale, could allow for a larger range of motivation than what was presented in the study.

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## **End Notes**

Dr. Shane Schartz  
Assistant Professor of MIS  
Fort Hays State University  
600 Park St  
Hay, KS 67601  
Office Phone: 785-342-4580  
[sschartz@fhsu.edu](mailto:sschartz@fhsu.edu)

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## **“On Call” Online Instructors? An Investigation of Faculty and Student Perspectives on Appropriate Response Times**

Ashley A Hall, Stephen F. Austin State University  
Susan Evans Jennings, Stephen F. Austin State University

### **Abstract**

With the growing prevalence of online classes and the ability for students to access course content anytime, anywhere, there is a growing concern related to the availability expected of online instructors. This study investigated the perspectives of both students and faculty as to appropriate response times in online classes. The sample consisted of 218 student surveys and 53 faculty surveys. In addition to providing the quantitative results of this study, interesting open-ended comments and themes are also discussed, along with suggestions for faculty members on how to temper some students' desire for immediate feedback.

**Keywords:** *online education, response time, email, distance learning, feedback*

### **Introduction**

As the number of students involved in online classes continues to rise (Marcus, 2015), it is important that differences in expectations be considered from both the students' and the faculty members' perspectives. One essential element in online courses is interaction level. Given today's students' ability to access technology at their fingertips, their expectation of appropriate response times has shrunk. Gone are the days of mailing course materials and waiting for a return envelope to show up in the mailbox, as was once common with correspondence courses. Instead, students now have the opportunity to log into their learning management system and access their coursework around the clock from anywhere in the world with Internet connection. The speed by which contact can occur through various technologies such as text messaging and email allows students to expect faster responses. This study

investigates variations in appropriate response times in online classes from both the students' and the faculty members' perspectives. Questions related to email response times as well as assignment feedback were asked to gain a better understanding of what expectations exist today in online courses.

### **Literature Review**

Previous studies have found that faculty-student interaction enhances the effectiveness of online classes (Dunlap, Sobel, & Sands, 2007; Garrison & Anderson, 2003; Hiltz & Turoff, 2002; Muirhead, 2004) and impacts performance, grades in the course, and the students' course satisfaction (Appana, 2008; Durrington, Berryhill, & Swaffor, 2006; Gallien & Oomen-Early, 2008). The satisfaction level students have with online courses has been linked to feedback that is prompt and continuous (Durrington, 2008; Zsohar & Smith, 2008). Ladyshevsky (2013) found that the level of immediacy in providing feedback contributes to student satisfaction with the course. LaBarbera (2013) noted that, "the literature suggests that interactions around course content (feedback on assignments and instructor presence in discussion forums) tend to foster connectedness" (p. 210; see also Exter, Korkmaz, Harlin, & Bichelmeyer, 2009; Glazer & Wanstreet, 2011; Gosmire, Morrison, & Van Osdel, 2009; Jackson, Jones, & Rodriguez, 2010; Maddix, 2013; Mayne & Wu, 2011; Palmer & Holt, 2009; Sheridan & Kelly, 2010). It is essential that online courses are developed in such a way that allows for "healthy interactions between the learner and the teacher" (Chaney et al., 2009, p. 225).

Anderson (2003) identified a variety of types of interactions that are important in distance education, including student to teacher, student to content, and student to student, but student to teacher was most often cited as a key quality indicator in online courses (Chaney et al., 2009). Chaney et al. (2009) also highlighted prompt feedback as a distinguishing factor among quality

online programs; however, the authors noted that prompt feedback can have different interpretations among students and faculty. Namely, “students in this digital age may calculate prompt feedback in minutes and hours, whereas the instructor may calculate prompt feedback in days” (p. 226). As such, the authors suggest outlining appropriate feedback time in the course syllabus (Chaney et al., 2009).

When Clark-Ibáñez and Scott (2008) outlined strategies for learning to teach online, they suggested communicating with online students frequently and through a variety of channels (e.g. email, announcements, discussion boards, etc.). Communication can be synchronous or asynchronous. Asynchronous communication does not occur at the same time and can be facilitated with tools like emails, video recordings, or discussion boards. Alternatively, synchronous communication is live and can occur through chat rooms or videoconferencing technologies that are readily available today (Huang & Hsiao, 2012). With the prevalence of student use of email to contact the faculty member, Clark-Ibáñez and Scott (2008) noted that it can “quickly become burdensome for online instructors” (p. 39). In addition, Maor (2003) suggested that online interactions would require a large time commitment for faculty members. Since the course material is available day and night, students often feel that the faculty member is as well (Clark-Ibáñez & Scott, 2008). In response to this, Clark-Ibáñez and Scott (2008) recommended establishing norms related to what students should email the faculty member about, as well as when they can expect a response.

In Lewis and Abdul-Hamid’s (2006) study on effective online teaching strategies, the authors found that faculty recognized that providing comments that are “quick, quality, and in-depth” (p. 91) was essential in establishing the faculty member’s presence in the online classroom. While recognizing the value, the faculty members also noted that providing the

feedback can be a challenge. Faculty members logging into the course frequently was the norm, though the actual amount of time spent online related to the instruction of the course was hard for the faculty members to quantify (Lewis & Abdul-Hamid, 2006).

### **Methods**

During the spring, summer, and fall 2015 semesters, an electronic survey was administered to both students and certified online faculty members at a regional comprehensive university in the southwestern United States. The surveys were designed to be very similar to allow for a comparison among responses between faculty and students. The student surveys were administered in eleven sections of online undergraduate business courses. Students had the opportunity to complete the survey, but were not required to do so, nor were they penalized for not completing the survey. Simultaneously, the director of the online faculty member certification program at the university distributed the faculty survey via the distribution list of faculty members across campus who had completed the optional certification course and received the designation of “Certified Online Instructor.” These faculty members have been trained on how to use the learning management system and have undergone a rigorous online training program in how to develop effective online courses. While this sample is not inclusive of all faculty who teach online, it does include those who have opted to receive the training to presumably improve their courses and their online class experience. All participants agreed to the informed consent to participate in this Institutional Review Board (IRB) approved research project. No names were associated with the survey responses to provide anonymity to the respondents.

### **Results**

After the data collection phase ended, the results of the student and faculty surveys were

tabulated and compared. Interesting themes that emerged will be explained in greater detail below. There were 218 completed student surveys and 53 completed faculty surveys collected during the data collection phase of the research study.

### Demographics

The sample consisted of 44.04% males and 55.96% females. As shown in Table 1, there was diversity in the age of the respondents. While the majority of students who responded to the survey fell into the 20 – 25-year-old range, there were respondents who identified themselves as “under 20” and “over 50” as well.

**Table 1.** Age of Student Respondents

<b>Ages of Student Respondents</b>	
<b>Age</b>	<b>Number</b>
Under 20	10 (4.6%)
20 - 25	146 (66.9%)
26 - 35	27 (12.4%)
36 - 45	27 (12.4%)
46 and over	8 (3.7%)

Of the student respondents, the majority (72.94%) worked at least part time, and approximately 40% reported working full time while taking at least one online course.

For the majority of the students (90.83%), this was not the first online class they reported taking in their educational career. Over one third of the respondents (35.35%) reported having taken ten or more online classes.

Of the faculty respondents, the majority (75.47%) were female and have taught ten or more online sections of classes (58.49%). There was diversity in the age of faculty, as shown in Table 2.

**Table 2.** Age of Faculty Respondents

<b>Ages of Faculty Respondents</b>	
<b>Age</b>	<b>Number</b>
30 – 39	11 (20.75%)
40 – 49	17 (32.08%)
50 – 59	12 (22.64%)
60 – 69	13 (24.53%)

Faculty members completing the survey were asked to identify their primary educational affiliation. Responses included the colleges of business, education, fine arts, liberal and applied arts, and sciences and mathematics, with the college of education being most common (45.28%).

#### **Expected Response Time on Emails**

Students were asked the following open-ended question as scenario 1: “If you send your online professor an email at 1 p.m. on Friday, when would you expect a response?” Their responses were then coded according to the following criteria: 1) by 5 p.m. Friday, 2) by midnight Friday, 3) by noon Saturday, 4) by midnight Saturday, 5) by noon Sunday, 6) by midnight Sunday, 7) by noon Monday, 8) by 5 p.m. Monday, 9) by midnight Monday, 10) by Tuesday, and 11) by Wednesday or later. The faculty members were asked the same question and provided with options 1 – 11 above, as well as an “other” answer choice. Table 3 below shows the percentage of responses that were assigned to each category by respondents. Of the faculty who selected “other” (3.77%), the rationale provided was that their response would depend upon their weekend availability, as well as if assignments were due in the class over the weekend in question.

**Table 3.** Perceived Appropriate Email Response Time, Scenario 1

<b>Perceived Appropriate Email Response Time, Scenario 1</b>		
	<b>Student Responses</b>	<b>Faculty Responses</b>
By 5 p.m. Friday	39.32%	45.28%
By midnight Friday	3.88%	3.77%
By noon Saturday	1.94%	9.43%
By midnight Saturday	1.94%	9.43%
By noon Sunday	1.46%	3.77%
By midnight Sunday	3.88%	9.43%
By noon Monday	20.87%	9.43%
By 5 p.m. Monday	15.53%	3.77%
By midnight Monday	7.28%	0.00%
Tuesday	3.88%	1.89%
Wednesday or later	0.00%	0.00%

This means that 52.42% of the students indicated that they would expect a response by Friday afternoon, or some time on Saturday or Sunday, but 81.11% of faculty responded that students should expect a response before the end of the day Sunday.

The scenario question was then changed to sending the question by email at 8 p.m. on Monday. These responses are summarized in Table 4. One faculty respondent noted that his or her response time would depend on whether his or her tablet was available. If so, the faculty member would respond immediately. If not, the student would receive a response Tuesday morning.

**Table 4.** Perceived Appropriate Email Response Time, Scenario 2

<b>Perceived Appropriate Email Response Time, Scenario 2</b>		
	<b>Student Responses</b>	<b>Faculty Responses</b>
By midnight Monday	9.22%	15.09%
By noon Tuesday	36.41%	47.17%
By 5 p.m. Tuesday	19.42%	15.09%
By midnight Tuesday	26.70%	11.32%
By noon Wednesday	1.94%	5.66%
By 5 p.m. Wednesday	3.88%	0.00%
By midnight Wednesday	2.42%	0.00%
By noon Thursday	0.00%	0.00%
By 5 p.m. Thursday	0.00%	0.00%
By midnight Thursday	0.00%	1.89%
Friday or later	0.00%	0.00%

Since students were allowed to type in their responses, the researchers were able to identify trends or interesting viewpoints that would not have been apparent if the respondents simply selected from a list of multiple choice responses. For example, one student responded that he or she would expect a response to the 8 p.m. email “within the hour.” Another student commented that he or she would expect to receive a reply “by 8 a.m. Tuesday morning.” Three key findings that emerged from the open-ended data relate to the syllabus, course structure, and promptness expected.

Numerous students highlighted that their expectations were framed by the response time policy outlined in the syllabus. A general timeframe for responses should be clearly given, as well as whether the faculty member plans to respond to emails over the weekend. This

information is important for students to know so that they can plan accordingly. As such, it is imperative that online faculty members include response time policies in the course materials so that students are not caught off guard or hold unrealistic expectations of the faculty member.

A second key factor that was mentioned regarding the email response question dealt with the course structure. If an assignment is due on Sunday night, many students expressed an expectation that the faculty member will check in on the course and reply to emails over the weekend, given the upcoming deadline. Related to this is how long students have known about an assignment. If students have had the assignment all week, many students indicated that it is their responsibility to review the assignment and ask any questions before the end of the workweek. However, if the assignment has a short turnaround period, there is an expectation that the faculty member will respond to emails faster.

Finally, though they were the minority, there were several survey responses that indicated that the student would expect an email response within one to two hours. Such an expressed expectation is impactful, as the student view of an appropriate response time may differ widely from the view of a faculty member.

Students were then presented with the following scenario: “Your online class has an assignment due at 11:59 p.m. on Sunday. You need help from your instructor, so you send an email at 3 p.m. on Saturday. Do you expect a response before the deadline?” In response, 39% of students said “yes,” while 61% said “no.” When faculty were asked if students should expect a response before the 11:59 p.m. Sunday deadline, 58.49% said “yes,” and 24.53% responded “no.” Approximately 17% of the faculty respondents selected “other.” Of these responses, several indicated that the student should not *expect* a response, but may receive one before the deadline. Depending on the availability of the faculty member on the weekend, students may get

a response, but it is not guaranteed. Two faculty respondents indicated that they do not have due dates on the weekend to avoid this issue, while two others noted that students are given the faculty members' home phone number or are allowed to text at any time.

The scenario was then slightly altered to ask if students expected a response before the 11:59 p.m. deadline if they sent the email at 8 p.m. on Sunday. Of the students, 92% said "no" they would not expect a response before the deadline. When faculty were asked the question, 24.53% responded "yes," and 50.94% responded "no." The remaining 24.53% selected "other." Similar to the responses on the previous questions, comments were made related to not expecting a response but the possibility of receiving one and that it often depends on the faculty member's personal availability. In addition, some respondents do not structure their course to include weekend deadlines to avoid this dilemma, while others opt to disclose their home phone number or allow students to text questions. One respondent indicated that his or her cut-off time for extra help is 8 p.m. on Sunday for assignments due that night.

When students were asked how they felt about assignments being due for online classes at a time when the faculty member may not be available, there was diversity in the responses. Many indicated that they did not mind it as long as the assignments were consistent and available for more than a day or two. The multiple demands that many online students juggle (for example work and/or family demands) were cited as motivations for taking online classes, as well as an explanation for why the late night Sunday deadlines work well for some students. One student referred to this course setup as "a life saver." Numerous students accepted responsibility for reviewing assignments earlier in the week to avoid needing help at a time when the faculty member was unavailable. One student commented, "I would not expect any professor to respond

after hours or on a weekend. It makes me really happy when they do, but I realize that even professors have a life and they do not get paid for their time on weekends and after hours.”

Many students, however, disagreed and felt that assignments should not be due at 11:59 p.m. on Sunday if the professor was unavailable. Concerns regarding technological issues were cited, as well as the propensity for students to delay completing their work and then not have help available when it is needed. One student noted that this course setup was “not very fair” and felt that “the professor should be available at least once a day.” Another commented that if faculty members “do not want to be available over the weekend, they should make the due date fall during the week so any last-minute questions can be answered. It is not reasonable to not be available and basically hold a student accountable for not having an assignment completed early because that is the only time when a professor is available to assist.” Students proposed various other due dates for faculty members to consider including 10 a.m. Monday to allow time for last-minute questions, Monday night, midweek, or Friday night.

Clear instructions and a consistent course structure and schedule can help the students know what to expect and reduce some frustration related to getting responses prior to the deadline. Another suggestion mentioned by the students is having a discussion board forum where they can ask questions of their classmates. Many times this can resolve a basic question in between when the faculty member checks emails and responds.

When students were asked if online faculty members should be more readily available (days, nights, and weekends) to assist students than face-to-face faculty members, the results were split with passionate arguments on both sides. The following comments were made in support of a viewpoint that online faculty should be more available than face-to-face faculty members. One student said “they [faculty] expect the student to be more available. Works both

ways.” Given the fact that students’ “questions are likely to be at odd hours,” another student felt that online faculty should be more readily available. It was mentioned that “instructors being more available makes things easier on online students. Most students who take online classes do so because they work and cannot complete their work in normal work hours. Therefore, they may struggle to communicate with a professor who only can help during normal school hours.”

The design of online instruction was discussed by another student in support of more readily available faculty members. The student commented that “the online class is for a more on-the-go approach. With our devices being at our fingertips online instructors should be more available and most likely paid more as well.” The difference in time commitment for a face-to-face versus an online class was brought up as well. One student responded that “because the online student requires less time due to the fact that the professor does not have to lecture,” faculty members should be more available. The student went on to say that “the online student still deserves that time just divided up more. He or she paid for the time.” Another student expressed the sentiment that “they are online professors and should always be available,” which supports the idea that since students can access the course 24 hours a day, 7 days a week, some expect to be able to interact with their faculty member on that schedule as well. One student went so far as to answer the question “Of course! I believe that Online Instructors should be supplied with iPads that will allow them to be readily available to help out students with problems or questions.”

There were also student survey respondents who did not feel that the online faculty member should be more readily available to students. These students often cited work-life balance issues, as well as family demands on the faculty member, as reasons why there should not be an expectation of increased availability in online classes. One student responded “After a certain time during the day they should not have to worry about work. They should also get

weekends off and not have to worry about emailing constantly.” Another simply stated “no because they have lives too.” The sentiment of being flexible if problems arise when the faculty member is not available was expressed numerous times. One student said that faculty members should not have to give up their nights or weekends to help students. However, the student went on to note that “if there is a technical issue then it should be the students’ job to report and the teachers’ to decide if an allowance should be made. Otherwise, if you have trouble understanding coursework/instructions on your own then maybe you should reconsider online classes.”

One thing became clear while analyzing the students’ responses to this question – there is a disconnect in the students’ perceptions between checking email and being available. Numerous students would say no the faculty member should not be more available, but then include in their explanations that checking email at night or on the weekend, as well as scheduling virtual office hours outside of 8 a.m. – 5 p.m. were appreciated or expected due to the varying schedules of online students and the assignment deadlines. One student commented that “it is their job to answer emails on weekends because it is an online class. Weekends are when many working students work on homework and not before due to work and family constraints.” There were some students who gave answers along the lines of “maybe” or “it depends.” This mostly related to the perceived difficulty of the course content, the structure of the class (e.g., how long have students known about the assignment), and the response preference of the faculty member as outlined in the syllabus or learning management system.

Faculty members were asked how often they check and respond to student emails during standard business hours (Monday – Friday 8 a.m. – 5 p.m.). The responses showed just under a quarter (21%) responding “at least once an hour” and over half (53%) responding “every couple of hours.” There were 19% who indicated “once a day,” 5% who responded “once every two

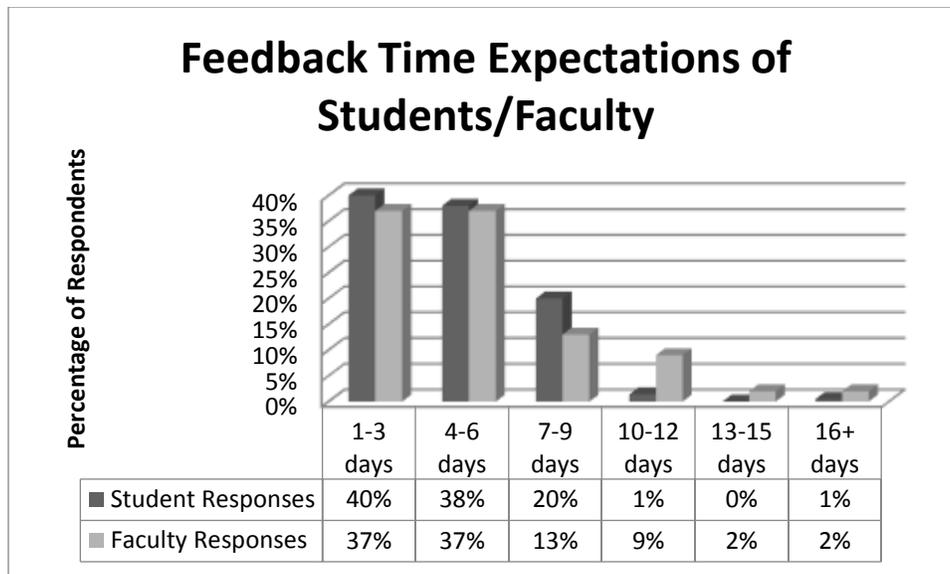
days,” and finally, 2% who responded “other.” The respondent who selected “other” indicated that the answer to the survey question would depend on the type of question the student asked and if follow up was needed.

Faculty members were then asked how often they check and respond to student emails outside of standard business hours (e.g. nights, weekends). The responses differed somewhat from the “during business hours” with 11% responding “at least once an hour” and 23% responding “every couple of hours.” There were 40% who indicated “once a day,” 13% who responded “once every two days,” 6% who responded “never,” and finally, 7% who responded “other.” So, the majority of respondents (73.58%) respond to emails outside of business hours at least once per day. Those who selected “other” indicated that their email checking norms were dependent upon what the class was working on or that they “rarely” responded to emails outside of Monday – Friday 8 a.m. – 5 p.m.

Of the 53 faculty responses, 25 (47.17%) have a clearly stated policy related to their response time in their course syllabus. There were 11 respondents (20.75%) who indicated that their response time policy is stated in the learning management system. However, 22 respondents (41.51%) indicated that they do not have a clearly stated policy related to their response time.

### **Expected Feedback Time on Assignments**

Students and faculty were asked what the turnaround time on providing assignment feedback should be. The results are summarized in Chart 1.



**Chart 1:** Student vs. Faculty Feedback Time Expectations

Though there are obvious differences in the reasonable time for feedback expectations as illustrated in Chart 1, the top two responses (1 – 3 days and 4 – 6 days) were actually very close between students and faculty. The discrepancies became much larger as the length of time moved to 7 – 9 and 10 – 12 days. The percentages in the 13 and above categories was very small on both sides.

### **Faculty Responsiveness and Student Success**

When students were asked how faculty can help them be more successful regarding response times to emails and assignment feedback, one common theme emerged – speedy responses are expected. Sentiments expressed include “the faster the better” and “just email us back!” The advantages of having a smartphone or tablet were cited as necessary “so it’s easy to respond to emails quickly.” Another student noted that the faculty member should be “immediately notified when they receive an email from their students” on such devices. One student responded that the faculty members should check the learning management system “every hour” and another suggested that they try to reply within a 60 to 90 minute window.

Being clear about turnaround time was mentioned numerous times as a way to help students be more successful, along with the importance of transparency in how grades are assigned so that the student can make corrections on the next assignment.

Faculty responses to the statement “Online instructors should be more readily available (days, nights, and weekends) to assist students than face-to-face instructors” had opinions split among online faculty members. There were 13% who strongly agreed, 36% who agreed, 13% neither agreed or disagreed, 27% disagreed, and 11% strongly disagreed.

When presented with the statement “I feel the need to check my school email/learning management system frequently,” the responses were less varied. There were 38% who strongly agreed, 41% who agreed, 9% neither agreed or disagreed, 8% disagreed, and 4% strongly disagreed.

### **“On Call” Online Faculty**

Faculty members were asked if, in their opinion, online students expect them to be “on call” at all times, and if so, how they responded to that desire. Opinions were mixed. Several respondents who have experienced this provided examples of student behavior that demonstrated this mindset. One faculty member noted, “They [students] do expect you to be sitting poised at the keyboard waiting for their email. Sometimes they send you more than one email because they think something must have happened to the first email as you haven’t responded immediately.” Another shared the following story, “One student contacted me at 2 am and then wrote back at 6 am telling me how bad a job I was doing since I had not replied to the first message.” A third respondent commented “I have received emails from students with each email time-stamped 10 minutes after the prior – the student may ask a question, and then 10 minutes later send an email

asking if I saw the email with the question; then 10 minutes later, the student sends a third email stating that he/she emailed me a question and did not receive a response.”

It was mentioned that “some [students] view their positions as customers, not students” and that there is an expectation “to be available 24/7.” One faculty member expressed it this way – “The unspoken promise of online is ‘anytime, anywhere’ which means we must be available all the time, everywhere.” Some students even go so far as to “always mark their emails ‘urgent’” according to one faculty member. However, it was mentioned that “they work odd hours so I do too” in support of the various available times that sometimes come with online instruction.

A common sentiment was that there are things the faculty member can do to avoid some of the “on call” mentality. For one, course design is essential. A faculty member noted that “I have found that when my online courses are well constructed, students’ needs are much lower and thus I have fewer emails that need immediate attention.” Another practice utilized by some faculty members is letting students know when they will not be readily available to answer emails. For example, “If I am going to be out of town and nowhere near a computer, I always let them know when I’ll be back in town. If they have a problem during that time, they know I’ll be fair and we’ll work things out.”

Others utilize formal policies that are outlined in the syllabus and explained in the course introduction modules. For example, one faculty member reported that he or she established “the expectation at the beginning of the semester that instant access to content does not equal instant access to instructor.” This person went on to explain that “I make very clear what my turnaround times will be, and I don’t set deadlines that conflict with my turnaround times. (That is, I never have assignments due on Sunday at 11:59 p.m. because I do my best not to check email on the

weekend and don't feel it's fair to not be available to answer their questions in the two days prior to an assignment being due).”

Another faculty member noted that his or her syllabus outlines when students can expect email responses, including that emails are checked “several times daily, but not after 8 p.m.,” that emails are checked “at least once on weekends,” and that “weekend mail [will be checked] by 8 p.m. on Sunday.” Even though having clear policies are helpful for both the students and the faculty, one respondent commented that “I’m usually pretty clear about when I’m available and when I’m not. I do find that students don’t plan accordingly, however.”

### **Tempering the Desire for Immediate Feedback**

Faculty members were asked how they temper students’ desire for immediate feedback. Some responded that they have not found that to be an issue. Others stated that they do not attempt to temper it. One respondent mentioned that he or she does not and that “I am here to serve them.” Many mentioned referring the student back to the policy outlined in the syllabus, thus further emphasizing the importance of setting clear guidelines up front. Others report using the announcement feature of the learning management system to post updates and keep students informed of progress in grading, changes in the schedule, times when the professor will be slower to respond, and other similar situations.

A strategy implemented by some faculty members surveyed is to run the course similar to a face-to-face class. For some respondents this means treating the online class “like any other class with office hours.” Another commented that, “If we were in the classroom, they would not expect me to be in my office on a Saturday to answer their questions, so I tell them that the expectation is no different for them ... My weekends are reserved for my family, and the vast

majority of them understand that.” One faculty member noted “I explain to them that I have a life outside the classroom (just as they do), and tell them that I will reply in a reasonable time.”

The sentiment that online students can sometimes come off as rude or demanding was expressed multiple times. One respondent commented that, “I think online students have less patience because they know you less as a person than a face to face student might. At times this can make them more demanding and perhaps even rude.” Another faculty member noted that, “Online students often feel like online instructors are not ‘real.’ They are very brave and bold on a computer screen.”

### **Various Student Needs**

Differences in the needs of online versus face-to-face students were asked about as well. Faculty members commented about the differences in availability, the necessity of a clear course structure, and courses “designed to be flexible to their lives and educational needs.” Consistency in course design and layout was stressed by the faculty member who noted, “they need more clarification if the course is not laid out in a manner in which they can expect.” One faculty member commented that “the more explicit I make things at the beginning, the quicker things fall into a routine.”

One respondent expressed the sentiment that “it is naturally much easier for students to fall behind, forget to log in, and fail to turn in assignments with online courses than it is in traditional classes. Lacking both the structure of a regular class time and face-to-face interaction with the professor and other students serves only to magnify the chance of these things happening from what they would be with any course.” Similarly, another faculty member commented that “online students require regular assignments and constant reminders to do them.” One faculty member noted that online students “often times need a bit more support” and

another highlighted the point that online students “can feel very isolated and that can have a big impact on their success rate.”

A common concern expressed by multiple respondents was the sentiment that online students “often do not ‘try’ to figure things out,” resorting instead to immediately asking the faculty member. One faculty member commented that “the online students do seem to complain more and need more personal attention.” However, others disagreed and viewed the need level of online students as simply different than face-to-face students, not necessarily higher. The fact that “a lot of communication is on an individual basis” in online courses was a commonly cited reason for why online students may seem needier to their faculty member. In face-to-face classes, the entire class can hear directions and the faculty member’s response to questions that are asked. This is often not the case in online instruction where it is more likely to be “a barrage of individual questions.” A faculty member noted that online students were “not needier, just isolated, which requires more individualized communication.” This highlights the importance of explanations. As one respondent remarked “you do have to explain things more carefully” in online courses.

### **Too Available?**

When faculty members were asked if they can be “too available” to online students, most agreed. Many respondents highlighted the possible issue with burnout if faculty allowed themselves to constantly be available to students. In response, setting boundaries was encouraged. As one faculty member put it, “Barriers are not always a bad thing.” Another noted that such boundaries need to be established for the sake of both the faculty member and the students. “An online instructor needs to know their own limits, set limits, communicate them clearly, and follow them,” according to one of the survey respondents.

Many commented that when the faculty member is readily available it makes the students “less self-reliant” and that “students should be able to consider possible solutions to their problems before instructor intervention” and use available course resources such as the syllabus. In the opinion of one respondent, “we need to encourage more independence” among students. Another expressed the idea that “responding to student emails at inappropriate or inconvenient times will likely lead the students to believe that they have unrestricted access to the faculty member. This propagates an already intense sense of entitlement that we see in modern students.”

Personal preferences play a large role in the faculty member’s view of appropriate responsiveness to students. One faculty member shared “I do not have work emails coming to my phone. I don’t want to be in reactive mode all the time. I try to be proactive and think ahead as to what may cause questions and I address that through an email.” Another noted that, “It is difficult to be really highly responsive at all times. If you start out being extremely responsive, you set a high bar and students may be disappointed if you become less responsive.” Accordingly, “people will take advantage of you if you allow that.” The idea of personal preference was accentuated by one respondent who replied “I think it’s a matter of personal preference. Some faculty are willing to have students text them, and that’s fine. I am not willing to have that level of availability. I do think that online faculty should be more flexible, willing to respond at times other than 8 a.m. – 5 p.m., and willing to be responsive within 24 hours on the weekdays, but I do not think that online teaching should be allowed to take over my life and my schedule. Like I said before, instant access to content does not equal instant access to the instructor.”

While most agreed that faculty members can be too available, there were some who did not. One commented that “being available is our job.” Another noted that due to the course delivery differences, the faculty member should be more readily available. Specifically, the respondent noted, “They do not see the instructor on a regular basis, so the instructor needs to be available whenever he or she is needed.”

### **Limitations of the Study**

There are limitations to this study. The use of one university’s faculty and students limits the generalizability. In addition, only faculty members who have opted to complete the Certified Online Instructor course had the opportunity to complete the faculty survey. There are others who teach online without the certification. The use of students enrolled in six sections of online business courses is another limitation, as there are many other courses offered online in disciplines not represented in this study.

### **Conclusions and Recommendations**

Future research is needed to further explore the issue of appropriate feedback time in online classes. The topic of work-life balance and burnout were mentioned in the faculty survey responses as a possible side effect of being “too available” in online classes. This issue should be further explored to ensure that faculty being readily available for students is not detrimental to the faculty members’ wellbeing or productivity.

The findings of this study can be shared with those wishing to teach online in an effort to better prepare them for the realities of online teaching and the differences that exist between face-to-face and online teaching. As one faculty member noted, “Because I choose to deliver courses online, my OWN workflow must change – and yes, that involves MORE communication with students ...”

By surveying both students and faculty, this study approached the issue of appropriate feedback time in online classes from two angles that were sometimes very different. These findings can help better prepare educators for teaching online, as well as impact the training and professional development provided to faculty who wish to transition to teaching online. In addition, practical suggestions emerged from both students and faculty regarding ways to avoid clashes over conflicting views on appropriate response times. Throughout the surveys, the importance of having a clearly defined response time policy in the syllabus and course materials was emphasized, though it was reportedly missing in over 40% of the faculty's classes. Various strategies employed by faculty were shared via the survey responses, and other educators can consider incorporating some of them into their classes as well. As was emphasized in the study, different faculty members have different views on what level of availability they are or are not comfortable with. As such, it is a matter of preference that each faculty member must consider and clearly articulate to students. Clearly communicated guidelines can help reduce the conflict inherent with differing views on appropriate response times.

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## End Notes

Ashley A. Hall\*  
Assistant Professor  
Department of Business Communication and Legal Studies  
Nelson Rusche College of Business  
Stephen F. Austin State University  
PO Box 13060, SFA Station  
Nacogdoches, TX 75962  
Office: (936) 468-2968  
Cell: (936) 250-3116  
[hallaa@sfasu.edu](mailto:hallaa@sfasu.edu)

Susan Evans Jennings  
Professor  
Department of Business Communication and Legal Studies  
Nelson Rusche College of Business  
Stephen F. Austin State University  
P.O. Box 13060, SFA Station  
Nacogdoches, TX 75962  
Office: (936) 468-1634  
Cell: (936) 715-5402  
[sjennings@sfasu.edu](mailto:sjennings@sfasu.edu)

\* Corresponding author

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Bios:

**Dr. Ashley A. Hall** is an Assistant Professor in the Department of Business Communication & Legal Studies in the Nelson Rusche College of Business at Stephen F. Austin State University, where she teaches business communication and employee development courses. Her scholarly publications include topics such as managerial competencies, social media and hiring practices, and pedagogical research.

**Dr. Susan Evans Jennings** has been teaching technology at the secondary and post-secondary levels for thirty years. During that time, she has presented at state, national, and international conferences, and written two textbooks and numerous articles on the use of technology in the classroom. She is a professor and coordinator for the online BBA at Stephen F. Austin State University.

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# Identifying Job Focus and Course Priorities in IS Curriculum Development Using Online Job Advertisements

Richard Woolridge, University of Arkansas at Little Rock  
Kun-hee Kim, University of Arkansas at Little Rock

## Abstract

In order for our graduates to be placed in jobs, courses in an Information Systems (IS) curriculum need to meet the skill requirements of the Information Technology (IT) job market. In order to identify the jobs and skills that enable placement, this study examined online IT job advertisements using content analysis and compared them to the IS 2010 model curriculum. The study found that Application Developers, Support Specialists, Systems Analysts, Project Managers, and Network Administrators were the top five jobs representing 80% of the available IT jobs. The findings show that softer skills (e.g., communication, problem solving, personal, etc.) account for 15% of the qualifications, technical skills (e.g., programming, database, security, etc.) account for 64%, and other skills (e.g., business, industry, etc.) account for 21% of the required skills. This data aids curriculum developers in designing programs that fit the needs of the job market.

**Keywords:** *IS skills; IS curriculum; IS careers*

## Introduction

Delivering graduates into the workforce that can demonstrate the skills needed by the market is an important objective (Bell, Mills, & Fadel, 2013; Bullen, Abraham, Gallagher, Simon, & Zwiieg, 2009). Ensuring that our graduates have those needed skills requires constant review, evaluation, and revision based on a long recognized “expectation gap” between market expectations and the slow pace of curriculum change (Trauth, Farwell, & Lee, 1993). This study is intended to enable refinement of an undergraduate Information Systems (IS) curriculum for a

metropolitan university in the state of Arkansas, USA. The goal for the curriculum refinement is to ensure that students are prepared for entry into the IS industry by aligning the curriculum with the industry required skills. Therefore, the research questions for this study are:

- Based on market demands, what Information Technology (IT) jobs should an IS program prepare students to acquire?
- How are the IS 2010 model curriculum courses aligned with the qualifications required by those jobs?

This article proceeds as follows: the next section reviews prior studies on the evolution of IS skills, the history of IS curricula development, and the need for ongoing input from industry. The literature review is followed by a discussion of the methodology used to identify and analyze jobs and job qualifications. Then the findings are presented and then analyzed. A discussion follows the data analysis. The study's limitations are then discussed, which is followed by the conclusion.

### **Literature Review**

Studies have been conducted over the last four decades to examine the IS skills required by industry. In the 1970s, studies recognized the need to improve technical skills, such as programming (White, 1970). Studies began to recognize business interest in communication skills (Albin & Otto, 1987) in the 1980s. In the 1990s communication skills were expanded to include other “soft” skills, such as the ability to interact with stakeholders, the ability to work cooperatively on a team, and the ability to understand the business environment (Richards, Yellen, Kappelman, & Guynes, 1998). Interest in more diverse skills that were identified later include: project management, enterprise resource planning, and security (Kim, Hsu, & Stern, 2006). Other studies continue to identify the gap between industry requirements and academic

curriculums (Eom & Lim, 2012; Gallivan, Truex III, & Kvasny, 2004; Kim et al., 2006; Woolridge & Parks, 2016).

As the need for more diverse skill sets were being recognized in research, academic curriculums were evolving to meet the need. The evolution resulted in a series of models that provided guidance in curriculum development. The Association of Computing Machinery (ACM) produced the first such model in the 1970s for both undergraduate and graduate curriculums (Ashenhurst, 1972; Couger, 1973) and these initial models evolved in the 1980s (Nunamaker, Couger, & Davis, 1982). A new curriculum model, the IS 1997 model, was developed in the 1990s (Davis, Gorgone, Couger, Feinstein, & Longenecker Jr, 1997). The 2000s produced two undergraduate model curriculums the IS 2002 (Gorgone et al., 2003) and the most recent model, which was the IS 2010 model (Topi et al., 2010) and one graduate curriculum review (Gorgone, Gray, Stohr, Valacich, & Wigand, 2005). Please see Table 1 for a summary of this evolution.

**Table 1: Curriculum Study Summary**

Year	Purpose of Change	Study
1972	To address the need for graduate professional and undergraduate programs to address Information Systems (IS) development	(Ashenhurst, 1972)
1973	To address the need for two differing levels of education concerning the computer: end users vs. IS specialists	(Couger, 1973)
1982	To address the need for both soft skills and technical skills in IS with the increase in IS support roles	(Nunamaker, Couger, & Davis, 1982)
1997	To address the need for graduates to be well-rounded (Communication, Business Functions, Statistics) to be effective in IS roles	(Davis, Gorgone, Couger, Feinstein, & Longnecker Jr, 1997)
2002	To address the need to update curriculum in order to encompass the evolution in rapid application development and programming environments	(Gorgone et al., 2003)
2005	To address the need for a stronger emphasis on newer concepts that have emerged with rapid evolution of technology (eg., Digitalization, Globalization, Big Data)	(Gorgone, Gray, Stohr, Valacich, & Wigand, 2005)

2010	To address the need for a broad, adaptable curriculum that encompasses the diverse IS environment while allowing for specialization in specific areas (eg., ERP Systems, Data Analysis, Database Administration)	(Topi et al., 2010)
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Even with evolving curriculum, there is a long perceived gap between what is produced by academic institutions and what is needed by industry (Trauth et al., 1993). This perceived skill gap persists to the present (Eom & Lim, 2012; Kim et al., 2006). Therefore, enhancing the model with input from the practitioner community is important (Huber & Watson, 2013). This ongoing skill gap provides the motivation for continuing curriculum review and evaluation.

### **Methodology**

One way to gain input from the practitioner community is to review job advertisements used in the recruiting process (Huang, Kvasny, Joshi, Trauth, & Mahar, 2009; Kennan, Willard, Cecez-Kecmanovic, & Wilson, 2008; Lee & Lee, 2006). This study investigates online job advertisements and compares them to IS 2010 curriculum. First, a content analysis of online job advertisements was performed to identify job types and qualification types. Once completed, the job type and qualification type findings were compared to the IS 2010 model curriculum to identify gaps and overlaps in course offerings.

### **Content Analysis**

Content analysis, which is a method of making inferences from text to the text's context (Krippendorff, 2004) was performed. The goal of content analysis is to provide a numerically based summary of a chosen message set and is appropriate for the summary of any message pool (Neuendorf, 2002). The analysis was performed in three steps: pulled, filtered, and coded. The jobs were first pulled from online job advertising websites. Then, the jobs were filtered to remove irrelevant postings. Lastly, the jobs and qualifications were coded to enable

summarization and inferences. The results of this coding can be found in the Findings section of this article.

Online advertised jobs were pulled from four major job posting websites from the thirty days prior to September 18-19, 2015. The four websites (Dice.com, Indeed.com, LinkedIn.com, and Monster.com) were chosen based on a ranking of unique monthly visitors using an average from three different web traffic analytics websites: Similarweb.com, Quantcast.com, and Compete.com. Dice received a higher priority because of its focus on information technology jobs. The jobs were pulled based on three criteria: location, posting date, and search term. The location criteria for jobs pulled was set to Arkansas. The final criteria limited jobs pulled by using “Information Technology” as the search term.

The initial job pull provided over a thousand IT jobs. Many of these jobs were irrelevant to the study due to job miscategorization and non-IT jobs having technology qualification requirements. Correcting the issues from the initial job pull required that the pulled jobs be filtered by manually removing irrelevant jobs from the dataset. Some examples of the jobs removed from the study’s dataset included: sales opportunities, entrepreneurial opportunities, etc. After this initial filtering, 541 jobs remained in the sample. The sample of jobs was loaded into a Microsoft Access database for content analysis.

Content analysis was performed by coding Jobs into categories using O\*NET, which is a widely utilized US Department of Labor/Employment and Training Administration (USDOL/ETA) sponsored website that defines the set of standard occupations ("O\*NET OnLine," 2010). Each job was categorized using the O\*NET Standard Occupation Classifications to one and only one Job Type. This coding generalized job sub-specialties such as Java Developer, Web Developer, and .NET Developer among others into a single “Software

Developers, Applications” category. The job description and qualifications were used to confirm job type. This resulted in the jobs being categorized into sixteen job types. This process caused further filtering of the jobs; such that three job types, a total of 43 jobs, were filtered out of the sample based on the job type. Those job types were: Sales and Procurement, Marketing and Product Management, and Other. The three job types and their jobs were removed from the sample. This filtering left 498 jobs and thirteen job types in the sample.

Content analysis was also performed by coding the Qualifications into categories. Each qualification was categorized using the Qualification Types from a prior study reviewing job qualifications. This prior study used content analysis based on job posting content, from July 2012, to identify qualification categories. The goal of this approach was to let the data identify the categories instead utilizing a preconceived category list (Woolridge & Parks, 2016). Each Qualification was categorized to one and only one Qualification Type. The coding of Qualifications also generalized sub-specialties, particularly tool and technology related qualifications, such as C++, Java, PHP, Ruby, and .NET into a Programming Qualification Type. The list of qualification types was expanded as qualifications were identified that did not fit into existing categories. This process categorized 9039 qualifications into 41 Qualification Types. One of the qualification types was “??” which represented an inability on the part of the coder to successfully categorize the qualification and this qualification type included qualifications associated with the three job types that were removed from the sample. A total of 444 qualifications were discarded as part of this category.

### **Curriculum Comparison**

The content analysis was compared to IS 2010 model curriculum. Job Types from the analysis were compared to Career Tracks in the IS 2010 curriculum. Also, Qualification Types

from the dataset were compared to IS Courses in the IS 2010 curriculum. In some cases a Qualification Type was listed more than once when it could be identified that the Qualification Type encompassed more than one IS Course. The objective of the comparison was to identify overlaps and gaps between the current IS job market and the recommended IS curriculum. The results of this comparison are described in the Analysis section of this article.

### Findings

The Job Type data coding summarized the 498 jobs into 13 categories. When sorted by job count, the first five Job Types account for 80% of the IT jobs found in the data. The results of the Job Type categorization are found in Table 2.

**Table 2: Job Types**

Occupation	Job Count	Job %
Software Developers, Applications	91	18%
Computer User Support Specialists	85	17%
Computer Systems Analysts	80	16%
Information Technology Project Managers	74	15%
Network and Computer Systems Administrators	69	14%
Computer Systems Engineers/Architects	26	5%
Business Intelligence Analyst	16	3%
Database Developer	15	3%
Security Administrator	15	3%
Database Administrators	12	2%
Computer and Information Systems Managers	7	1%
Software Quality Assurance Engineers and Testers	5	1%
Computer Operators	3	1%
<b>Total</b>	<b>498</b>	

The Qualification Type data coding summarized the 8595 qualifications into 40 categories. The Qualification Type coding is summarized in order of Qualification count in Table 3. The qualification type coding table also includes an identification of whether the qualification type is

a hard skill (e.g., technical skill like programming), a soft skill (e.g., an interpersonal item like integrity or a skill such as communication), or an “other” skill (e.g., industry experience, business function knowledge, etc.). The data identified that 64% of the qualifications were hard skills, 15% of the qualifications were soft skills, and 21% of the qualifications were “other”.

**Table 3: Qualification Types**  
Skill type: 1 = Hard, 2 = Soft, 3 = Other

Qualification Type	Count	Percent	Skill Type
Project Management	986	11%	1
Computer / Application Support	926	11%	1
Personal	749	9%	3
Networking	571	7%	1
Programming	498	6%	1
Education	413	5%	3
Communication	394	5%	2
Industry	318	4%	3
Design	279	3%	1
Data Entry	278	3%	1
Requirements	269	3%	1
Package	257	3%	1
Interpersonal	246	3%	2
Problem Solving	237	3%	2
Database	225	3%	1
Security	215	3%	1
Business	164	2%	3
Experience	137	2%	3
Team	136	2%	2
Sales	127	1%	1
Data Analysis	127	1%	1
Process	97	1%	1
Reporting	89	1%	1
Audit	86	1%	1
Training	86	1%	2
Documentation	85	1%	2
Methodology	80	1%	1
Troubleshoot	79	1%	2
Testing	79	1%	1
Performance	72	1%	1
Quality	62	1%	1
Integration	48	1%	1
Configuration Management	48	1%	1
Presentation	38	0%	2
Research	25	0%	2
GIS	23	0%	1
Mobile	23	0%	1
Content Management	15	0%	1
Immigration Status	5	0%	3
e-Commerce	3	0%	1
<b>Total</b>	<b>8595</b>		

## Analysis

The first level of analysis compared Job Types in the data to Career Tracks in the IS 2010 curriculum (Topi et al., 2010). Jobs were only identified for nine of the seventeen Career Tracks (see Table 4). Additionally, four of the thirteen Job Types are not readily apparent as a Career Track. Some of the unmatched items are suggested by the data, but there was insufficient data to achieve an explicit match.

**Table 4: Career Tracks to Job Types**

Career Track	Job Count	Job Type
Application Developer	91	Software Developers, Applications
Business Analyst	80	Computer Systems Analysts
Project Manager	74	Information Technology Project Managers
Network Administrator	69	Network and Computer Systems Administrators
Architect	26	Computer Systems Engineers/Architects
Database Analyst	15	Database Developer
Security and Risk Manager	15	Security Administrator
Database Administrator	12	Database Administrators
Operations Manager	7	Computer and Information Systems Managers
<div style="border: 1px solid black; padding: 5px; width: fit-content;">                     31% (4 of 13) of Job Types and 22% (109 of 498) of Jobs are not readily apparent as a                 </div>	85	Computer User Support Specialists
	16	Business Intelligence Analyst
	5	Software Quality Assurance Engineers and Testers
	3	Computer Operators (Data Entry Jobs in this study)
Web Content Manager	0	<div style="border: 1px solid black; padding: 5px; width: fit-content;">                     47% (8 of 17) of Career Tracks are not readily apparent                 </div>
Business Process Analyst	0	
e-Business Manager	0	
ERP Specialist	0	
Auditing and Compliance Specialist	0	
Asset Manager	0	
Consultant	0	
User Interface Designer	0	
<b>Total</b>	<b>498</b>	

The second level of analysis compared Qualification Types to IS Courses in the IS 2010 curriculum (see Table 5). Twelve of the eighteen IS 2010 Courses match to Qualification Types. Only fourteen of forty Qualification Types are readily apparent in IS Courses. This mismatch illustrates that only 45% of the qualifications found in the data can be mapped to IS Courses.

**Table 5: IS Course to Qualification Type Mapping**

(symbol + marks Core IS Courses)

IS Course	Qualification Count	Qualification %	Qualification Type
Project Management+	986	11%	Project Management
Infrastructure+	571	7%	Networking
Application Development	498	6%	Programming
Enterprise Architecture+	279	3%	Design
Systems Analysis and Design+	269	3%	Requirements
Enterprise Systems	257	3%	Package (all packages, not just enterprise)
Data and Information Management+	225	3%	Database
Security and Risk Management	215	3%	Security
Audit and Controls	227	3%	Audit + Testing + Quality
Data Mining / Business Intelligence	127	1%	Data Analysis
Business Process Management	97	1%	Process
Information Search and Retrieval	89	1%	Reporting
Foundations of IS+	0	}	
Strategy, Management, and Acquisition+	0		
Collaborative Computing	0		
Social Informatics	0		
Knowledge Management	0		
Human-Computer Interaction	0		
<b>Total Accounted for by IS Courses</b>	<b>3840</b>	<b>45%</b>	

33% (6 of 18) of IS Courses are not readily apparent in Qualification Types

## **Discussion**

If the goal of the IS program is to place students into jobs, the data suggests a job focus for the IS curriculum. Five job types account for eighty-percent of the jobs identified in the data. Of those five job types, four map to IS 2010 curriculum career tracks. The fifth job type that does not map to a career track is Computer User Support Specialist. This job type typically does not require a university degree, but instead requires either an associate's degree, vocational school, or on the job experience ("O\*NET OnLine," 2010). Since Computer User Support Specialist does not typically require a university degree it is out of scope for a university curriculum study. Therefore the job focus suggested by the data is to prepare students for the four mapped career tracks, which are: application developer, business analyst, project manager, and network administrator.

The data identifies a course focus that includes sixteen qualification types, which account for approximately eighty-percent of the job qualifications. Of those sixteen qualification types, eight map to IS 2010 curriculum courses. Therefore, the identified courses that are a priority based on the data and the model curriculum are: project management, infrastructure, application development, enterprise architecture, systems analysis and design, enterprise systems, data and information management, and security and risk management.

The data identifies a soft-skill focus for integration across the courses in the curriculum. Of the identified sixteen qualification types that represent eighty-percent of the job qualifications, three qualification types identify soft skills: communication, interpersonal skills, and problem solving. The communication qualifications identify the need for students to have "exceptional communications skills, both oral and written." This need may be addressed by a business communication course as well as including writing and presentation assignments in

some, or all, IS courses. The interpersonal qualifications identify the need for students to be able to work collaboratively and cooperatively with customers, co-workers and management. This need may be addressed by including group assignments in some, or all, IS courses. The problem solving qualifications identify the need for students to identify, evaluate, research, and resolve a variety of problem types (e.g., technical, business, customer, etc.). This need may be addressed by including project-based assignments in some, or all, IS courses.

Of the sixteen identified qualification types, the last three are addressed individually. The three remaining qualification types are: education, personal, and industry. Education is a qualification type that identifies the level of education (e.g., vocational program, associate's degree, bachelor's degree, etc.) required for a candidate to be qualified. The assumption is that the IS 2010 curriculum is an undergraduate curriculum and as such qualifies a candidate requiring a bachelor's degree or lower level educational requirement. Personal is a qualification type that accounts for a number of job requirements that may be out of scope from a curriculum point of view. For example, this qualification type includes: ability to lift fifty pounds, ability to travel, be at least twenty-one years old, be highly motivated, be self-directed, etc. The industry qualification type often poses a challenge from a curriculum point of view in that there is a limited amount of industry expertise that can be delivered in a curriculum. For example, while it might be possible to focus all projects on a specific industry such as healthcare, the data indicated a need for industry expertise in many industries such as utilities, marketing, software, retail, etc. That multi-industry need is not easily met within a curriculum.

Given the above discussed job focus, course focus, and soft skill focus, this study provides a means for individual university curriculum refinement. Since IS model curriculums have been the basis for program accreditation (Topi et al., 2010) many programs are able to map

their individual course offerings to the IS 2010 curriculum. After mapping the universities can identify whether the eight priority courses are included in their program and whether the priority soft skills are sufficiently covered across their courses. Potential refinements are: 1) adding priority courses that are not currently in the curriculum, 2) removing non-priority courses that are in the curriculum, and 3) including insufficiently covered soft skills across the curriculum.

### **Limitations**

The study was initiated as a part of a university curriculum revision process in the state of Arkansas, USA. The data collection was limited to the state where the university is located. While the findings are appropriate for the university in the IS department's curriculum decision, it limits the generalizability of the findings across the fifty U.S. states. However some confidence of generalizability is provided by the following table (Table 6) that identifies the priority order of Computer and Information Technology jobs based on the Bureau of Labor Statistics projected job growth from 2014 to 2024 (Bureau of Labor Statistics, 2016). Note that the top six information technology occupations include the five jobs identified by the data. The Bureau of Labor Statistics also identified Web Developer as a top job, but this job did not appear in this study. This job may not have been identified because of the difficulty in separating a web developer from web application developer in the data. A valuable area for future research would be to replicate the study for more, or larger, geographic regions.

**Table 6: Jobs Ranked in Order of Projected Growth**

<b>Occupation</b>	<b>Expected Job Growth (# of jobs)</b>
<b>Software Developers</b>	186,600
<b>Computer Systems Analysts</b>	118,600
<b>Computer User Support Specialists</b>	88,800
<b>Computer and Information Systems Managers</b>	53,700
<b>Web Developers</b>	39,500
<b>Network and Computer Systems Administrators</b>	30,200

The study is based on data acquired for a single point in time. The small dataset allowed manageable manual manipulations and coding that would not have been possible with a larger dataset without an automated process. Future research should encompass a longitudinal study to monitor changes in required skills over time within the state and the implementation of web crawlers and text mining tools to facilitate the study of larger datasets.

Lastly, this study investigated the job types and qualification types on which a university IS curriculum should be focused. Future research should use the available data to more fully define the identified courses. For example, there are 236 qualifications for the Programming course that can help define the course's objectives, tools, and projects.

### **Conclusion and Implications**

This study provides insight into available jobs, required skills, and course priorities. Assuming a goal of undergraduate and graduate programs is student placement, courses in an IS curriculum must ensure IS graduates are competent in fundamental technical skills that match the IT job market. In addition, those courses must integrate the softer skills to ensure that those skills can be effectively brought to bear once the graduate is employed in an organization.

When compared to the IS 2010 model curriculum, the data provides insights for students. The data suggests the nine career tracks that are in higher demand and the eight career tracks that

are in lower demand. From an IS course point of view, the data suggests the twelve courses that help students best prepare for the job market and identifies the six courses that may be less valuable when planning course options.

This study helps curriculum planners identify job focus and skill priorities, which are essential inputs when planning curriculums that are intended to help students find job placements. The job counts and percentages help choose a job focus for the graduate and undergraduate programs that may aid the largest number of students. The combination of IS model curriculum and qualification counts and percentages help identify the specific courses to offer and aid in the definition of course objectives and content.

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## End Notes

Dr. Richard W. Woolridge  
Associate Professor of Business Information Systems  
Department of Business Information Systems  
College of Business  
University of Arkansas at Little Rock  
2801 S. University Avenue, Little Rock, AR 72204  
Phone: (501) 569-8889  
Email: [rwoolridge@ualr.edu](mailto:rwoolridge@ualr.edu)

Kun-hee Kim  
MS Business Information Systems Graduate Student  
Department of Business Information Systems  
College of Business  
University of Arkansas at Little Rock  
2801 S. University Avenue, Little Rock, AR 72204  
Phone: (501) 569-8889  
Email: [kxkim4@ualr.edu](mailto:kxkim4@ualr.edu)

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### Author Biographies:

Dr. Richard W. Woolridge is an Associate Professor at the University of Arkansas at Little Rock. Prior to earning his Ph.D. from The University of Alabama, he had a twenty-year career in industry as an entrepreneur, consultant, process developer, project leader, architect, practice manager, software developer, and commercial software product manager.

Kunhee Kim is a Graduate Student at the University of Arkansas at Little Rock (UALR) working on his Masters Degree in Business Information Systems and a Certificate in Business Analytics. He currently works as a graduate assistant at UALR in the College of Business and as a Student Research Intern at the FDA National Center for Toxicological Research creating Bioinformatics in the Microbiology Department.

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## **An Analysis of the Team Experiences of Face-to-Face and Online Business Students**

Marsha L. Bayless, Stephen F. Austin State University  
Carol Wright, Stephen F. Austin State University

### **Abstract**

As business students are expected to work on teams when they enter the work force, preparation at the college level in working with teams is very important. Teamwork in face-to-face classes where the team members can meet and see each other several times a week can result in work complications. However, working in teams online when the teams may never meet in person presents even greater challenges. This paper studied both online and face-to-face classes to analyze different team perspectives. Students reported that communication is the most cited difficulty in teamwork in the online environment, but scheduling conflicts were more problematic for face-to-face students, probably because the students were trying to meet face-to-face to complete the project. Implications for teaching are also provided.

**Keywords:** *teamwork, distance learning, communication*

### **Introduction**

Students will be expected to work in teams when they enter the workforce. Dwyer (n. d.) states that “Rarely do the acts of one person influence a company's success” (para. 1). Much like the classroom experience, work groups are expected to communicate together and build relationships to help the team become cohesive (Agrawal, 2016). This is why it is so important that students are experienced in learning how to work collaboratively. Group work in higher education can help students develop these skills because not only does it help students learn to work together, it also helps students understand content better, learn to make better collective decisions, and develop skills to help a group function more productively (Weimer, 2013).

To help prepare students to enter the workforce, teamwork is used in higher education to help students learn to work collaboratively. The ability to work together is deemed so important that the accrediting agency for colleges of business, The Association to Advance Collegiate Schools of Business (2016), created Standard 9 as part of its accreditation procedure to encourage universities to teach students the ability to work with others through interpersonal relations and teamwork. Colleges of business must demonstrate how they are effectively meeting this standard related to teamwork during the accreditation process.

When business students take courses online, working in teams can provide more challenges than in face-to-face classrooms. Because of this difficulty, an instructor may decide to not use teams to simplify the course for all. If one follows the view that an online education should offer a similar experience to a traditional face-to-face classroom education, then an online class without the team component is doing a disservice to those students. Instructors should find a way to transfer the same skills of team work into the online environment (Staggers, Garcia, & Nagelhout, 2008) to provide a similar experience. As the number of online course offerings increase, one should be concerned that the value of learning is comparable. The U.S. Department of Education (2013) reports that in the 2011-2012 academic year, 32% of undergraduate students were taking at least one online class and 8.4% of students were taking exclusively online classes. According to Allen and Seaman (2013), 69.1% of institutions of higher education agreed that online education was critical to the long-term strategy of their institution and 32% of students take at least one online course. The authors also found that

The view that online education is “just as good as” face-to-face instruction is decidedly mixed. The period of 2003 through 2009 displayed a small decrease in the proportion of chief academic officers reporting the learning outcomes for online education were *Inferior* or *Somewhat Inferior* to those for comparable face-to-face courses. This proportion then held relatively steady between 2009 and 2011. Results for 2012 show a substantial improvement in the opinion of

academic leaders on the relative quality of the learning outcomes for online education. The percent reporting that outcomes are *Inferior* or *Somewhat Inferior* dropped from 32.4 percent in 2011 to only 23.0 percent for 2012. (Allen and Seaman, 2013, p. 28).

This changing view of online education shows that there are still opportunities in online courses to improve the educational experiences of students. Improving the team experience is one component of these opportunities. To provide some background pertaining to effective online group work, findings from some other studies will be presented.

### **Background**

Whether online or face-to-face, when an instructor provides instruction on collaboration and division of labor, it can help groups work through issues. When the course is online, new dynamics create issues. The online course causes the students to take control over their own learning and the learning of their peers to create a more student-centered approach (Baran, Correia & Thompson, 2011).

As with any course, communication is important to help students learn course material. However, communication in teams can be more complex. Svinicki and McKeachie (2014) believe that group work aids peer-to-peer learning, allows for discussion of differing opinions, and reveals misconceptions. The group success, they state, “requires interpersonal as well as cognitive skills – being able to give feedback in nonthreatening, supportive ways, maintaining focus on group goals, developing orderly task-oriented procedures, and developing and sustaining mutual tasks” (Svinicki & McKeachie, 2014, p. 194). Ongoing collaboration is essential in this learning process. Weimer (2013) candidly discusses group work, “Much of the group work used in college classrooms is not well designed or well managed. But when group work is carefully constructed and when teachers help students deal with those group dynamic issues that compromise group effectiveness, students can learn the content and the skills” (para.

8). In addition, Chang and Hannafin (2015) state that effective learning requires ongoing collaboration and suitable feedback during the process, and instructors should monitor this process, track student engagement, and provide support as needed. This process was designed to simplify the assessment process, allow anonymity to team members, and provide constructive feedback for improvement during the group project. The authors found that, “Without feedback, students will not be able to learn to improve their behaviors – this time, or the next time around” (p. 33). The main purpose behind Chang and Hannafin’s study was to give students tools for improvement, not to evaluate how the project itself can be improved.

Similarly, a study by Anson and Goodman (2014) created a process to gather peer feedback from teams throughout the group process. One way to provide this support can be for instructors to begin early in the semester to model the type of behavior desired of students by taking an active role in discussions and providing feedback, then intervening in online discussion to set direction (Conaway, Easton, & Schmidt, 2005).

One of the issues in group work is how to assign credit for work completed in a collaborative project. Different approaches can be taken including assigning the same grade to all group members or allowing teams to assign other teammates’ grades. Svinicki and McKeachie (2014) believe that assigning the grade may be the hardest part of group projects and believe that grading should include both an individual component and a group component.

Agrawal (2016) discusses tips to having a successful online work group. His suggestions of building relationships, creating rules, having a collaborative platform (like the Learning Management System), and creating incremental deadlines are the same tips instructors should follow in class work structures. When discussing online collaboration, Watkins (2013) warns, “selecting the “best” technologies does not necessarily mean going with the newest or most

feature-laden. It's essential not to sacrifice reliability in a quest to be on the cutting edge. If the team has to struggle to get connected or wastes time making elements of the collaboration suite work, it undermines the whole endeavor. So err on the side of robustness. Also be willing to sacrifice some features in the name of having everyone on the same systems" (para. 6)

### **The Study**

The purpose of this study is to compare classes that use teamwork to assess the students' perceptions of teamwork. The findings from this study can be used to assist instructors in the design and implementation of group work in an online course to present a similar learning experience in completing a project as a member of a team.

To understand students' perceptions of group work in different delivery methods, a survey was created and administered by the researchers using Qualtrics. The survey included 16 questions that included some open-ended responses that asked students to provide more insight into how they may have answered some of the questions. As students in the courses were deemed to be representative of the student population, no demographic data was collected. Descriptive statistics are used to present the data collected. This study was approved by the Institutional Review Board of the researchers' institution. The instructor of the course was not one of the researchers.

The majority of students taking an upper-level business foundation course during the spring semester of 2016 were surveyed. Three sections, all taught by the same instructor, were studied. One section was fully online and two sections were traditional face-to-face classes. Each section of the class was given the same assignment to complete a case analysis of an assigned chapter in the textbook. Students were given extra credit points to complete the survey; however, to receive the extra credit, students were required to type their names in the last

question response of the survey. In the fully online class, 46 out of 65 students completed the survey for a participation rate of 71%. In the two face-to-face classes, 85 out of 109 students completed the survey for a participation rate of 80%. A total of 131 of the possible 174 students in the three sections participated for an average response rate of 75.2%.

After being given the instructions for the group project, students were to work independently to complete the team project outside class time. Students in the face-to-face classes were given a short period of time in a few class sessions to meet with groups. Students in the online class were given some guidance in the learning management system (LMS) on working as a group online. For all classes, each group was able to use a private discussion board created in the LMS.

### **Findings**

Students identified the size of their groups. In the online class, 50% of students were in a group of seven. In face-to-face classes 40% were in groups of seven, and 29% were in groups of five. This difference may be attributed to the two classes being different sizes. Because one of the classes had 66 students enrolled, the group sizes were larger in that class. The other face-to-face class had an enrollment of 43. Overall, students indicated they were content with the group size because 80% of students indicated the groups were a good size. Only 19% indicated the groups were too large.

One of the keys to group success is communication. Students indicated the various communication tools that were used to complete the team project. In face-to-face classes, text messaging was the most commonly-used communication tool (87%), while in online classes the LMS discussion board was used most often (91%), closely followed by LMS e-mail at 79%. Of the online students, 49% used texting as a communication method. Responses varied in the

different classes, as shown in Table 1 below. Students were allowed to choose multiple answers to indicate the various ways used to communicate among team members.

**Table 1.** Communication Tools Used in Team Communication

	Online Class	% of Responses	Face-to-Face Class	% of Responses	Total	% of Responses
Text messaging	21	49%	74	87%	95	74%
LMS Discussion	39	91%	44	52%	83	65%
Meeting Face-to-Face	1	2%	60	71%	61	47%
LMS e-mail	34	79%	25	29%	59	46%
Other e-mail	6	14%	23	27%	29	23%
Google Docs	2	5%	28	33%	30	23%
Skype messaging	1	2%	0	0%	1	1%

Only two percent of online groups were able to meet together as compared to 71% of face-to-face groups.

With all the opportunities for communication listed for the previous question, 58% of online students indicated communication was the biggest challenge to overcome in the team experience, whereas only 22% of face-to-face students indicated communication was the biggest challenge. Instead, face-to-face students identified schedule conflicts as their biggest challenge (67%). Overall, only 12% of students indicated one/two group members did all the work, and 2% stated one person acted to dominate the group project.

Students were also asked how they would like the project to be administered. Face-to-face students were more likely (58%) to want one large project due at the end of the semester, whereas the online students only indicated this 40% of the time. The online students requested one large project with several smaller parts of the project due during the semester 42% of the time.

Determining the grade in a group project can be a challenge. Table 2 shows that, overall, 85% of students want to provide feedback on the performance of other group members but not have total control in determining the individual grades.

**Table 2.** How Should the Grade be Determined in Group Work?

	Online	Face-to-Face	All Classes
Students should provide feedback, but the instructor makes the final decision about individual grades	74.4%	90.6%	85.2%
Instructor should assign the same grade to the entire group	23.3%	4.7%	10.9%
Students should have complete control over other group members' grades.	2.3%	4.7%	4.0%

Students can be apprehensive when providing feedback, especially when another person's grade may be affected. However, 71% of students who completed this survey indicated that they would not change the way they marked other group members. The online students were slightly more likely (76%) to not change the way they marked others than the face-to-face students (69%). In all classes, 24% of students indicated that they would mark group members with higher scores because they knew the evaluation would affect the other person's grade.

When assigning a grade for the team project, one question for the instructor is whether to assign individual grades to each team member. If one group member did little to nothing on the project, would that person's grade be affected? Most students (55%) would want that person to receive a significantly lower grade. All results are shown in Table 3 below.

**Table 3.** Do You Give Low-Performing Group Members the Same Grade?

	Online	Face-to-Face	All Classes
I would indicate that person did very little and expect that person to receive a <b>SIGNIFICANTLY</b> lower grade.	46.5%	58.8%	54.7%
I would indicate that person did very little and expect that person to receive a <b>SLIGHTLY</b> lower grade.	20.9%	22.4%	21.9%

I would indicate that person did very little and expect that person to receive a zero.	20.9%	16.5%	18.0%
I would indicate that person did very little but still expect that person to receive the SAME grade.	7.0%	1.2%	3.2%
I would NOT indicate that person did very little and allow that person to receive the same grade. It is not my place to “tattle-tale.”	4.7%	1.2%	2.3%

Another issue in group work is how involved the instructor should be during the course of the project. Responses were similar across all sections. Only a small number of students (6%) wanted the instructor to be very involved in the group process, including monitoring activities and messages to keep group members on task. Overall, 42% of students thought the instructor should only become involved when several group members asked for help. Another 35% thought the group should guide its own actions and the instructor should only provide instructions and answer questions. When the group situation becomes dire, students wanted the ability to fire group members. The majority of students across all sections wanted the ability to fire group members 59% of the time, but the consequences of firing differed. Online students were more lenient and wanted fired group members to receive a zero only 12% of the time, but face-to-face students were more likely (29%) to want the fired group members to receive a zero on the project. The online students were more likely (40%) to want students to be fired, but allow those terminated students the option to complete the project completely on their own. Similarly, 33% of the face-to-face students wanted to provide the individual option for the project. Many students in all sections did not think the students should be fired because they believed they should learn to work together. Table 4 shows the breakdown on this question.

**Table 4.** Should a Group Be Able to Fire Someone From the Group?

	Online	Face-to-Face	All Classes
No because we should learn to work together.	49%	38%	41%
Yes, then that person should complete the project themselves.	40%	33%	35%
Yes, then that person receives a zero for the assignment.	12%	29%	23%

Instead of waiting to evaluate team members at the end of the project, students were asked about evaluating halfway through the project. Most of the students in all classes (51%) liked the idea because they believed it would encourage non-performers to participate during the remainder of the project. Another 21% liked the idea, but wanted to ensure their feedback was anonymous. The remaining 28% of students did not want to provide feedback during the project: 20% did not like the idea at all and 8% were concerned that a poor grade might make other team members mad. The results were similar across all classes.

A large majority (87%) of students seemed to understand that they would be required to work as an online or remote team member in their jobs after graduation. While 93% of the face-to-face students believed they would be required to work as an online or remote team in their jobs after graduation, only 76% of the online students thought they would be working online or with a remote team.

An open-ended question asked students to give at least one specific suggestion to improve the team experience. The online students were asked specifically to suggest ways to improve the online group experience. Responses varied widely, but communication issues were mentioned in 21% of student responses. Students seemed to dislike the LMS Discussion board because the different threads were confusing, some students were unable to see all posts, and the inconvenience of having to constantly check the board for new posts was time consuming. Comments about making the groups smaller and breaking the project into smaller parts were

each mentioned in 11% of suggestions. Another 9% of students suggested some form of mandatory group meeting either face-to-face or online using a chat or other synchronous meeting format. Other suggestions include having the professor “check-in” periodically, having points deducted from students who did not participate fully, starting the group work earlier in the semester, and providing a better way to distribute the information in a clear manner.

The face-to-face students were asked to suggest ways to improve the group experience. Like the online class, communication was the most mentioned post (25%); however, the comments were more focused on students needing to be better at finding ways to communicate (like using the LMS or texting). Similarly, needing better cooperation among group members was common in 14% of suggestions. Students cited the difference in motivation among team members and being more patient with each other. Being a face-to-face class, students also wanted more time to meet in class (11%). Similar to the online class, students also requested the project be divided into smaller parts with specific, periodic due dates (9%). Another complaint (7%) involved scheduling problems and finding a time to meet together outside of class. Other comments included being able to pick their own groups and having the professor “check-in” during the project. Another open-ended question asked the online students what made their online group experience in this class more difficult. Similar to the prior question, communication issues, the lack of face-to-face meetings, and poor participation from all were the most cited problems.

Face-to-face students were asked if they believed their responses to the survey questions would be different if they were working in an online group. Of the 81 students who responded, 42% said their team experience would be different, but 54% said their responses would not change. The students who believe the situations would be the same thought the communication

would be improved because of technology and that the project was completed online anyway. Four percent were unsure if their responses would differ in an online group.

### **Conclusions**

The tools used in the college classroom can be useful for students as they enter the work force. The authors believe that the findings presented represent a typical student at their regional university. From the authors' personal experiences, there is not a significant difference in online students because a large number of traditional face-to-face students also take online classes at their institution.

The comments added from students about improving the team experience are valuable because it helps to further understand some of the problems in group work both online and in traditional settings. Communication among group members is key, which shows in the most common comments left in both class types. Online groups seemed to have more issues with communication, which could be attributed to the online format. Because face-to-face students were likely to have time in class to talk, these students were "forced" to communicate. The time in class afforded the opportunity to provide some personal connection. Using the suggestions from Agrawal (2016), communication can be used to build the needed relationships and establish rules, which can be communicated across a common platform like the course LMS. However, the best intentions do not always lead to better results. It seems communication is a constant issue in teams, whether they are face-to-face or online, as one student commented, "In a time when communication has become so varied and easily accessible it is a shame when it comes to a grade, many students failed to communicate until the last minute!" As much as possible, the instructor should stress the importance of all students using the common platform and instruct students on its proper uses to improve communication and the overall team experience. It is

interesting that many face-to-face students thought the team experience would actually be better online because of improved communication, however the responses from the online students show that communication issues are still the main issues in an online class.

One difference between the delivery methods was how the group project should be setup. Face-to-face students were more likely (58%) to want one assignment due, but online students only agreed 40% of the time. More often, the online students wanted incremental assignments. This difference may be attributed to the fact that the instructor was able to verbally remind students about the project and allow the students to work together during class. Although the instructor can still remind students about requirements, the online environment leads to the possibility of “out of sight, out of mind” and may result in students procrastinating on their course work.

Although the issue can be argued both ways, teams need guidance in the process. The instructor should stay involved in the team process. One student commented, “I really feel that as ‘adults’ we should be held responsible for our team/group assignments without the instructor having to ‘babysit.’ However, this is too often not the case, I really urge periodic check ins by the instructor and ‘firing’ non communication participants.” Providing some form of formative assessment, similar to findings from Anson and Goodman (2014), will help students understand how they are performing both during and after the project. This will help students learn to develop their team skills for the workforce. Providing incremental assignments could prove to be beneficial to guide and promote students in their group work.

When considering how to assign grades for the group project, the online classes (nearly a fourth) thought the instructor should give the same grade to all team members while with the face-to-face students only 5% thought all team members should get the same grade. It seems

like online students were less willing to have feedback from other students affect their grade than face to face students were. Overall, all students wanted some say in the grading process, but very few wanted to have complete control.

### **Implications for Teaching**

Based on suggestions made by Weimer (2013), group work can be effective in online classes if it is carefully designed. Groups should be interdependent and have varying degrees of engagement. Instructors should be adaptive and remember that no given strategy should be used for all groups and learning experiences. The online environment does make group work more challenging, so organization in the class is important because collaborative technologies are often misapplied. Although larger groups can be effective, groups should still be kept as small as possible. Breaking tasks into small components will help group members better manage the workload, and instruction should be given on how to collaborate.

Another example is when some students in a team wish to use a technology for the group collaboration that other team members are not familiar with and are not interested in using. The instructor may find it necessary to require a certain technology to be used by all team members to place them on the same playing field. Using the school supported Learning Management Systems helps groups work together because it is a tool already known to many students and provides one space for students to find all information for the course. Instructors should create content and assignments before the course begins and customize the site to the course requirements.

Using discussion boards helps groups communicate. These discussions allow for asynchronous communication to allow students to have continuous discussion during the group project. Discussion boards often can allow text, audio, and video submissions and can help to

humanize the course by providing the personal feel of a face-to-face discussion (Parker, 2016). In addition, discussion boards keep an online record of communications, allow reflection time, and are convenient. However, instructors should provide guidelines for proper use and encourage active participation among all group members.

Using an online chat technology affiliated with the Learning Management System is also a way for students to collaborate in a synchronous mode if they can agree on a time to work together. Communicating synchronously allows for immediate feedback and clarity in discussion that may not be possible in an asynchronous mode.

Organization of the course is also important, and instructors should strive to have the course fully developed with clearly stated assignments and deadlines (Parker, 2016). This organization shows that the instructor is in control of the class structure and will convey to students the importance of the material.

To close, online group work can be successful and provide a similar experience as a face-to-face class. This study shows that students do not have significant different perceptions of group work as their face-to-face counterparts. Although the online component can be more challenging, instructors should find ways to incorporate group work into the online class. Small changes for the online group project will help to make the project more effective. A few suggestions include keeping group sizes small, encouraging constant communication, incorporating incremental assignments into the project, and offering (not forcing) help to groups experiencing problems. As students continue to be involved in group projects, they will develop the skills and confidence to carry into their careers.

## Future Research

To further explore the topic of student perceptions of online group work, a larger sample size could produce different results. In addition, the collection of demographic data could be used to further explore the difference between perceptions of on online and face-to-face groups. The perceptions may vary if the online student population differs significantly from the face-to-face student population.

In this study one foundation course with one instructor was used to provide consistency. Future studies may incorporate additional courses and instructors for additional perspectives.

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### **End Notes**

Dr. Marsha L. Bayless  
Department Chair and Professor of Business Communication and General Business  
Department of Business Communication and Legal Studies  
Stephen F. Austin State University  
[mbayless@sfasu.edu](mailto:mbayless@sfasu.edu)  
(936)468-1496

Dr. Carol Wright  
Assistant Professor of Business Communication and General Business  
Department of Business Communication and Legal Studies  
Stephen F. Austin State University  
[cwright@sfasu.edu](mailto:cwright@sfasu.edu)  
(936)468-1780

## Potential Employer Internet Screening of Job Applicants

Marcel Robles, Eastern Kentucky University

### Abstract

The purpose of this study was to explore how the use of Internet screening by employers can impact people seeking employment and to examine the benefits and consequences of employers using such a practice. Historically, employers relied upon a job candidate's résumé, interview performance, professional references, and criminal background check to evaluate a job applicant during the hiring process. Since the arrival of social media, employers now can expand employment screening beyond the traditional means of evaluation to any material that is searchable on the Internet.

**Keywords:** *online job screening, Internet screening, social media screening*

### Introduction

Social networking sites (e.g., Facebook) allow users three main functions: (1) to create a profile on the website; (2) to add and share connections with “friends”; and (3) to view the profiles and connections of others (e.g., “public”) in the network. The purpose of social media is to create communities of people who want to interact and communicate with one another other and share content via web postings (e.g., pictures, comments) (Boyd & Ellison, 2008). Social media sites have grown enormously in the past decade. Information is near-instantaneous, and making connections with new people is now easier than ever (Baumhart, 2015). Many organizations and individuals are creating their own Facebook page, LinkedIn profile, and/or Twitter account to connect, communicate, and share information online.

After its beginnings in 2004, Facebook is now the largest social media network in the world, with more than 1.86 billion monthly active users worldwide (Zephoria, 2017) and an

average of 1.18 billion daily active users (Facebook, 2017). According to a Pew Research national survey, 79% of adult **Internet** users use Facebook (Pew Research, 2016). Nearly 8 in 10 *online* Americans (79%) use Facebook, and 68% of *all* U.S. adults are Facebook users (Pew Research, 2016).

Many studies in the past ten years have indicated a trend in the increasing use of screening job applicants by reviewing their social network profiles to make hiring decisions (Balint & Rau-Foster, 2015). While individuals enter their personal data in their social media site profiles, employers now use that social media information to screen job applicants. In fact, some employers require applicants to allow them access to their social media accounts (e.g., Facebook, LinkedIn, and Twitter).

Organizations that screen job applicants by using the Internet to Google a job applicant's name or review his or her social media profiles are basically conducting an electronic background check. Hiring employers want to know about the job applicants' character and personality outside the realm of the traditional interview process (Balint & Rau-Foster, 2015; Miller, Parsons, & Lifer, 2010). Hiring managers may use social media to examine the job candidate's professionalism to learn more about his or her qualifications, to determine if the individual is a good fit for the company culture, and to find causes not to hire the person (Lorenz, 2009).

Potential employers assert that likes, comments, pictures, and interests posted on social media determine personality traits of individuals who would fit the company culture, as well as indicate future job performance (Kluemper & Rosen, 2009; Melanthiou, Pavlou, & Constantinou, 2015; Stoughton, Thompson, & Meade, 2013). Inappropriate pictures; comments about drinking or drug use; controversial statements (e.g., religion, political); and negative remarks about a

current or former employer are several reasons that prospective employers might not hire a job applicant.

As social media surveillance becomes increasingly commonplace, questions emerge regarding precisely what types of individuals potential employers are screening out when they eliminate job candidates who engage in undesirable social media communication and activity (Stoughton et al., 2013).

### **Purpose of Research**

The purpose of this study was to explore how the use of Internet screening by employers can impact people seeking employment and to examine the benefits and consequences of employers using such a practice. The research study answered the following questions:

1. What is Internet screening?
2. What are the benefits and consequences of employers using Internet screening?
3. How does Internet screening impact job seekers?

### **Methodology**

A blend of primary and secondary research was used in this study. The secondary research included a review of scholarly literature that focused on social media and Internet screening and its impact on the hiring process. A review was also performed of the 2014 CareerBuilder survey that sampled more than 2,000 hiring managers who used social media sites to evaluate job candidates (Grasz, 2014). The primary research focused on interviews with four hiring managers who were chosen for the study based on convenience and accessibility. Three of the hiring managers were male; one was female. The participants represented Generation X, Generation Y, and Baby Boomers.

All participants were asked the same questions about the practice of Internet screening during the hiring process. The questions used in the interviews are shown in Figure 1. The hiring managers represented a variety of fields including agriculture retail, civil engineering, information technology contracting, and healthcare management.

**Figure 1.**  
**Interview Questions Asked of Hiring Managers**

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1. Do you screen the social media sites of job candidates as part of the hiring process?
  2. If no, do you plan to use Internet screening in the future?
  3. If yes, what are your reasons for Internet screening?
  4. What have you found on social media sites of potential hires that promoted you to eliminate them from consideration?
  5. What have you found on social media sites of potential hires that made you more likely to hire them?
- 

**Data Findings and Analysis**

The following are the findings and analysis from the review of several scholarly articles, a 2014 CareerBuilder survey, and interviews with hiring managers regarding the practice of Internet screening.

**Internet Screening vs. Traditional Background Check**

To learn as much as possible about job applicants, potential employers conduct various background checks. Social media profile screening has become a popular form of these background checks and has created huge controversy regarding its legality concerning public and private information. Currently, social media screening of job candidates is considered ethical and legal as long as no privacy rights are breached; but, employers still must proceed with caution.

Inevitably, Internet screening of applicant information affects the employer's decision to accept or reject an applicant (Slovensky & Ross, 2012). Concerns about invasion of privacy, data authenticity, methods for accessing applicants' social media sites, and how that information is used in hiring decisions can accompany legal and ethical risks for using social media as a prescreening tool (Balint & Rau-Foster, 2015). Job applicants voluntarily post personal information in their social media profile and on their friends' pages, not intending that potential employers will read their unfiltered posts to gather personal and social information about them (Stoughton et al., 2013).

A complete traditional background check investigates the job candidate's education, previous employment, credit, and criminal record (Gatewood, Feild, & Barrick, 2011). Internet screening can actually be more invasive than that regular background check. Employers can learn much more about the job applicant online, much of which might be irrelevant to the job, and could form the basis for discrimination of protected groups (i.e., providing information about age, gender, race, marital status, sexual orientation, religion, disabilities) (Davison, Hamilton, & Bing, 2012; Egan, 2012; Kluemper & Rosen, 2009; Slovensky & Ross, 2012).

Several approaches to Internet screening include (a) the people directly involved in the hiring decision investigate the candidate's online presence; (b) an employee with no part in the decision-making process performs the Internet screening on the job candidate; or (c) a consumer reporting agency, a third party, performs the Internet screening and then reports to the employer (Reicher, 2013).

### **Employer Benefits and Consequences of Using Internet Screening**

Social media allows employers access to information about a potential hire that they would not be allowed to gather during the job interview; and unlike criminal background checks,

employers can research a job applicant's social media profile without making the applicant aware (Ebnet, 2012). Through an online search, it is possible for employers to discover information that is usually under the protection of federal employment discrimination laws, including a person's race, religious affiliation, gender, and national origin, which are covered under the Civil Rights Act of 1964; age, which is covered by the Age Discrimination in Employment Act of 1967; and disability status, which is covered by the Americans with Disabilities Act of 1990. This information may be gathered from a profile picture alone, which is usually available to the public on most social media sites and without the option to remove from public view. Additionally, a social media site profile picture gives employers the opportunity to make hiring decisions based on factors that are not protected by federal law, including sexual orientation, physical attractiveness, and smoking habits (Brown & Vaughn, 2011).

Although tempting for some employers, it is unlawful to ask discriminatory questions during an interview, and even if the application offers job-irrelevant information, the employer is still prohibited from using the information to make a hiring decision (Sprague, 2011). These factors could introduce bias into the hiring process (Brown & Vaughn, 2011). Matthews (2011) referred to "legal and ethical alarm bells" that indicated screeners who viewed their actions as legal (86%) also viewed them as ethical. Furthermore, Matthews found a lack of relevant and reliable information, as almost half of the respondents reported that they were ignorant of the legal implications that could result from misuse of applicant information (2011).

The Equal Employment Opportunity Commission (EEOC) enforces strict guidelines on the information a potential employer may ask regarding protected groups, but all of these data are easily known by viewing a job applicant's social media profile. Therefore, viewing an applicant's online profile that could lead to discrimination would violate federal law. Hence,

there is a possibility that decisions could be based on false, inaccurate, or outdated information. Further, issues of confidentiality and safe storage of information collected during the screening process are also of great concern for potential employers because if they fail to act responsibly, legal issues could arise with negative consequences (Slovensky & Ross, 2012).

Facebook's Chief Privacy Officer noted that any access employers request of the social media giant's user profiles undermines privacy expectations and security of both the user and the user's friends. Asking for passwords explicitly violates Facebook's terms of service (2012). This request for social media profile access also potentially exposes the employer to unanticipated legal liability (Egan, 2012).

Davison and others (2012) recommended the following guidelines for analyzing the risk-benefit of Internet screening, dividing it into four levels of risk:

1. Least Risk – The employer focuses only on sites referenced in the job candidate's application (e.g., professional organizations, networking sites).
2. Mild Risk – Official blogs from the candidate's previous employment or personal websites are reviewed.
3. Moderate Risk – Social media websites (e.g., Facebook, Twitter) are searched for information posted by the applicant.
4. Highest Risk – Postings by third parties are searched to find information about the applicant.

The first two levels tend to focus on gathering information about an applicant's *positive* qualities; the last two levels aim at finding *negative* information about the candidate.

## **Laws and Social Media Screening**

The Society for Human Resource Management has been tracking the use of Internet screening of candidates since 2006 (SHRM, 2008). Court cases have resulted from employment online background checks and social media; for example, *Mullins v. Department of Commerce*, *Spanierman v. Hughes*, and *Pietrylo v. Hillstone Restaurant Group* (Davison et al., 2012).

Twelve states have laws forbidding potential employers from asking job applicants for their social media passwords, and legislation has been introduced or is pending in 26 states that would prohibit an employer from asking job applicants and employees for their passwords. Therefore, hiring managers should check with the Federal Stored Communications Act to determine if their state prohibits this practice (Wilkie & Wright, 2014).

It is nearly impossible to confirm the validity of information found on social media sites, and the information discovered during Internet screening could possibly be misleading or inaccurate. For example, a social media site could be created as a personal attack or practical joke and, therefore, contain completely false information about someone (Weathington & Bechtel, 2012).

The information on a job candidate's social media site is not necessarily more accurate than the information provided during an interview or on a résumé. A person may create a social media site with certain viewers in mind, and the site may not be a true reflection of the user's personality. For example, an individual may "fake good" on Facebook if the intended audience is family or potential employers or "fake bad" if the intention is to impress friends or potential mates (Davison, Maraist, & Bing, 2011). In addition, job applicants may be more likely to tailor online behavior to match the evaluation criteria of an employer if aware of the employer's practice of Internet screening (Bangerter, Roulin, & Konig, 2012).

Potential employers should always inform the job candidates of such searches, and even more diligently, get written consent so as to avoid any legal consequences (Ross, Newman, & Chen, 2015). Sullivan (2012) reported that government employers were asking job applicants for social media usernames and passwords as part of the interview process. Maryland's Department of Corrections had applicants log into their Facebook accounts so the interviewer could see postings, pictures, and friends. A complaint with the American Civil Liberties Union initially banned this Department of Corrections' practice (The Atlantic, 2011). In 2012, the state of Maryland passed legislation prohibiting this Department of Corrections online screening practice in order to protect employee privacy (Breitenbach, 2012).

Stoughton et al. (2013) stressed that the online practice of Internet screening may not be worth the risk. They maintained that a traditional background check seeking job-relevant information about the applicant is more beneficial, and less risky, for screening job applicants. Further, Slovensky and Ross (2012) asserted that social media activity might not always reflect how an applicant will perform in the workplace. Some users post information to their profile accounts that does not reflect their actual conduct. In addition, end users might create various accounts over periods of time on a number of social media sites. Then when those accounts are abandoned, they are not often deleted; and they often show a different phase of life for the job applicant; thus, not representing his or her current status (Fernando, 2008; Slovensky & Ross, 2012). Additionally, identity theft on social media sites and profile imitation are common problems that could result in misinformation and bias towards the candidate; astonishingly, there are 83 million fake profiles today (Zephoria, 2017).

## **The Impact of Internet Screening on Job Seekers**

Many job applicants use social media as an informal means of communication and may leave traces of unfiltered data not intended for employers on blogs, tweets and posts on Facebook. This social communication could offer employers a glimpse into the uncensored life of a potential hire and could be used in the evaluation process (Stoughton et al., 2013).

The practice of Internet screening could reduce the attractiveness of an organization if a large number of applicants are aware of the screening practice, especially if rejected applicants or disgruntled employees turn to Internet message boards or forums targeting job seekers to share details about a bad experience. This public display of dissatisfaction could affect the perceptions of those who may otherwise apply for positions at the company, giving job candidates a glimpse of future treatment and possibly discourage the acceptance of an employment offer. If an applicant does accept a position and is aware of the screening procedure, the likelihood increases for unfavorable attitudes while employed, leading to low job performance and turnover. Additionally, an applicant who suspects an invasion of privacy may be more likely to pursue legal action, resulting in costly damages to an organization's reputation, customer loyalty, and shareholder value (Goldman, 2001). Employers should focus on how they treat applicants— just as applicants should focus on providing a good impression to employers (Blacksmith & Poepelman, 2014).

Users of social media may be overestimating the privacy protection settings on certain sites. Online content created through social media is often permanent, which can make hiding an online history more difficult (Ebnet, 2012). People who send uncensored messages and photos over Twitter and Facebook are not likely to consider the long-term effects before making such decisions. For example, Facebook users can decide which audience is able to view their profile;

but since anybody who has access to the user's information is able to download it, the information is not as much private or controlled as it is public. Even with the option of privacy settings, not all Facebook users want to use them (Ebnet, 2012). Because the Internet and social networking sites have made communication near-instantaneous, widespread, and indefinitely stored; and erasing online content is often limited if not impossible (Baumhart, 2015).

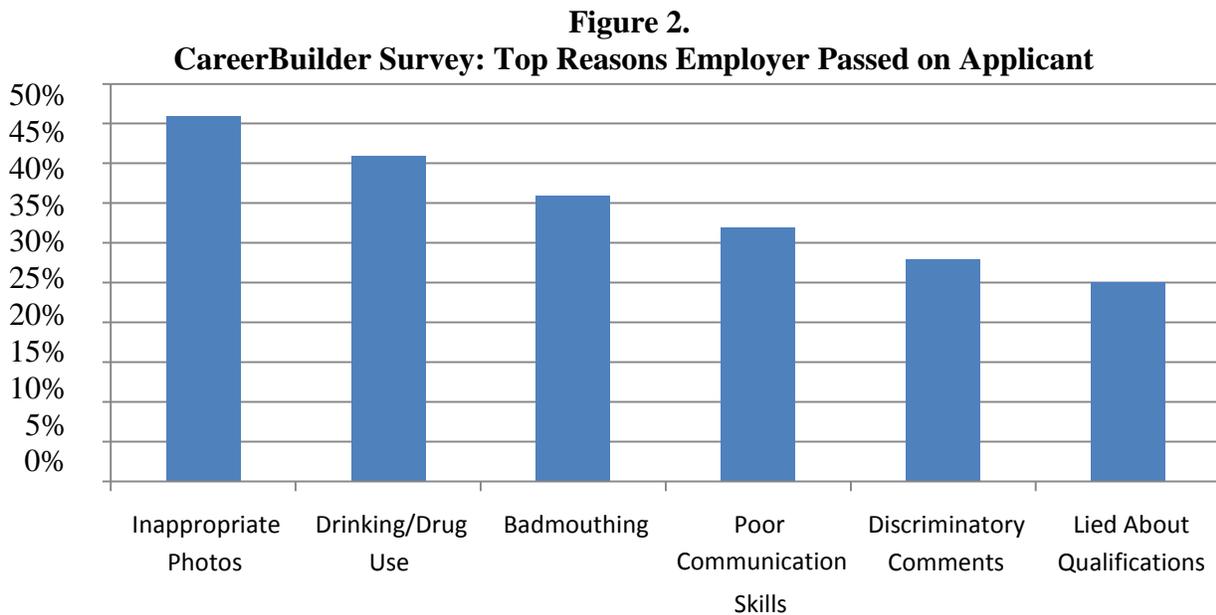
It is suggested that some people, especially college students, prefer to use social media to express themselves and make connections with similar people. It is also believed that some Facebook users intentionally misrepresent themselves as a means of gaining social acceptance (Peluchette & Karl, 2009). In a recent study, people with unprofessional social media sites not only lost more job opportunities, but also were offered a lower salary than those individuals with professional, family-oriented social media sites (Bohnert & Ross, 2010).

Social media sites, such as LinkedIn, are designed as professional environments for people to network with colleagues and prospective employers and to share information about employment history and education. On the opposite side are social media sites like Facebook and Twitter that are designed as more casual environments for people to connect with friends and family and to share information about one's social life. These types of personal sites are not designed with colleagues or prospective employers in mind (Stoughton, Thompson, & Meade, 2015).

### **Internet Screening Can Hurt Job Seekers**

In a recent survey by CareerBuilder (2016), more than 2,000 hiring managers were asked to identify what they found during an Internet screening that led to the elimination of a job candidate from consideration of employment. The top reasons included postings of provocative or inappropriate photographs or information (46%), postings of drinking or drug use (41%),

badmouthing previous employer or fellow employee (36%), displaying poor communication skills (32%), posting discriminatory comments (28%), and lying about qualifications (25%), as can be seen in Figure 2 (Grasz, 2014).



The primary research in this study focused on interviews with four hiring managers who represented the fields of agriculture retail, civil engineering, information technology contracting, and healthcare management. Three managers frequently used social media as a screening tool and one manager did not practice and did not have plans to practice Internet screening. The hiring managers gave the following reasons for practicing Internet screening: to save time and help reduce the number of candidates to interview, to find out if the job candidate is lying about résumé, to find out if the job candidate is badmouthing current employer, to get a real-life perspective of the job candidate, and to determine a job candidate's character, as can be seen in Figure 3.

**Figure 3.**  
**Interviews with Hiring Managers about Internet Screening:**  
**Reasons for Practicing Internet Screening**

<b>Represented Professional Field</b>	<b>Top Reason(s) for Practicing Internet Screening</b>
Agriculture Retail	Internet screening is not practiced
Civil Engineering	To save time by reducing number of candidates to interview
Healthcare Management	To find out if candidate is lying on résumé or badmouthing
Information Technology Contracting	To get real-life perspective & determine character of candidate

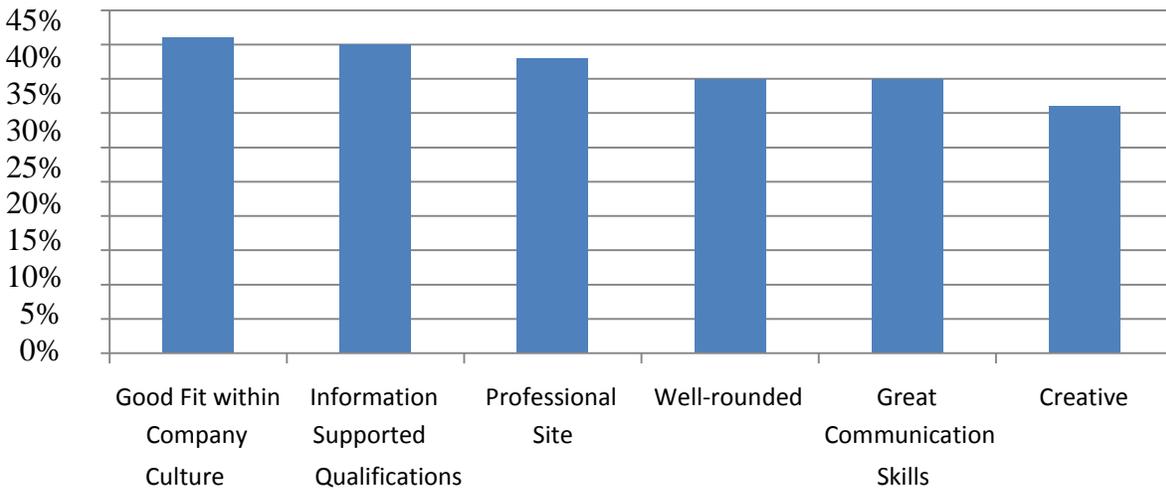
According to the hiring managers, the following was found on social media sites of potential hires that led to the elimination of the candidate from consideration: poor communication skills, lack of professional networks, postings of scantily-dressed photos, disrespectful comments, badmouthing previous employer, and lack of real-world experience, as can be seen in Figure 4.

**Figure 4.**  
**Interviews with Hiring Managers about Internet Screening:**  
**Top Reasons Employer Passed on Applicant**

<b>Represented Professional Field</b>	<b>Top Reason(s) for Passing on Applicant</b>
Agriculture Retail	Internet screening is not practiced
Civil Engineering	Poor communication skills; lack of professional networks
Healthcare Management	Scantily-dressed photos; disrespectful comments; badmouthing
Information Technology Contracting	Lack of real-world experience

The CareerBuilder survey also identified what employers found during an Internet screening that led to them hiring a job candidate. The most common reasons were: appeared to be a good fit within the company culture (46%), background information supported professional qualifications for the job (45%), social media site conveyed a professional image (43%), well-rounded and showed a wide range of interests (40%), great communication skills (40%), and creative (36%), as can be seen in Figure 5 (Grasz, 2014).

**Figure 5.  
CareerBuilder Survey: Top Reasons Employer Hired Applicant**



According to the hiring managers, the following was found on social media sites of potential hires that led to the candidate being hired: good communication skills, a professional profile, site consistent with résumé qualifications, proof of real-world experience, well-rounded, and creative, as can be seen in Figure 6.

**Figure 6.  
Interviews with Hiring Managers about Internet Screening:  
Top Reasons Employer Hired Applicant**

<b>Represented Professional Field</b>	<b>Top Reason(s) for Hiring Applicant</b>
Agriculture Retail	Internet screening is not practiced
Civil Engineering	Good communication skills
Healthcare Management	Professional profile; site consistent with résumé qualifications
Information Technology Contracting	Proof of real-world experience; well-rounded, creative

The shared reasons for passing on a job applicant in the CareerBuilder survey and in the interviews with the hiring managers were: inappropriate photos, badmouthing, poor communication skills, and disrespectful comments. The CareerBuilder survey found that drinking/drug use was the second highest reason for employers to pass on an applicant; but in the interviews with hiring managers, drinking/drug use was not a reason at all. In the interviews with

hiring managers, the lack of real-world experience was a reason for passing on an applicant that was not found as a top reason by the CareerBuilder survey.

The interviews with the hiring managers and the CareerBuilder survey also found similar reasons for hiring an applicant after an Internet screening, including the following: good fit with company culture, information supported qualifications on the résumé, professional site, well-rounded, creative, and good communication skills. The CareerBuilder survey found that being a good fit with the company culture the highest for managers to hire an applicant, but in the interviews with the hiring managers, fit was not a reason at all. The interviews with the hiring managers found that proof of real-world experience was a top reason for hiring a candidate, but was not a top reason found in the CareerBuilder survey.

### **Conclusions and Recommendations**

The number of employers using social media sites to evaluate job candidates during the hiring process is growing quickly. While résumés and interview performance still remain the major determining factors in the hiring process, many employers are using Internet screening in addition to or as an alternative to background checks. Through Internet screening, employers often learn information about job candidates that they would not be able to learn during the job interview. Many people are unaware of the long-term effects that inappropriate material on social media sites can have on future job opportunities and of the importance of properly managing privacy control settings on social media sites. The line between public and private information in cyberspace is often blurred, and the issue of fairness with using Internet screening is a common debate. Employers could face potential consequences of using such a practice, including discrimination lawsuits, negative attitudes of the job candidates involved in the screening, and damages to an organization's reputation.

Social media is now a necessary part of people's lives; and therefore, it is critical that companies fully understand the potential opportunities, advantages, legalities, and downfalls of using online screening. Organizations should have an up-to-date policy regarding the social media screening process, which should include a timeline and the factors that will be considered during the decision-making process.

Additionally, college graduates and other job hunters should be cautious of the information they are posting to their social media sites. Because privacy settings and Terms of Use can change frequently, users must be vigilant in guarding the safety of their information. Further, various social media platforms have different ways for protecting that information securely; being aware of the policies and responsibilities of the website are necessary.

Social media users should practice self-censorship when posting content to personal sites such as Facebook and Twitter. Social media users should be aware that personal sites may not be treated as a private environment by employers; and since employers are increasingly using Internet screening in the hiring process, any inappropriate content could lead to a job candidate's elimination of consideration. Ultimately, users should understand the limitations to and the usefulness of using privacy control settings on social media sites.

It is recommended that employers consider the consequences of practicing Internet screening as an evaluation tool in the hiring process. An employer should understand that information on social media sites may be misleading or inaccurate and that Internet screening could potentially introduce bias into the hiring process. Finally, employers should be aware of federal laws that protect applicants from discrimination and of recent legal issues that question the lawfulness of Internet screening.

Even though research has shown that respondents use social media to screen applicant profiles, it still needs to be determined if this online screening process influenced their hiring decision in any way that they would reject an applicant. Future research should beg the question as to what and how much information derived from job applicants' profiles affects the final hiring decision.

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#### **End Notes**

Dr. Marcel Robles  
Professor of Corporate Communication & Technology  
Department of Management, Marketing & International Business  
Eastern Kentucky University  
marcel.robles@eku.edu  
(859)622-1117

# **Customer Relationship Management: A Model for Small Business Development Centers**

Degan J. Kettles, Brigham Young University

## **Abstract**

Small Business Development Centers are non-profit organizations that can benefit from the use of Customer Relationship Management systems that are normally employed in for-profit industries. This research will examine: 1. The communication-based processes a regional SBDC uses to support small business counseling, 2. Leading academic and professional perspectives on Customer Relationship Management practices and systems, 3. A framework for designing a customized CRM system that can maximize SBDC client communication effectiveness.

**Keywords:** Small Business Development Center, CRM

## **Introduction**

Small Business Development Centers (SBDCs) are non-profit organizations spread across the United States that support entrepreneurs and small businesses. They offer one-to-one professional advising, training, and specialized services at no cost with the goal of driving business growth for the clients that they serve. Some of the services they provide include developing business plans, manufacturing assistance, financial packaging and lending assistance, procurement aid, importing support, disaster recovery assistance, and market research assistance (“Small Business Development Centers”, 2015). Collectively, the services SBDCs offer have the potential to facilitate national economic growth; however, proper communication with potential and current clients is critical. Similar to for-profit companies that offer useful services that benefit customers, SBDCs need to sell potential clients on their services and then deliver them. Nevertheless, like many government funded service providers, SBDCs rely primarily on clients coming to them to initiate services. If and when SBDCs do actively pursue and communicate

with clients in earnest, they may not be using the leading communication practices adopted out of competitive necessity by for-profit entities. In the for-profit arena, the last 160 years have been a period of significant advancement in one-to-one marketing practices with Customer Relationship Management (CRM) being an important outcome. CRM is viewed in this research as systems involving process and technologies used primarily in for-profit settings that facilitate satisfying customer needs through marketing to individuals. If SBDCs improve communication processes with potential, current, and former clients using leading CRM practices, they can more effectively accomplish their goal of driving business growth for clients. To this end, this research article examines typical client communication patterns at a leading SBDC and presents a framework for improved communication based on CRM system concepts. The first section of this paper summarizes the history of SBDCs and then presents the case of a leading SBDC and the client interaction processes it uses. The second section introduces the body of CRM literature that can be used to inform the design of client interactions systems. The final section introduces a comprehensive framework for designing and managing CRM-based interaction with clients of SBDCs.

### **Part 1: SBDC History and Example Processes**

Businesses are the heart of the American economy. In order to maintain and expand the American economy there exist several government entities that support the development of small businesses. I assert that one of these, Small Business Development Centers, can increase its impact on American economic development by adopting leading practices in CRM as it assists small business owners. This section presents a discussion of both Small Business Development Centers and the related Small Business Administration, indicating why these organizations exist and how they support small businesses. This section will also highlight the process for servicing

clients that is used by a leading SBDC and discuss areas for potential for improvement.

### **What is the Small Business Administration?**

The genesis of the Small Business Administration (SBA) came about in the early 1930s as a result of efforts by President Herbert Hoover to help businesses recover from the Great Depression. In 1932, the Reconstruction Finance Corporation (RFC) began operating to fill this need by lending money to small and large businesses. Later, in 1953, the SBA was formally created by Congress to help small businesses overcome both World War II and Great Depression damages. By 1954 the SBA was fully functioning, lending to small businesses and further assisting them to grow stronger through professional training and consulting. In addition to these services the SBA also helped firms that were affected by natural disasters. The SBA has continued to evolve and its services today include financial and federal contract procurement assistance, management assistance, and specialized outreach to women, minorities and armed forces veterans (“History”, 2016). The SBA delivers its services to people throughout the United States as well as Puerto Rico, the U. S. Virgin Islands, and Guam (“Regional Offices”, 2016).

### **What are Small Business Development Centers?**

In the 1940s Congress passed legislation to establish University-based business extension services. In subsequent decades over 900 service centers were created in partnership with the SBA, employing over 5,000 people. SBDCs provide counseling and training to both new and established companies. The goal of these efforts is to create stronger regional economies by increasing local economic development and creating new jobs. Specific services they provide include development of business plans, financial packaging and lending assistance, exporting and importing support, healthcare information, market research services, and disaster recovery assistance. In 2011, about 1.25 million clients received assistance from SBDCs, and 710,000

received counseling and training. The budget for all SBDCs in 2011 was approximately \$230,000,000, with \$107.5 million coming from the federal government and the rest from local government and other partners (“A Brief History”, 2016).

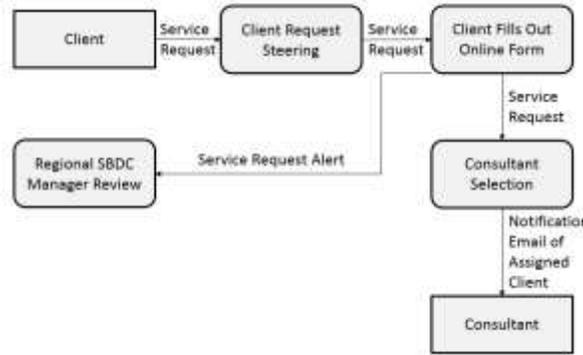
### **The University of Central Oklahoma Small Business Development Center**

The University of Central Oklahoma Small Business Development Center (UCO SBDC) is an SBDC that has been recognized as one of the top ten SBDCs in the nation. It operates under the authority and sponsorship of the Small Business Administration (SBA), and supports approximately 2200 small business clients in the Oklahoma City metropolitan area. These local companies range in income from 0 to \$10 million per year and typically have 20 or fewer employees. Sixty percent of these companies have been in business less than 10 years.

Susan Urbach, the Regional Director for the UCO SBDC, reports that over 500 people per year walk through the doors at her SBDC. All SBDC clients are assigned counselors who manage client interaction on an ad hoc basis. The SBDC does not consider itself to have an in-depth plan for managing communication with current, potential, and previous small business clients (S. Urbach, personal communication, February 2014).

### **The Client Communication Processes at the UCO SBDC**

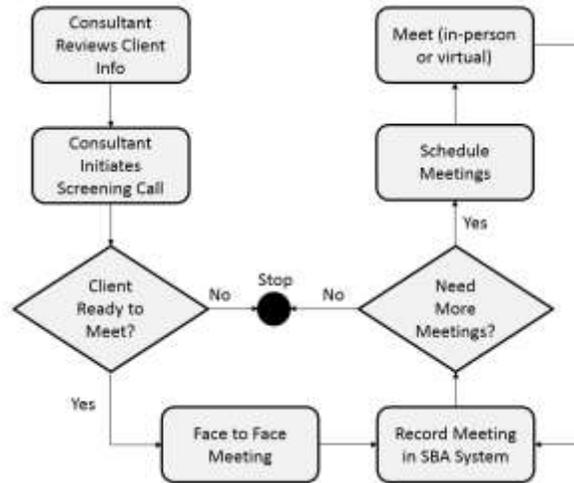
Communication with SBDC clients normally begins with potential clients reaching out to make contact with the SBDC (see Figure 1). Typically, this contact is motivated by a referral from another organization such as a chamber of commerce or a bank. Potential clients may contact the SBDC in a variety of ways including phone calls, emails, or website visits, but regardless of their method of contact they are ultimately directed to fill out an online form. This form is hosted on a website that handles SBDC inquiries for all SBDCs located in the state of Oklahoma.



**Figure 1.** Data Flow Diagram of Client Service Initiation

An email alert is sent to the appropriate regional SBDC manager each time a request is received that would fall under their geographic responsibility. The full request is viewed and accessed on the same statewide website that the service request is filled out on. Independent of the notifications, a consultant at the UCO SBDC manually checks the request website for new leads several times a day and pulls down any information required to make a preliminary assignment of that lead to any of four consultants. This assignment is made within the state-wide system but notification of this assignment takes place via email. Simultaneously, email addresses of new contacts are manually entered into an email marketing system, Constant Contact, and leads are assigned a category that is used for future email list segmentation purposes.

The process of interacting with a client starts with a consultant reviewing information about the client contained in the online system as well as in the email (see Figure 2). A typical first contact involves a screening call during which clients are sometimes directed to fulfill tasks before an actual physical meeting. The second contact usually involves a face-to-face meeting during which a wide variety of business issues are addressed. If additional meetings are required, such as when several are needed to put together an application for a business loan, meetings are typically scheduled in tools such as Microsoft Outlook and Google Calendar.



**Figure 2.** Activity Diagram of Client Service Delivery

A statewide SBDC information system is used to maintain a record of all client interactions for reporting purposes to the SBA. It also contains a record of work performed by consultants before and after an actual meeting with a client that relates to services provided to them. Although the system contains a calendaring tool, it is not integrated with the calendaring tool that consultants or clients use and so is of limited value.

After a client has received all of the services they have requested, they continue to receive communication from their SBDC via bulk emails sent to them as often as twice a month throughout the year. These emails announce services provided by the SBDC such as workshops and webinars, as well as serving to solicit requests about the impact that the SBDC has had on former clients. Interested parties in the community can also join the SBDC Facebook page which provides similar notifications.

### **Discussion of Client Communication Processes**

One requirement of the UCO SBDC and other SBDCs is the use of an information system that interfaces directly with the SBA for reporting purposes. In the case of the UCO SBDC they use a web accessible system shared by all the SBDCs in the state, however they do

not manage it or select the modules or features available for it. Broadly speaking, SBDCs are required to track services rendered to clients and regularly report on them so that their efficacy can be monitored. There are relatively few options available for systems that can submit SBDC activity data to the SBA in the required format. The core modules of such reporting systems are effective at storing historical reports of service rendered to clients, but are limited in terms of additional functionality such as offering the ability to interact directly with clients or send automated messages. It should be noted that software modules with additional features (for additional fees) exist for some of these SBA-compatible reporting systems, but the SBDCs that use a given system may be unaware of them. The UCO SBDC in particular felt that this central data repository for client information was poorly integrated with the technology tools they use for client interaction.

A different area of concern related to UCO SBDC client interaction processes relate to their ad hoc nature. Although their processes are well suited to the work of a classic job shop that provides customized solutions, it lacks elements of a well thought out customer relationship management strategy for attracting clients and maintaining mutually beneficial relationships with them. Some of these elements include standardized, sophisticated processes for improving client attraction and for offering additional services to prior customers. The use of the SBA reporting system for data management causes the majority of their attention to be focused on clients that have contacted the center recently. It leads to inadequate attention being given to previous clients and to potential clients that have not contacted the SBDC that may have needs that the SBDC can fill or facilitate. Having a better system of interaction with clients based on leading principles of customer relationship management has the potential to increase opportunities for providing beneficial services to SBDC clients, which in turn can support economic growth among small

businesses. In short, better use of CRM principles and technologies can lead to servicing small business needs better.

## **Part 2: Review of the CRM Literature**

### **What is CRM and What are its Key Challenges?**

CRM is mentioned frequently in both Marketing and Information Systems academic literature and emphasizes the practice of selling goods and services to consumers on an individual basis, with heavy reliance on technology. Academic articles on the subject tend to emphasize both marketing and technology ideas together, and sometimes heavily emphasize one or the other. A representative definition from marketing literature defines CRM as “the outcome of the continuing evolution and integration of marketing ideas and newly available data, technologies, and organizational forms” (Boulding et al., 2005). From an IS perspective, Bose (2002) describes CRM as the “acquisition, analysis and use of knowledge about customers in order to sell more goods and services and to do it more efficiently.”

In terms of its history, CRM can be viewed as a one-to-one marketing practice that evolved over more than 150 years and that is now highly technology dependent (Bose, 2002). According to Chen and Popovich (2003), mass production and mass marketing techniques developed in the early 1900s changed one-to-one customer relationships by reducing customers to account numbers and causing individual needs to no longer be tracked. However, thanks to evolving technology, today’s business environment makes it possible to once again maintain individual knowledge about customers and use that knowledge to create long term loyalty, typically through information systems defined as CRM systems. One-to-one marketing puts the focus squarely on individual customers, their needs and desires. Furthermore, the customer-centric orientation means that marketing can be based on long term relationships rather than

discrete transactions (Berger & Bechwati, 2000).

Many models of CRM have been proposed over the years with each highlighting critical aspects related to successful or unsuccessful CRM implementation. Examples of these aspects include strategy, technology, process design, and management (Berger & Bechwati, 2001; Bose, 2002; Boulding et al., 2005; Bull, 2003; Chen & Popovich, 2003; Hillebrand et al., 2016; Ngai, 2005). One suggested starting place for designing a system to support CRM is to understand organizational strategy (Payne & Frow, 2005). In a for-profit context, organizations need to understand how they position themselves and operate in the marketplace before attempting to implement CRM processes and technology. They also need to have a customer strategy, which involves determining who they plan on targeting as a customer for their products and services (individuals, groups, or everyone). A sobering statistic related to CRM is that 70% of companies fail in their implementation attempts (Bull, 2003). One reason cited for this finding is that objectives are sometimes lacking, meaning that organizations fund a technology solution but haven't identified the goal that they are trying to achieve. Understanding organizational goals that are tied to strategy is critical to successfully designing a CRM system. Some of this will be challenging in a non-profit setting because these types of organizations aren't trying to differentiate their products from competitors; however, they can still develop a clear idea of what overall mission they are trying to accomplish and who the likely clients are.

Technology is a key component featured in many CRM models and can come in many varieties. It can include communication technologies such as phone, web conferencing, instant messaging, social media, and email. It can include data storage technologies such as spreadsheets, traditional databases, and more sophisticated data warehouses. It can include data analysis technology such as statistics spreadsheet plugins, full data analysis programs such as

SAS or SPSS, and even data visualization software such as Tableau or Spotfire. There are also comprehensive all in one platforms that handle customer data management, automate communication, track interactions, assist in visually-based campaign design, support campaign analysis, and more. In light of the number of options available, technologies for CRM should be viewed as tools in a toolbox, they can be used comprehensively or selectively. Successful CRM initiatives are not necessarily complicated in terms of either technology or concepts, but the opportunity is available to make them as state of the art as an organization chooses (Boulding et al., 2005).

One of the most challenging parts of CRM implementations will likely be to identify and support the processes that need CRM augmentation. CRM initiatives will often need to be integrated with existing processes and capabilities (Boulding et al., 2005). As an example, if a company wants to increase its selling efficiency with previous customers, it must understand what it is doing currently in terms of processes to sell to previous customers and create, complement, or replace procedures as needed. Due to the nature of designing customer-oriented processes, significant creativity (and technology choices) can be involved. As such, it is helpful to have a systematic framework to address the processes. One useful approach suggested by Bose (2002) is to view CRM as an information system that can be designed using eight phases that are comparable to systems analysis and design: Planning, Research, Systems Analysis, Design, Construction, Implementation, Maintenance, and Adoption. Assuming that an organization understands what it wants to accomplish at a strategic level, it can follow a procedural sequence when designing or redesigning its business processes as part of a CRM system.

Management of CRM is also a key consideration. Careful coordination of channels,

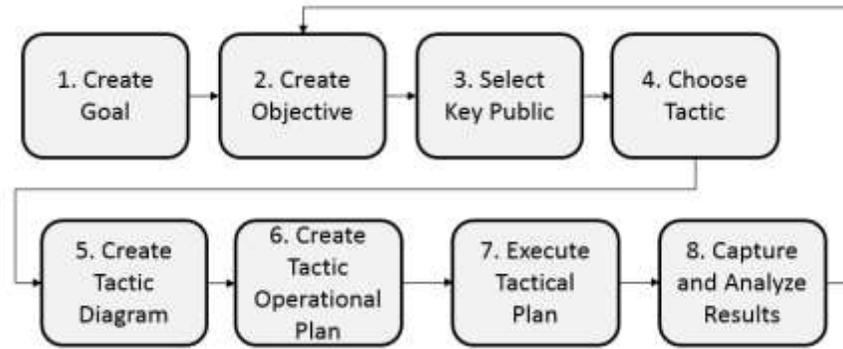
technologies, customer, and employees is required for CRMs to be successful (Boulding et al., 2005). Such coordination, particularly in business environments that change over time, requires oversight by capable individuals. Of particular importance is the aspect of employee management. The transition of a company to one in which customer orientation is paramount is difficult (Ryals & Knox, 2001). As part of this transition, it has been found in many instances that employee reward and evaluation systems related to CRM are critically important, difficult to implement, and typically implemented with sales people in mind (Campbell, 2003). Hence, managers need to be actively engaged in any work place changes that need to occur including managing organizational and group culture. In the CRM literature there are many cautionary stories that highlight the importance of managerial oversight, such as when a large Chinese telecom mandated the use of a CRM system and found that because users were unsatisfied it negatively impacted employee work and the company's customers (Hsieh et al., 2012). Although successful CRM implementations can drive significant results for organizations, they require careful management as well as planning in order to achieve their potential (Boulding et al., 2005).

### **Part 3: Suggested Framework for CRM Systems in Small Business Development Centers**

Section 1 introduced the processes and tools a leading SBDC uses to manage client interactions. Although it is clear that they are focused on understanding the needs of clients on an individual basis, and this is central to most conceptualizations of CRM systems, the processes they use throughout their client lifecycle could be improved substantially through effective CRM system design. In this section a framework is introduced that can be used to plan, implement, monitor, and improve client interactions. The intended result of applying this framework is to increase the volume and efficacy of service delivery at SBDCs, which in turn will lead to

increased business development and economic growth in the geographic regions that SBDCs service.

The framework begins with Figure 3, which represents a hybrid of ideas drawn from the systems development lifecycle perspective of CRM systems (see Bose, 2002) and the public relations strategic programming matrix (see Hainsworth & Wilson, 1992). The systems development lifecycle perspective, which is commonly understood in the Information Systems discipline, views CRM activity a complex system that results from careful planning, project management, process analysis, and the integration of various information technologies. When building information systems as well as CRM systems, it is possible for such systems to be created without extensive planning, but they can become more successful and effective when they are planned, developed, and managed within a framework that drives professionalism in each phase, such as this one. The public relations perspective of this framework emphasizes best practices related to the management of publicity campaigns that affect public opinion or behavior. Public relations practitioners once struggled to be effective as a result of using poorly planned “seat-of-the-pants” approaches to their discipline or by using a limited four step process to address problems (that resembles the systems development life cycle). The limitations inherent in these approaches were addressed by the introduction of the strategic programming matrix which introduces significant rigor, critical thinking, and more granularity (Hainsworth & Wilson, 1992). In particular, it helps clarify how to think about the relationship between goals, objectives, key publics, strategies, and tactics. Each phase of the systems development framework, influenced by CRM and public relations concepts, will now be discussed in separate sections.



**Figure 3.** CRM System Design Framework

**Phase 1: Create Goal and Phase 2: Create Objective**

In designing a CRM system, the first step is to identify a goal. This is understood to be a high level outcome of the activities that the SBDC will be performing. Two important questions are addressed in this step. First, what can be accomplished based on CRM principles and technologies? Second, what does the SBDC want to accomplish? Answering the first question begins with awareness of some of the known outcomes of CRM system adoptions in for-profit settings. CRM system adoptions have been associated with increased business unit profits, increased customer knowledge, customer satisfaction, firm performance, acquiring the “right” customers, pricing scheme optimization, customer churn rate improvements, increased customer lifetime value, value dual-creation, and shareholder value (Boulding et al., 2005). Awareness of these outcomes can be used to help design high-level CRM-based goals such as the following:

- Increase profitability in business unit X
- Decrease churn rate of customers
- Increase customer lifetime value
- Improve customer satisfaction

Of course, SBDCs are not for-profit entities and their goals are going to be different.

Goals in the framework are meant to address a broad challenge or difficulty that an SBDC is facing. Some of the most likely challenge areas relate to client acquisition, client engagement and retention, and post service re-engagement. Based on these areas of difficulty, some suggested goals would include but are not limited to:

- Increase the rate of new clients coming to the SBDC
- Increase the frequency of services provided to previous clients
- Increase satisfaction levels of served clients
- Improve performance levels of consultants

Once a goal is selected, this goal is used to derive the objective. The objective is a measurable, time-bound statement based on the goal. For example, if the selected goal is to increase the rate of new clients coming to the SBDC, it can become measurable and time bound by stating: The objective is to acquire 10 more new clients in the upcoming 3<sup>rd</sup> quarter compared to the number of new clients acquired in the 3<sup>rd</sup> quarter of the prior year. Similarly, an objective related to servicing previous clients might be: The objective is to increase the number of new/additional services provided to previously served clients by 3% next quarter compared to the previous quarter. It should be noted in the figure that the objective setting phase will be repeated after each of the remaining phases is completed. This suggests that the targeted measurements and time frames can be adjusted after evaluating whether the objective was achieved or not. Also it is worth noting that although the goal and objective seem related enough that they could be combined, it is useful to have the goal stand alone as a high-level focus that may be permanent and have the objective be more fluid and the first step of repeated, time-delimited projects or campaigns that have evaluation criteria associated with them.

### **Phase 3: Select Key Public**

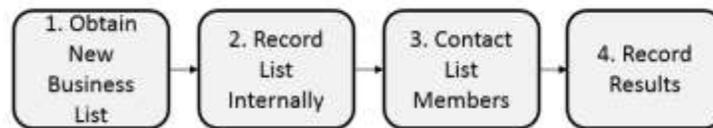
After creating an objective, the next step is to consider which specific public segment (the key public) is involved in meeting that objective. From an SBDC's perspective, this is often broadly considered to be clients, but there are many ways that clients may be segmented. For example, if the goal of the SBDC is to attract new clients, the specific clients to attract can be categorized uniquely. For example, one source of clients might be those that already have established businesses, another source might be those that have not yet started a business, and yet another may be those that recently started a business. Selecting a specific key public allows for focused tactics tailored specifically to that group. An underlying philosophy from the field of public relations field that relates to targeting publics is that if you try to target every public simultaneously with a single campaign message, you won't successfully communicate with any. Building off of this idea, it is important that SBDCs have a single public in mind when designing tactics that will involve specific types of communication.

### **Phase 4: Choose Tactic and Phase 5: Create Tactic Diagram**

After selecting the target group, the next step is to brainstorm a method for accomplishing the objective. The word method can be used synonymously with tactic in the framework. As an example, if the goal is to increase the average number of new clients being served, and the target public is new businesses, then one tactic or method is to use government-provided lists of newly registered businesses in attracting them. Another tactic for this same goal/public pair is to acquire lists of new businesses from banks. Yet another tactic is to scan newspapers or twitter feeds for announcements of new local businesses to identify them.

Up to the is point in the framework, the outcome is unlikely to be substantially different than that of an SBDC that has flown by the seat of its pants in terms of identifying challenges

within their organization and brainstorming ways to solve them. The one notable difference from the typical approach would be the establishment of measurable objectives and time frames under the framework. Nevertheless, at this point in the framework the subsequent steps make the planning process markedly different. The next step after choosing a tactic is to create an activity diagram. The purpose of the activity diagram is to plan out how the tactic will be performed as a process but without yet getting into the implementation details. Figure 4 shows an example of an activity diagram related to a single tactic. The specific tactic demonstrated in this figure is using lists of newly registered businesses to attract new clients. Note that these are the logical steps that need to be performed, but the specifics related how to do them are absent. Writing processes out in this way is crucial for understanding and communication and it leads to critical thinking and analysis.



**Figure 4.** Activity Diagram for the Tactic Attracting New Clients with Lists

### **Phase 6: Create Tactic Operational Plan**

After completing the activity diagram, an operational plan is then created. The operational plan elaborates on the concrete details of each step in the activity diagram. An example of this related to the example in Figure 4 is shown in Table 1. In one column, the high level steps are identified from the activity diagram, and in the other column, the details of how to accomplish that task are articulated. Using the structure in Table 1, which contains all of the high level logical steps performed in step 5 of the framework, it would be possible to forego creating the activity diagram if it were preferred. With regards to the second column, the details, these are not limited to simple sentences but could take up as many pages of content as

necessary.

One thing that stands out in reviewing the example plan details in Table 1 is that for any given step, there are many options. For example, contacting list members, the third step, could be handled in several different ways. For example, it could be done by phone, by email, or by standard mailings. Similarly, there are many technology tools and choices available for storing customer data, such as Excel, Access, an SBA-compatible tool, a custom built database that is integrated with other technology tools, or even a cloud service provider such as salesforce.com. When assessing choices at each step, a high degree of creativity as well as CRM technology awareness can be critical to achieving good results. Therefore, correspondence whenever possible with marketers and technologists that have for-profit expertise (particularly that related to CRM) is encouraged. In practice this means that SBDC managers should seek out advice from others in specialized fields in the same way that they direct their clients to do. The diagrams of tactics and the text of operational plans will serve as critical communication tools when speaking with outside professionals.

**Table 1.** Operational Plan Example for Attracting New Clients with Lists Tactic

Tactic: Use list of newly registered businesses to attract clients	
Step Name:	Details:
1. Obtain New Business List	Obtain spreadsheet from chamber of commerce
2. Record List Internally	Enter list of leads into CRM database (Microsoft Access)
3. Contact List Members	Initiate phone calls from list
4. Record Results	Update CRM database

Although advice has just been given to use professionals to guide the technology selection when building a CRM system, it is highly useful to be as aware as possible of the

features built into common commercial platforms that aim to provide comprehensive technology solutions to small and medium sized organizations. Even a superficial understanding of the specific types of technologies used to solve common problems related to CRM can be useful in creating operational plans.

Broadly speaking, off the shelf CRM systems manage the entire customer lifecycle and provide functionality in categories related to lead (potential customer) acquisition, lead conversion into sales, and post-sale relationship nurturing. Starting with customer or lead acquisition functionality, CRM systems commonly support the creation of web-based forms for gathering client information. These forms might be filled out by sales professionals who speak with potential clients over the phone, they might be filled out by customers on websites, or they might be filled out and submitted automatically through web-based APIs. Databases of leads can also be populated by bulk imports that are performed using web services or manual uploading of spreadsheets. Lists of leads that have the potential to turn into customers are commonly available for purchase through list brokers that acquire highly targeted leads, such as contact information for people who recently requested to know more about qualifying for a home loan.

Once a database of viable leads is available, CRM systems facilitate communication with those leads. One way they do this is through their support for complex, automated email campaigns. For example, a person requesting information about nutritional supplements might receive a set of informational emails over time and these emails often avoid a specific offer until an entire sequence of messages have been sent. At some point, offers are made and a purchase or other predetermined action will automatically shift the lead into a different email campaign sequence. For example, a person who buys a \$20.00 product can be shifted into an email campaign that encourages a person to buy a \$200.00 product, and so on. In addition to email

sequences, CRM systems can also initiate and intermingle pre-recorded voice calls, postal mailings, fax messages, and live sales person interaction, all on pre-determined schedules.

After a lead has been converted into a sale, CRM systems are intended to nurture former customers forever. This includes automating emails, postal mailings, phone calls, etc. that add value to the customer and at some point involve offers of additional services. The nurturing process is also intended to serve as a source of referrals that become new leads in the customer lifecycle. Lastly, CRM systems provide extensive reporting systems that allow managers to monitor critical numbers such as open rates or conversion rates at every lead/customer contact point. This information allows for continual improvement in each facet of the system.

Although all of the aforementioned features can exist in a single off the shelf CRM system, it is not necessary for organizations to buy comprehensive systems. CRM systems can be created piece-meal using simple list managers like Excel, email automation systems like Constant Contact, sales person individual contact management software such as ACT!, website conversion rates with Google Analytics, etc. The key issue is understanding the features that an organization needs to support its tactics, which can then be followed by the acquisition of an appropriate set of technology.

### **Phase 7: Execute Tactical Plan and Phase 8: Capture and Analyze Results**

Once the plan is created in sufficient detail in Phase 6, the following steps are relatively straight forward. Phase 7 involves putting the operational plan into effect. Critically, it is important to capture data in this phase that is related to the objectives that are being targeted. The measures of interest will have been identified as part of the objective setting phase, and the method of capturing that data will have been specified in the operational plan as part of phase 6. After executing the operational plan comes the work of analyzing the data. Careful examination

of the results of the previous CRM operational plans will highlight both successes and shortcomings, and insights gained from this will drive a new round of planning starting at phase 2. For example, if using lists from government agencies did not work out, what should be done? Was the outreach approach ineffective? Each phase of the framework that was performed can be analyzed retrospectively with questions such as the following:

*Phase 2 - Create Objective:* Should the target measures be made harder or easier to hit?

*Phase 3 - Select Key Public:* Should a different public be targeted in the next round?

*Phase 4 - Choose Tactic:* Was the high level approach the right one, or would another be better? (Should we be attending events rather than targeting lists?)

*Phase 5 - Create Tactic Diagram:* Was the approach useful, in proper order, or missing steps? (Should we further segment and prioritize our lead lists? Should we plan to contact leads sequentially through several methods rather than just one?)

*Phase 6 - Create Tactic Operational Plan:* Could our implementation details have been improved? (Should emails been used instead of phone calls? Should emails, phone calls, and letters have been used simultaneously? Do we use the right technology?)

*Phase 7 - Execute Tactical Plan:* Did we learn anything that needs to be addressed for execution in the future? Did we have the right people? Did they have the right training?

At this point in this paper the framework has been explained in sufficient detail to apply it to an SBDCs goals. To a great degree the framework explanation has focused on a single example operational plan—that of attracting new clients through targeted lists. In the real world, there is no constraint requiring an SBDC manager to create and manage a single operational plan. In all major corporations, many projects are run simultaneously as portfolios of projects and the oversight of this is known as program management. Similarly, SBDCs managers can

manage multiple approaches to reaching a goal simultaneously. In practice this means that they may have many different operational plans for the same tactic running at once, they may be addressing a single objective using several different publics as targets (each with their own tactics and operational plans), and they may be running operational plans based on completely different goals (such as one plan to attract clients and another to improve client satisfaction or consultant productivity). Hence, an SBDC manager is free to manage as much as they feel capable of managing. Nevertheless, special attention should be paid to capturing the data specified in the objective so that it is possible to determine what is working and what isn't.

### **Conclusion**

SBDCs are important service providers to new and growing businesses. However, as small, non-profit advisory groups, they are unlikely to have the resources and skills for attracting, engaging, and following up with clients in the same manner that large, for-profit enterprises do. This article featured a leading SBDC that relies primarily on referral services for new clients and has limited initiatives in place for encouraging previously satisfied clients to re-engage with the SBDC to get more help. This article also introduced literature related to CRM as a way to suggest that over 150 years of marketing evolution have created knowledge and practices supported by CRM systems that support communication with clients in advanced and effective ways that lead to the achievement of organizational goals. From this literature, a framework for creating a CRM system was developed that can be used in designing SBDC interactions with clients. This framework encourages critical thinking and analysis of interactions, as well as provides a way to actively plan and manage many campaigns of interaction simultaneously. For practitioners, the main take away from this article is that the framework is a tool that can help them plan and achieve their goals related to the publics they

serve. Practitioners should recognize that they may have many goals and objectives that can be pursued in an orderly fashion. For researchers, there are two important insights. First, CRM conceptualization has been largely explored in the for-profit setting, but can be viewed differently in organizations that have unique constraints such as non-profits. Therefore, theorization related to CRM and CRM systems can be extended by considering more narrow situations like those of SBDCs. A second insight for researchers is that this framework provides a clear launching point for case studies about organizations that use it to pursue diverse CRM system-based goals.

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## **End Notes**

Dr. Degan Kettles  
Associate Teaching Professor  
Department of Information Systems  
Brigham Young University  
degank@gmail.com