GLOBAL JOURNAL OF BUSINESS DISCIPLINES

Editor:

Qian Xiao
Eastern Kentucky University

Co Editor:

Lin Zhao
Purdue University Northwest

EDITORIAL REVIEW BOARD

TABLE OF CONTENTS

DEMOGRAPHIC BACKGROUND, PERCEPTIONS, AND E-PAYMENT USAGE AMONG YOUNG JAPANESE

Alexander Chen, University of Central Arkansas
Steven Zeltmann, University of Central Arkansas
Kenneth Griffin, University of Central Arkansas
Moe Ota, University of Central Arkansas
Risa Ozeki, University of Central Arkansas

ABSTRACT

Japan is generally perceived to be a technologically advanced country, but it was found that its e-payment systems appear to be somewhat behind many other Asian countries. With the upcoming Summer Olympics in 2020, the Japanese government and business sectors want to improve Japan's e-payment systems. This provided motivation for the authors to study the state of e-payment in Japan and explore factors affecting e-payment behavior among young Japanese.

The authors used the Technology Acceptance Model (TAM) as a foundation and examined 152 survey responses to identify factors affecting e-payment usage in Japan. Age and gender were found to be two major factors associated with e-payment usage. Incentives from merchants were also found to be important for young Japanese consumers. Overall, males are more likely to use e-payment systems. Older respondents are also more likely to use e-payment systems. A regression model was performed on three demographic variables, one incentive variable, and five perception variables. We found that the model explained 23 percent of the variance of e-payment.

Such attitudinal variables as self-efficacy, ease of use, perceived quality, perceived trust, perceived benefit, and perceived security were found to be valid and reliable regarding items and questions for Japanese culture. The exception was security which had a low Cronbach alpha. The perception variables were not statistically important to e-payment usage in Japan.

INTRODUCTION

In spite of its technology-driven economy, Japan is still one of the most cash-dependent countries in the world, according to a recent Bank of Japan report (Morimoto, 2018). The Japan Credit Association's report in 2018 showed that the rate of people using e-payment systems in Japan was only 18%, while one of its neighboring countries, Korea, exceeded 85% (Morimoto, 2018). In an effort to determine why this difference exists, a sample survey was conducted of the Japanese population, and the findings are reported in this paper.

Other studies, including some from the authors, have been conducted on e-payment systems to identify factors that influence its use and adoption. Yet the impacts of cultural and social factors on e-payment systems in Japan appear relatively uninvestigated even though e-payment systems have been in use for quite some time. This will be discussed further in the literature review.

In 2020, Japan will host the Summer Olympic Games in Tokyo. The Tokyo Metropolitan Government estimated that the Tokyo Summer Olympic Games and the Paralympics games

would create economic benefits totaling 32.3 trillion yen (about 283.5 billion dollars) throughout Japan (Nikkei Asian Review, 2017). Since millions of people are visiting Japan and expect to use e-payment systems, the Japanese government is trying to enhance the usage of e-payment via improved infrastructure, standards, and investment. According to Z'xent Pro (2018), for the Olympic Games in 2020, top banks in Japan are coordinating e-payment systems that require cooperation, standardization, and unity. The retail industry plans to invest in one hundred thousand machines to be used when processing cashless transactions (primarily credit cards). This cashless action promotes convenience and reduces lost sales for both customers and merchants. The Japanese government, businesses, and individuals have focused on changing the way Japanese merchants conduct business from cash to electronic payments. Accordingly, factors that contribute to the usage of e-payment systems were considered to be quite important. Such is the motivation for this research.

REVIEW OF THE LITERATURE

E-Payments - General

The wide availability of the Internet and advanced digitalization in payment processes has resulted in a variety of e-payment options, including credit and debit cards, digital and mobile wallets, electronic cash, contactless payment methods, etc. According to Juniper Research (2018), online physical goods sales will account for 3.8 trillion or 13% of global retail sales by 2020. The revenue for global mobile payment was forecast to be about $721 billion in 2017 (Statista (2015). E-payment and mobile payment allow consumers to eliminate carrying cash (Pham & Ho, 2015), offering convenience and speed (Teo et al., 2015; and Oliveira et al., 2016). Both merchants and consumers save transaction time and increase productivity and efficiency.

E-payment systems are generally defined as a way to pay for goods or services electronically instead of using cash or check or mail, and it has been a popular payment method that began in the 1950s (Wróbel-Konior, 2017). An e-payment system involves customers, merchants, banks or financial institutions, payment service providers, security and authentication providers, and Internet providers (Dahlberg et al., 2008; CPSS, 2012; Jeffus et al., 2015). Hayashi (2015) defines e-payment as a payment system that consists of a set of functions, processes, rules, devices, technologies, and standards that enables its users to make a payment. Au and Kauffman (2008) focus on the transaction process and define it as an electronic device utilized to initiate, authorize, and confirm a commercial transaction. E-payment represents any kind of non-cash payment that does not involve cash or a paper check (Hord, 2005). E-payment or e-commerce involves the sale of goods, services, and contents via electronic devices, without time or space limitations (Kim, Mirusmonov, and Lee, 2010; Au and Kauffman, 2008; and Mallat, 2007).

E-Payments - Japan

Suica is a contactless card that is most often used on Japanese transport. This payment system is commonly used for rail passes and small transactions at retail stores. Apple-Pay enabled Japanese iPhones to allow users to create a virtual card in a Suica app, charge either through Apple Pay or another method, and add to Apple Wallet. Since Suica cards can be

charged with up to 20,000 yen (about $192) and essentially function as electronic cash, security is less of an issue than it is with credit cards (Byford, 2016).

Previous research suggests that there are several factors that inhibit Japanese consumers from adopting traditional e-payment systems (Abeshi, 2016). Abeshi argues that one of the reasons why Japanese consumers don't use e-payment more frequently is that there are still many local stores and retailers that do not accept e-payment. In addition to consumers, various studies have shown that there are other important components to an e-payment system, including merchants, network operators, financial institutions, and regulators. (Chen, A., Aba, F., and Ouattara, N., 2016; Jeffus, A., Zeltmann, S., Griffin, K., and Chen, A., 2015).

Even though the online retail market is growing rapidly, it is reasonable that consumers are concerned about the security of using e-payment systems. Cash payment is still considered a safe payment method in Japan. Vilmos (2004) discusses concerns related to security and the use of technology. He claims that a payment service should be available for practically anyone and suitable for any type of transaction in any value. But satisfaction for both merchants and customers is important.

Only 17% of Japan's retail consumption is made by credit, debit, and e-money. Compare this to 85% in South Korea, 56% in Singapore, and 35% in India, according to a 2015 report by the credit association (Kawamoto & Allan, 2016). Abrazhevich (2001) argues that e-payment system designers are failing to design payment systems that meet user requirements and expectations.

User Acceptance

There are numerous factors influencing user acceptance of e-payment systems (Zmijewska, A., Lawrence, E., Steele, R., 2004; Dahlberg, T., Guo, J., and Ondrus, A., 2015). Fishbein and Ajzen (1975) proposed a Theory of Reasoned Action (TRA) that is based on beliefs-attitudes-intension-behavior. In TRA, the attitude towards behavior and the consumer's subjective norm are two important explanatory variables for intention (Ajzen and Fishbein 1980; Liébana-Cabanillas et al., 2014). Ajzen (1991) proposed their Theory of Planned Behavior (TPB) model in which certain specific beliefs have been hypothesized to have an impact on behavioral perceptions and on actual behavior (Liébana-Cabanillas et al., 2014; and Shin, Y., 2004).

The Technology Acceptance Model (TAM) has been a widely used model, and it was the revised TRA model by Davis, Bagozzi, & Warshaw (1989) and Davis (1989) that was used in this research. The TAM has been cited as a trusted model for technology acceptance behavior (Davis, 1989; Davis et al., 1989; Lymperopoulos & Chaniotakis, 2005). TAM in various revisions has become a widely used research model on technology and innovation acceptance. TAM2 is a revised model that includes social influence and instrumental cognitive processes (Venkatesh & Davis, 2000). TAM3 and Mobile Phone Technology Acceptance Model (MOPTAM) expanded earlier models with different predictive and moderating factors (Venkatesh & Bala, 2008; and Renaud and Biljon, 2008).

TAM and revised TAM models have been the main theories in acceptance of e-payment or mobile payment area (Dahlberg, T., Guo, J., and Ondrus, A., 2015b; and Dahlberg, T., Mallat, N., Oorni, A., 2003; Gholami, R., 2010; and Lin, C., 2011). Several major measures have been used in TAM, i.e., perceived usefulness and perceived ease of use (Legris et al., 2003; Davis, 1989; Park, Y., 2007; and Venkatesh et al., 2000). Additions and modifications to TAM have

been proposed by other researchers, such as in the Motivational Model (MM), where extrinsic and intrinsic motivation were added (Davis et al., 1992). Extrinsic motivation could be an individual's personal gain associated with the use of technology, while the intrinsic value could be perceived as enjoyment associated with the technology. For a summary, see Zmijewska, A., Lawrence, E., Steele, R, (2004) in which different user acceptance models for mobile payment systems can be found.

Some factors such as benefit, trust, security, ease of use, perceived quality, and self-efficacy have been suggested (Özkan, 2010). Davis (1989) also finds that a user's overall attitude toward specific information technology (IT) and its application is a major factor determining whether an individual uses that system. Teoh et al. (2013) proposed a model of five constructs that affect consumers' perception towards e-payment, i.e., benefit, trust, security, ease of use, perceived quality, and self-efficacy. In Teoh's model, a traditional widely used construct of usefulness was replaced by benefits. E-payment is intended to benefit consumers mainly in terms of convenience and lower transaction costs. However, traditional payment systems remain popular because consumers are not convinced of the benefit of using e-payment (Teoh et al., 2013; Hataiseree, 2008). Both Chou et al., (2004) and Eastin (2002) identify benefits as a significant driver for an e-payment system. More specifically, Gerrard and Cunningham (2003) found that perceived economic benefits, i.e., fixed costs and transaction costs were crucial in adopting e-payment. If users and merchants can enjoy a low cost to their transactions, they are more likely to use the e-payment system (Gerrard and Cunningham 2003; Sonia San-Martin et al., 2012; San-Martin and Lopez-Calalan, 2013).

Using e-payment requires the ability to use digital devices and reliable Internet access (Teoh et al., 2013). But some consumers are still reluctant to deal with it because of security and privacy concerns (Raja, 2008). Because the Internet also provides a gateway to access personal information, many consumers feel that their personal information might be disclosed to others without their knowledge. Trust depends upon, in part, the perceived risk involved in financial transactions (Yousafzai et al., 2003). Previous studies found trust to be an important influencing factor for a user to adopt e-commerce transactions or engage in online exchanges of money (Friedman et al., 2000; Jarvenpaa et al., 2000, Gefen, 2000, 2003; Hoffman et al., 1999; and Wang et al., 2003). Furthermore, viruses, hackers, crackers, and worms have become the stuff of headlines with results that range from a mere headache to a complete disaster (Md Johar, 2011).

Self-efficacy is the experience of one's personal mastery of technology (Bandura, 1986). It represents a person's understanding and beliefs in his or her own skills and capability to perform a given task (Dory et al., 2009). Self-efficacy normally covers four areas: previous experience (success and failure), vicarious experience (observing others' successes and failures), affective state (emotional arousal such as anxiety), and verbal persuasion (from peers, relatives, or colleagues). It has consistently been found that self-efficacy has a positive influence on perception and behavioral intention to use information technology (Hill et al., 1986, 1987; Luarn and Lin, 2005). In the context of e-payment, self-efficacy refers to a perceived level of ability to use an e-payment system and is recognized to have an impact on the use of e-payment systems.

Perceived ease of use can be defined as "the degree to which a person believes that using a particular system would be free of effort" (Davis, 1989). Flavian, Kahn, Jr, and Howe (2006) argue that ease of use of a computer system increases trust levels because greater usability reduces the likelihood of errors and reduces searching costs (Bakos, 1997). PEOU has been found to be statistically significant to much e-payment, e-banking, and e-commerce adoption (Schierz et al., 2010; Su et al., 2012; Kim, 2010; Pikkarainen et al., 2004).

Security motivates the integrity and privacy of information through a set of procedures and programs (Tsiakis and Sthephanides, 2005). In e-payment or Internet context, security refers to the perception of security on payment means and mechanisms for storing and transmission of information (Lim et al., 2006). Kobsa, (2001, and 2002) found that users want to make sure that data collected and processed by e-payment systems are secure. Substantial research in the field of e-payment and e-banking suggests that security is a significant factor that affects the adoption of these technologies (Dathye, 1999; Kobsa, 2001, 2002; Abrazhevich, 2004).

Perceived quality of the e-payment system is also identified as one of the important factors that affect the usage of e-payment and e-banking systems (Pikkarainen et al., 2004; and Ives et al., 1983). Quality will affect and attract users to use the system. Sathy (1999) found that the amount of information and the quality of Internet connection were important to Australian consumers regarding online banking. Zhou (2011) found that information quality and system quality significantly affect perceived usefulness and mobile banking usage.

METHODOLOGY

Survey Instrument

Six constructs were selected for this study: self-efficacy, ease of use, perceived quality, perceived trust, perceived benefit, and perceived security. Most of the question items were adopted and adjusted from a study conducted by Teoh et al. (2013). That study was also conducted in an Asian country. Our survey instrument is included in an appendix. To assure a valid and quality translation, a faculty member who teaches the Japanese language at the university reviewed and suggested changes. A pilot survey with 10 Japanese students was conducted to ensure the quality of the translation and validity of the measurement.

Sample

Survey methodology was used since the research is exploratory. Survey methodology also allowed access to Japanese people who were living in Japan instead of selecting a sample from Japanese Americans. Japanese Americans might not accurately reflect the mainland perspective.

The survey was conducted online in 2017. Two students sent out linkage or a barcode via social media, which connected to the survey. Respondents were chosen by a convenience sample, and the survey targeted young Japanese people whose ages range from 15 to 35 years old. They were asked to complete the online survey, which was posted on Qualtrics. About 240 Japanese responded to the survey. Several responses contained missing values and were not included in the analysis. In addition, there were respondents who were identified with IP addresses from the USA, China, Hong Kong, Canada, Australia, or other countries. We decided not to include IP addresses outside of Japan for the reasons discussed above. The remaining sample consisted of 152 Japanese who resided in Japan.

RESULTS

The sample contained more females (n=109 or 72%) than males (n=43, or 28%). Since the sample was a convenience sampling by two female students, more female respondents were

expected. Similarly, it was found that younger people were more likely to respond to this survey because respondents were solicited by two college students. About 90 (59.6%) of respondents were age 20-24. Seventeen percent of respondents were age 19 or younger. The average age was 23.76, with a standard deviation of 6.47. Information on working status was also collected. It was found that 58 (38%) of respondents worked full-time. There were 72 (47.4 %) of respondents who worked part-time. Only 22 (14.5 %) of respondents were not working at the time of the survey. When coding working full-time as 1, part-time as 0.5, and not working as 0, it was found that average working status was 0.62.

Table 1 Demographic Distribution				
Variables	Frequency	Percent	Mean	S.D.
Gender			0.72*	0.45
Male	43	28.3		
Female	109	71.7		
Total	252	100		
Age			23.75**	6.47
17-19	26	17.2		
20-24	90	59.6		
25-29	16	10.6		
30-58	19	12.6		
Total	151	100		
Working status			0.62***	0.34
Working	58	38.2		
Part-time	72	47.4		
Non-working	22	14.5		
Total	152	100		

*Males=0 and Female=1
**Original data was in numbers
***Working=1, part-working=0.5, non-working=0

    Data were collected on six constructs discussed earlier in this paper. These include user perceptions of benefits, trust, security, ease of use, perceived quality, and self-efficacy. A Cronbach alphas analysis was conducted using SPSS. The initial results revealed that items for security did not hold together for Japanese respondents with an alpha of 0.485. Self-efficacy and perceived quality were found to be good constructs with alphas of .849 and .871. Two items were dropped to get an alpha of .862 for ease of use. Finally, one item was dropped for benefit issue and trust issue, respectively, to get alphas of .772 and .774. In table 2, alphas, means, and standard deviations of all five perception variables are presented. By comparing means, it was found that the benefits issue and self-efficacy were relatively higher, with scores of 4.11 and 4.05. This implies that most Japanese young people in the sample perceived benefits by using the e-payment system. Similarly, young Japanese in the sample feel confident about their computer skills. Relatively, trust has the lowest mean score of 2.72 for a 1-5 Likert scale measure. This is interpreted to mean that, among the five perception related variables, Japanese have a relatively lower level of trust in e-payment systems (see Table 2).

Table 2 Cronbach Alphas for Subject Norms				
Name	# of item	Alphas	Means	S.D.
Self-Efficacy	7	0.849	4.05	0.79
Ease of Use	3	0.862	3.86	0.88
Perceived Quality	4	0.871	3.30	0.85
Perceived Trust	4	0.774	2.72	0.82
Perceived Benefit	3	0.772	4.11	0.90

The question "How frequently do you use an e-payment system per week?" was asked. This is the key dependent variable that measured the e-payment behavior. It was found that 33, or 21.6 % of respondents did not use e-payment. Most of the Japanese young people (96 or 62.7%) used an e-payment system once or twice per week. Less than 20% of respondents used it more than 3 times a week (see Table 3). The average of the weekly usage was 1.5 times, with a standard deviation of 1.82.

Table 3 Frequency and Descriptive analysis of E-Payment Usage Weekly				
Variables	Frequency	Percent	Mean	S.D.
Usage for per week			1.50*	1.82
0	33	21.6		
1-2	96	62.7		
3-5	18	11.8		
6-10	6	3.9		
Total	153	100		

*Original data was in numbers

Bivariate analysis is presented in Table 4. The first three variables are demographic variables, i.e., age, gender, and working status. The next variable is an incentive. It is followed by the five major attitudinal variables: benefit, trust, self-efficacy, perceived quality, and ease of use. The final variable is the behavioral measurement for e-payment: frequency of usage per week.

		1	2	3	4	5	6	7	8	9	10
	Table 4 **Pearson Correlation Matrices**										
1	Age	1									
2	Gender	-.16*	1								
3	Working Status	.37**	0	1							
4	Incentives	0.13	-.17*	.20*	1						
5	Benefit	.16*	-0.06	0.11	0.11	1					
6	Trust	0.09	-0.01	0.02	0.12	.52**	1				
7	Self-Efficacy	0.01	-0.07	-0.03	-0	.38**	.20*	1			
8	Perceived- Quality	0.01	-0.02	0.05	0.01	.43**	.47**	.31**	1		
9	Ease of Use	0.15	-0.16	0.11	0.02	.52**	.38**	.53**	.39**	1	
10	Freq./Week	.35**	-.22**	0.09	.18*	0	0.16	-0.1	0.02	0.1	1

*0.05 level of significance
**0.01 level of significance

Age is correlated with gender and working status. In this sample, females are more likely to be younger than males. There is also a positive relationship between age and working status. Older respondents are more likely to have a full-time job. The incentives are negatively related to gender and positively related to working status. Females are less likely to care about incentives than males. An interesting finding is that people working full-time care more about incentives than those who work part-time or do not work.

Five attitudinal variables are highly correlated among themselves. This implies that people who feel e-payment is beneficial are also likely to have higher scores in trust, self-efficacy, perceived quality, and ease of use. Also, people with a higher score in trust in e-payment are more likely to have higher scores in benefit, self-efficacy, perceived quality, and ease of use.

For the dependent variable, the frequency of e-payment usage weekly is statistically related to age and gender. Older respondents are more like to use e-payment than younger ones. Females have a higher frequency in using e-payment systems weekly than males. Incentives are also found to be positively associated with the frequency of using e-payment. All five attitudinal variables are found to be not statistically significant regarding the relationship with the dependent variable (see Table 4).

Table 5 Regression Analysis	
Independent Variable	Unstandardized Beta
Constant	1.12
Gender	-.74*
Age	.080**
Waking status	-.71
Incentives	.24
Self-efficacy	-.24
Ease of use	.23
Perceive quality	-.03
Trust	.38
Benefit	-.33
*sig at .05 and ** sig. at .01	

Since independent variables are correlated, a regression analysis was conducted. The model is statistically significant, with an F value of 4.15, p < .00, and R square of .23 (see Table 5). As indicated in Table 5, only two variables are statistically significant: age and gender. Incentives are found to be statistically important in correlation analysis but not statistically significant in regression analysis. The correlations between incentives with age and gender could be the reason. The impact of incentives on e-payment was mainly explained by age and gender in the regression.

E-PAYMENT MARKETING

Reasonable use of the findings would address how to better market e-payment systems to the Japanese population. However, the upcoming Olympic Games in Japan will serve as the most significant marketing tool for e-payment systems. People from all over the world are expected at the Olympic Games, and those people will expect the availability of e-payment. The Japanese government and banking system understand this, and e-payment systems are being promoted as necessary to attract this business to Japanese venders. Japanese businesses will hopefully be ready with the systems for global visitors.

The question is: will the Japanese population embrace these systems that will be in place? After the Olympics, these systems will be widely available to Japanese consumers. That is one important change. Also, one would expect that Japanese consumers will observe these systems being widely used by foreign consumers. It is expected that Japanese consumers will then utilize e-payment systems much more than they do now. That will be a possible study for further research.

CONCLUSIONS

Analyzing the collected data, with direction provided by our literature review, can provide insights for academics and the business community to understand the Japanese consumer's use of e-payment systems better.

Three demographic variables, one incentives variable, and five attitudinal variables were examined. A survey using convenience sample methods was conducted via social media promotion and an online survey. A Likert scale ranging from 1 to 5 was applied to six attitudinal variables, i.e., self-efficacy, ease of use, perceived quality, trust, benefits, and security. It was found that items for security did not hold together (a very low alpha). However, the construct has been validated in another country in other research (Teoh et al. (2013). It is possible that Japanese users might not be concerned with the details of security provided by information technology vendors and financial institutions. Information security is a somewhat esoteric idea that is not well understood by many. In addition, the Japanese might trust their government institutions as well as their e-payment systems and, therefore, security is not an important issue for them. The other five constructs had alphas from .77 to .87 (see Table 2). This study verified and confirmed that items for five attitudinal constructs (self-efficacy, ease of use, perceived quality, trust, and benefit) that have been used widely in the TAM model in the USA are also appropriate for Japanese youth.

However, these five constructs are not associated with e-payment usage among young Japanese. According to Teoh et al. (2013), trust and security were found to be insignificant to customers' perception of e-payment in Malaysia. Benefits, self-efficacy, and ease-of-use contributed to e-payment in Malaysia. It is reasonable to suggest that self-efficacy and ease of use in Japan are significantly higher because it is a technologically advanced country. Similarly, Japan is a wealthy country and the level of benefits might not be important to young Japanese users regarding the use of e-payment systems.

One of our major findings is the relationship between gender and e-payment behavior. This is in keeping with Venkatesh and Morris (2000), who found that females are more strongly influenced by perceptions of ease of use and subjective norm. Males are more concerned with usefulness. In this study, it was found that females are less likely to use e-payment among younger Japanese. Since no relationships were found between gender and ease of use and/or benefit, the impacts of usefulness, benefit, and ease-of-use need to be further examined between gender differences in Japan.

Age was also found to be important. Our survey respondents are younger. About 70% of them are between 20-30 years old. The findings support other findings that indicate age as an important factor. It is reasonable to say older people in this group are more likely to have a full-time job and, perhaps, higher income. Since they probably spend more money and have more money to manage, e-payment is a good platform for them to use. Further research in this area is recommended.

Incentives are statistically important in the bivariate analysis. This implies that more incentives will motivate e-payment behavior among Japanese young people. However, in the regression model, the impact of the incentives disappeared. Age and gender are strong predictors and are correlated with incentives. It could be the reason that incentives are not statistically important in the regression model. The incentives have a negative relationship with gender. This implies that males care more about incentives than females.

In the regression analysis, age and gender, along with other independent variables, can explain 23% of the variance of the e-payment usage per week. It was found that perceptions are not good predictors for e-payment behavior, especially with how frequently the Japanese use e-payment on a weekly basis.

Demographic backgrounds within the sample are quite diverse, and the sample size is limited. However, as an exploratory study, some guidance is provided by the results of this study to support further e-payment studies in Japan, as well as other countries.

REFERENCES

Abeshi. (2016, Oct. 27). *The situation of the e-payment system and popularization in Japan. Money Motto*. Available at: https://news.hoken-mammoth.jp/e-money/ Accessed 08.16.18.

Abrazhevich, D. (2001). Electronic payment systems: issues of user acceptance, at Stanford Smith, B., and Chiozza, E. (Eds). *E-work and e-commerce, ISO Press, Amsterdam*, 354-360

Abrazhevich, D. (2004). *Electronic payment systems: a user-centered perspective and interaction design*. Ph.D. thesis, technical university of Eindhoven, Eindhoven

Abrazhevich, D. (2004). Electronic payment systems: a user-centered perspective and interaction design. *Technische universities Eindhoven*, 189

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes*, 50(2), 179-211

Ajzen, I., & Fishbein, M. (1980). *Understanding attitudes and predicting social behavior*. London; prentice hall international.

Au, Y.A., & Kauffman. R.J. (2008). The economics of mobile payments: understanding stakeholder issues for an emerging financial technology application. *Electronic commerce research and applications*, 7, 141-164

Bakos, A. (1997). Reducing buyer search costs: implications for electronic marketplaces. *Management Science*, 43(2), 1676-1692

Bandura, A. (1986). *Social foundations of thought and action*. A social cognitive theory, prentice-hall, Englewood Cliffs, NJ

Byford, Sam. (2016, Oct. 25). *Apple pay is live in Japan and works on public transport*. Available at: https://www.theverge.com/2016/10/25/13401092/apple-pay-japan-suica-felica-nfc Accessed 08.16.18.

Chen, A., Aba, F., and Ouattara, N. (2016). Issues and models of e-payment system. *Presented at 65th annual meeting of Arkansas college teachers of economics & business*

Chou, Y., Lee, C., & Chung, J. (2004) Understanding m-commerce payment systems through the analytic hierarchy process. *Journal of business research*, 57(12), 1423-1430

CPSS. (2012). Payment, clearing, and settlement system in Japan. *Red book*, 263-311

Dahlberg, T., Guo, J., & Ondrus, A. (2015). Contemporary research on payments and cards in the global fin tech revolution. *Electronic commerce research and Applications*, 14 (5), 261-392

Dahlberg, T., Mallat, N., & Öörni, A. (2003a). Consumer acceptance of mobile payment solutions - ease of use, usefulness, and trust. *The 2nd international conference on mobile business, Vienna, Austria*, June 23-24.

Dahlberg, T., Mallat, N., & Öörni, A. (2003b). Trust enhanced technology acceptance model - consumer acceptance of mobile payment solutions. *The 2nd mobility Roundtable, Stockholm, Sweden*, May 22-23.

Dahlberg, T., Guo, J. & Ondrus, J. (2015). A critical review of mobile payment research. *Electronic commerce research and applications*, 14, 265-284

Dahlberg, T., Mallat, N., Ondrus, J. & Zmijewska, A. (2008). Mobile payment market and research – past, present, and future. *Association for information systems AIS electronic library*, 166

Davis, F.D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13 (3), 319-340

Davis, F.D., Bagozzi, R.P, & Warshaw, P.R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, 35, 982-1003

Davis, F.D., Bagozzi, R.P., & Warshaw, P.R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace. *Journal of applied social psychology*, 22 (14)

Dory, V., Beaulieu, M., Pestiaux, D., Pouchanin, D., Gay, B., Rocher, G., & Boucher, L. (2009). The development of self-efficacy beliefs during general practice vocational training: an exploratory study. *Medical teacher*, 31(1), 39-44

Eastin, M.J. (2002). Diffusion of e-commerce: an analysis of the adoption of four e-commerce actives. *Telematics and informatics*, 19(3), 251-267

Fishbein, M., & Ajzen, I. (1975). Belief. Attitude, intention, and behavior. An introduction to theory and research. *Reading, MA: Addison-Wesley*.

Flavian, B., Kahn, P.H. Jr., & Howe, D.C. (2006). Trust online. *Communications of the ACM*, 43(12), 34-40

Friedman, B., Kahn, P.H. Jr., & Howe, D.C. (2000). Trust online. Communications of the ACM, 43(12),34-40

Gefen, D. (2000). E-commerce: the role of familiarity and trust. *Omega: The international journal of management science*, 28(6), 725-737

Gefen, D. (2003). Tam or just plain habit: a look at experienced online shoppers. *Journal of organizational and end-user computing* 15(3), 1-13

Gerrard, P., & Cunningham, B.J. (2003). The diffusion of internet banking among Singapore consumers. *International journal of bank marketing,* 21(1), 16-28

Gholami, R., Ogun, A., Koh, E. & Lim, J. (2010). Factors affecting e-payment adoption in Nigeria. *Journal of electronic commerce in organizations*, 8(4), 51-67

Hataiseree, R. (2008), Development of e-payments and challenges for central banks: Thailand's recent experience. *Working paper payment systems department.*

Hayashi, F. (2015) Faster Payments in the United States: How Can Private Sector Systems Achieve Public Policy Goals. *Federal Reserve Bank of Kansas City working paper*, 15 (3)

Hen, L. (2008). A model of consumer acceptance of mobile payment. *International journal mobile communications*. 6(1), 32-52

Hill, T., Smith, N.D., & Mann, M.F. (1986). Communicating innovations: convincing computer-phobic to adopt innovative technologies, in Luts, R.J. (Ed). *Advances in consumer research, the accusation of consumer research, prove*, UT, 419-422

Hill, T., Smith, N.D., & Mann, M.F. (1987). Role of efficacy expectations in predicting the decision to use advanced technologies: the care of computers. *Journal of applied psychology*, 72(2), 307-313

Hoffman, D.L., Novak, T.P., & Peralta, M. (1999). Building consumer trust online. *Communications of the ACM*, 42(4), 80-85

Hord, J. (2005, October 19). *How Electronic Payment Works*. Available at: https://money.howstuffworks.com/personal-finance/online-banking/electronic-payment2.htm Accessed 08.16.18.

Ives, B., Olson, M.H., & Baroudi, J.J. (1983). The measurement of user information satisfaction. *Communications of ACM*, 26(10), 785-93

Javenpaa, S.L., Tractinsky, J., & Vitale, M. (2000). Consumer trust in an internet store. *Information technology and management*, 1(Nos1-2), 45-71

Jeffus, B., Zeltmann, S., Griffin, K., & Chen, A. (2015). The future of mobile electronic payments. *Competition Forum*, 13 (2), 337-342

Juniper Research. (2018). Mobile & online remote payments for digital & physical goods, 2018-2022. *Juniper research.*

Kawamoto, S., & Allan, G. (2016, Sep 2). Japanese have for years been using rail passes that double as electronic money cards: Apple hopes for e-money growth in cash-carrying. *Japan Times*. Available at: https://www.japantimes.co.jp/news/2016/09/02/business/apple-hopes-e-money-growth-cash-carrying-japan/#.WngD9FPwbq0 Accessed 08.16.18.

Kaya. (2018, May 13). The theory of stopping to use one thousand yen currency. *Sankei news.* Available at: https://www.sankei.com/column/news/180513/clm1805130001-n1.html Accessed 08.16.18.

Kim, C., Mirusmonov, M. & Lee, In. (2010). An empirical examination of factors influencing the intention to use mobile payment. *Computers in human behavior*, 26 (3), 310-322

Kobsa, A. (2001). Generic user modeling systems. *User modeling and user-adapted interaction*, 11(Nos1/2), 49-63

Kobsa, A. (2002). Personalized hypermedia and international privacy. *Communications of the ACM*, 45(5), 64-67

Legris, P., Ingham, J., & Cllerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information and management*, 40(3), 191-204

Liébana-Cabanillas, F., Sánchez-Fernández, J. & Muñoz-Leiva, F. (2014). Antecedents of the adoption of the new mobile payment systems: the moderating effect of age. *Computers in human behavior*, 35, 464-478

Lim, B., Lee, H., & Kurnia, S. (2006). *Why did an electronic payment system fail? A case study from the system provider's perspective.* Available at: www.collecter2006.unisa.edu.au/Paper%2011%20Benfamin%20Lim.pdf (accessed December 14, 2009)

Lin, C. & Nguyen, C. (2011). Exploring e-payment adoption in Vietnam and Taiwan. *The journal of computer information systems*, 51 (4), 41-52

Luarn, P., & Lin, H.H. (2005). Toward an understanding of the behavioral intention to use m-banking. *Computers in human behavior,* 21(6), 873-891

Lymperropoulos, C., & Chaniotakis, I.E. (2005). Factors affecting acceptance of the internet as a marketing-intelligence tool among employees of Greek bank branches. *International journal of the bank of marketing*, 23(6), 484-505

Mallat, N. (2007). Exploring consumer adoption of mobile payments- A qualitative study. *Journal of strategic information systems,* 16, 413-432

Matsukawa, S., & San, M. (2009). Japanese consumers as technology innovators. *University honors program.*

Md Johar, M.G., & Awalluddin, J.A.A. (2011). The role of the technology acceptance model in explaining the effect on the e-commerce application system. *International journal of managing information technology,* 3 (3)

Morimoto, T. (2018, January 29). Extensive electronic payment essential for revitalizing the economy. *Saga newspaper live*. Available at: http://www.saga-s.co.jp/articles/-/175028 Accessed 08.16.18.

Nikkei Asian Review (2017, March 07). *Japan expects a $283bn boost from the 2020 Tokyo Olympics*. Available at: https://asia.nikkei.com/Economy/Japan-expects-283bn-boost-from-2020-Tokyo-Olympics   Accessed 08.16.18.

Oliveira, T., Thomas, M., Baptista, G. & Campos, F. (2016). Mobile payment: Understanding the determinants of customer adoption and intention to recommend the technology. *Computers in human behavior*, 61, 404-414

Özkan, S., Bindusara, G., & Hackney, R. (2010). Facilitating the adoption of e-payment systems: theoretical constructs and empirical analysis. *Journal of enterprise information management*, 23(3), 305-325.

Park, Y. & Chen, J. (2007). Acceptance and adoption of the innovative use of a smartphone. I*ndustrial management & data systems*, 107 (9), 1349-1365

Pham, T.T.T., & Ho, J.C. (2015). The effects of product-related, personal-related factors, and attractiveness of alternatives on consumer adoption of NFC-based mobile payments. *Technology in society*, 43, 159-172

Pikkarainen, T., Pikkarainen, K., Karfaluoto, H. & Pahnila, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research*, 14 (3), 224-235

Raja, J., Senthil Belmurgan, M., & Seetharaman, A. (2008). E-payments: problems and prospects. *Journal of internet banking and commerce*, 13 (1)

Renaud, K., &Biljon, J.V. (2008). Predicting technology acceptance and adoption elderly: A qualitative study. *In ACM international conference proceeding series; Proceedings of the 2008 annual research conference of the South African institute do computer scientists and information technologists on IT research in developing countries: Riding the wave technology*, 338, 210-219

San-Martin, S., & Lopez-Catalan, B. (2013). How can a mobile vendor get satisfied customers? *Industrial management and data systems*, 133(2), 156-170

Sathye, M. (1999). Adoption of internet banking by Australian consumers: an empirical investigation. *International journal of bank marketing*, 17(7), 324-334

Schier, G.P., Shilke, O, & Wirtz, W.B. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic commerce research and applications*, 9 (3), 209-216

Shin, Y. Y. & Fang, K. (2004). The use of a decomposed theory of planned behavior to study Internet banking in Taiwan. *Internet Research*, 14 (3), 213-223

Sonia San-Martin, S., Lopez-Catalan, B., & Ramom-Jeronimo, M.A. (2012). Factors determining firms' perceived performance of mobile commerce. *Industrial management and data systems*, 112(6), 946-963

Statista. (2015). Mobile payment transaction volume 2010-2017. *The statistics portal*. Available at: http://www.statista.com/statictics/226530/mobile-payment-transaction-volume-forecast/   Accessed 08.16.18.

Su, S.P., Tsai, C.H., Chen, Y.K. (2012). Applying the technology acceptance model to explore intention to use telecare system in Taiwan. *13th ACIS international conference*

Teo, A.C., Tan, G.W.H., Ooi, K.B., Hew, T.S., & Yew, K.T. (2015). The effects of convenience and speed in m-payment. *Industrial management & data systems*, 115(2), 311-331

Teoh, W., Chong, S., Lin, B., & Chua, J. (2013). Factors affecting consumers' perception of electronic payment: An empirical analysis. *Internet Research*, 23 (4)

Tsiakis, T., & Sthephamides, G. (2005). The concept of security and trust in electronic payments. *Computers and security*, 24(1), 10-15

Venkatesh, V., & Bala, H. (2008). Technology acceptance model 3 and a research agenda on interventions. *Decision Sciences*, 39(2), 273-315

Venkatesh, V., & Morris, M. G. (2000). Why don't men ever stop to ask for directions? Gender, social influence, and their role in technology acceptance and usage behavior. *MIS Quarterly*, 247 (1), 115-139.

Venkatesh, V., &Davis, F.D. (2000). A theatrical extension of the technology acceptance model: Four longitudinal field studies. *Management Science*, 46(20, 186-204

Wang, Y.S., Wang, Y.M., Lin, H.H., & Tang, T.I. (2003). Determinants of user acceptance of internet banking: an empirical study. *International journal of service industry management*, 14(5), 501-519

Wróbel-Konior, S. (2017). What Is an E-payment System? *Securion Pay*. Available at: https://securionpay.com/blog/e-payment-system/ Accessed 08.16.18.

Yousafzai, S.Y., Pallister, J.G., & Foxall, G.R. (2003). A proposed model of e-trust for electronic baking. *Technovation,* 23(11), 847-860

Z'xent Pro. (2018, June 24). *Featured [fin tech] Japan proposing cashless payments*. Available at: http://business-japan.jp/2018/06/24/japan-proposing-cashless-payments-for-the-coming-olympics/ Accessed 08.16.18.

Zhou, T. (2011). An empirical examination of initial trust in mobile banking. *Internet Research*, 21(5), 527-540

Zmijewska, A., Lawrence. E., Steele. R., Dahlberg. T., Guo. J. & Ondrus,, (2004). Towards an understanding of factors influencing user acceptance of mobile payment systems. *Proceedings of the IADIS international conference*, 2

Appendix Survey Instrument for E-Payment (Japan)

I.   Benefit Issues

		Disagree			Agree	
B1	I save time through the use of an e-payment system	1	2	3	4	5
B2	I save money using an e-payment system	1	2	3	4	5
B3	E-payment systems are convenient for me	1	2	3	4	5
B4	The billing and transaction process is accurately handled	1	2	3	4	5
B5	A traditional payment system is faster than an e-payment system	1	2	3	4	5
B6	E-payment helps me keep track of my bank account	1	2	3	4	5

II.   Trust Issues

		Disagree			Agree	
T1	I trust an e-payment system to protect my privacy	1	2	3	4	5
T2	I believe using e-payment systems will not lead to transaction fraud	1	2	3	4	5
T3	Confidential information is delivered safely to customers	1	2	3	4	5
T4	I feel the risk associated with e-payment systems is low	1	2	3	4	5
T5	I would recommend e-payment systems to others	1	2	3	4	5

III.   Security Issues

		Disagree			Agree	
S1	No one can get access to my data without permission	1	2	3	4	5
S2	E-payment technologies are effective in determining whether a particular user is authorized to take specific actions (for example, login) or not.	1	2	3	4	5
S3	Advances in security technology provide for safer e-payment systems	1	2	3	4	5
S4	I will stop using the e-payment system if I hear of a security breach	1	2	3	4	5
S5	Matters of security have a significant influence on me in using an e-payment system	1	2	3	4	5

IV.   Ease of Use

		Disagree			Agree	
EU1	The structure and contents of an e-payment web site are easy to understand	1	2	3	4	5
EU2	Learning to use an e-payment is easy	1	2	3	4	5
EU3	Using an e-payment system is not complicated	1	2	3	4	5
EU4	Using an e-payment system does not require a lot of mental effort	1	2	3	4	5
EU5	I feel e-payment systems are user friendly	1	2	3	4	5

V.   Perceived Quality

		Disagree			Agree	
PQ1	E-payment web sites usually provide sufficient useful information	1	2	3	4	5
PQ2	E-payment web sites usually provide accurate information	1	2	3	4	5
PQ3	E-payment web sites usually provide up-to-date information	1	2	3	4	5
PQ4	E-payment web sites usually provide information relevant to my needs	1	2	3	4	5

VI.   Self-Efficacy

		Disagree			Agree	
	I would be confident in using an e-payment system					
PE1	Even if there is no one around to show me how to use it	1	2	3	4	5
PE2	Even if I have never used a system like it before	1	2	3	4	5
PE3	If I have only the online instructions for reference	1	2	3	4	5
PE4	If I have only the manual and instructions for reference	1	2	3	4	5
PE5	If someone would help me get started	1	2	3	4	5
PE6	If I can find someone to help me if I get stuck	1	2	3	4	5
PE7	If I have sufficient time to learn it	1	2	3	4	5

VII.   Usage Issues

1.   Which device(s) do you use for your e-payment? (Check all that applied)
_____ Desk- top computer
_____ Notebook computer
_____ Tablet computer
_____ Smart phone

2.   How often do you use e-payment?
approximately ___ times per week (please fill a number in the blank)

3.   Approximately, how much money you spend via e-payment per month? (in USD)
_____   100   >
_____   101   – 200
_____   201   – 400
_____   401   – 800
_____   801   – 1,200
_____   1,201   – 2,400
_____   2,401   <

4.   Approximately, what percentage of your monthly expenses was paid via e-payment?
_____ %

5.   How frequently do you purchase the following using e-payment systems?

	Never	Rarely	Sometimes	Frequently	Very Frequently
Electronics	1	2	3	4	5
Books	1	2	3	4	5
Travel	1	2	3	4	5
Entertainment	1	2	3	4	5

Clothes	1	2	3	4	5
Dining	1	2	3	4	5
Groceries	1	2	3	4	5
Services	1	2	3	4	5
Pay Bills	1	2	3	4	5
Other	1	2	3	4	5

6.   Please rate the level of difficulty that each of the following cause you when using e-payment.

	Not Difficult				Very Difficult
Internet access and/ or speed	1	2	3	4	5
Mobil data plan	1	2	3	4	5
Web page confusion or unfriendly	1	2	3	4	5
Virus or safety issue	1	2	3	4	5
Security issue	1	2	3	4	5

7.   How old are you?
_____ years old

8.   Do you work?
__   Yes, I work full time
__   Yes, I work part time
__   No, I do not work

9.   Are you a student?
___   Yes, I am a full time student
___   Yes, I am a part time student
___   No, I am not a student

10.   Do you have easy access to internet via your computer or smart phone?
___   Yes
___   No

11.   Do you have easy access to data plan via your smart phone?
___   Yes
___   No

12.   Are you a
___   Female
___   Male

THE IMMENSE POTENTIAL OF BIG DATA

Santosh Venkatraman, Tennessee State University, Nashville

ABSTRACT

The collection of data about human activities and machine operations is increasing exponentially every day. This collection of data, often referred to as Big Data, is also not necessarily like the traditional data, as it is largely unstructured, and hence cannot be managed by traditional databases and analytics platforms. NoSQL data stores such as MongoDB, along with platforms like Hadoop and Spark are far more suited for storing and analyzing Big Data.

The analysis of Big Data has immense potential for increasing revenue, profits, customer satisfaction and competitive advantages for modern organizations. The emergence of artificial intelligence is also very dependent on the availability of large volumes of clean data – so Big Data is also becoming the lifeblood of AI-powered systems. This paper describes the nature of Big Data and discusses the vast potential it offers to organizations.

INTRODUCTION

The relentless collection of large volumes of data from all kinds of sources, especially from machine sensors and websites have introduced both a high level of complexity, as well as a great opportunity for businesses. Most of the world's big organizations such as Apple, GE, Walmart, Toyota, Exxon and Samsung have global operations (factories, warehouses, transporters, and customers) and serve several customers with a wide variety of products and services. It is often hard for humans to unravel the complex problems (where and why) arising from these vast and highly sophisticated networks. The ever increasing collection of data, also known as "Big Data," will only be useful if it can be analyzed to give useful insights into business problems, and perhaps even make suggestions as to when and where future problems will occur (predictive analytics) so that the problems can be avoided or at least mitigated. Predictive analytics can also unravel positive trends and opportunities, and allow organizations to proactively allocate resources to take advantage of those future opportunities.

Entire supply chains, for example, are managed efficiently by collecting data points all along the supply chain. The data is then analyzed by analytics software to enhance the efficiency and effectiveness of supply chain management. Efficient supply chain management offers company's competitive advantages in terms of improvement in service and quality, lowering costs, and the ability to compete successfully in global marketplace.

Another example is that of the industrial giant GE, which is rapidly getting into the Industrial Internet and Internet of Things (IoT) space. On any given day, 24,000 locomotive engines are travelling about 140,000 miles, and GE estimates that if its new Big Data tools (Industrial Internet Software Suite) could even improve efficiency of its engines by 1%, that would translate into a savings of $2.8 billion annually for its customers [Gertner 2014]. GE's Trip Optimizer, for instance, is a type of cruise control that combs through piles of data and synthesizes them for the driver in a way that allows him to steer the locomotive to maintain the most efficient speed at all times, and reduce fuel burn.

Clearly the collection and analysis of Big Data can potentially be a massive advantage to many organizations. The purpose of this paper is to examine the exciting field of Big Data, and examine its role in benefitting organizations. The trend of connecting people and machines to the Internet, and then collecting data via websites and sensors is creating an unimaginably large repository of data. This Big Data can then be analyzed (often, in near-real time) for useful information. Specifically, we illustrate the many ways in which Big Data is collected and analyzed for solving business problems and its immense potential for providing competitive advantages.

The paper initially describes the nature of Big Data and details four important dimensions to describe it - volume, velocity, variety, and veracity. It then briefly discusses the ways in which Big Data is stored and analyzed. The next section describes the immense potential of Big Data to make organizations function more effectively and efficiently. Finally, we summarize and conclude the paper in the last section.

BIG DATA

Big data is different from traditional data stored in relational databases, which also can be big (in terms of storage requirements), in many significant ways. Traditional databases are collections of data that are well structured – each record has a specific number of fields, and all data records conform to that structure. Much data currently, however, is collected from websites and machine sensors on a continuous basis. Unlike traditional data stores, these often do not conform to a predefined structure and make it harder to analyze due to extra-large volumes.

IBM defines Big Data in fairly simplistic terms: managing huge amounts of data, and being able to process it quickly [Lo 2018]. The data is too big in terms of volume, moves too fast, or doesn't fit the structures of most company's database architectures [Wilder 2012]. To gain value from this Big Data, organizations need an alternative way to store and process it. Since 2012, Big Data has become a buzz word in the business world. With the advancement of hardware, networking, and software platforms. it has also become viable, as cost-effective approaches have emerged to tame the volume, velocity, variety and veracity of data.

Within this data lie valuable patterns and information, which were previously hidden because of the inability to extract insights from them. To modern, successful corporations, such as Walmart, Amazon or Google, this power has been in reach for some time, but came at a very high cost. A delay in the processing time of Big Data can have detrimental effects, such as revenue loss, customer dissatisfaction and competitive disadvantage. For instance, Google reported a 20% revenue loss with the increased time to display search results by as little as 500 milliseconds and Amazon reported a 1% sales decrease for an additional delay of as little as 100 milliseconds [Cogn1 2012]. In order to better understand the nature and complexities of Big Data, we next look at the various dimensions of Big Data

BIG DATA DIMENSIONS – THE 4 V'S

To better understand Big data, it is often described in terms of four basic dimensions, often referred to as the 4V's of Big Data: Volume, Velocity, Variety, and Veracity [IBM 2019] as shown in Figure 1. We describe the details of each of these dimensions next.
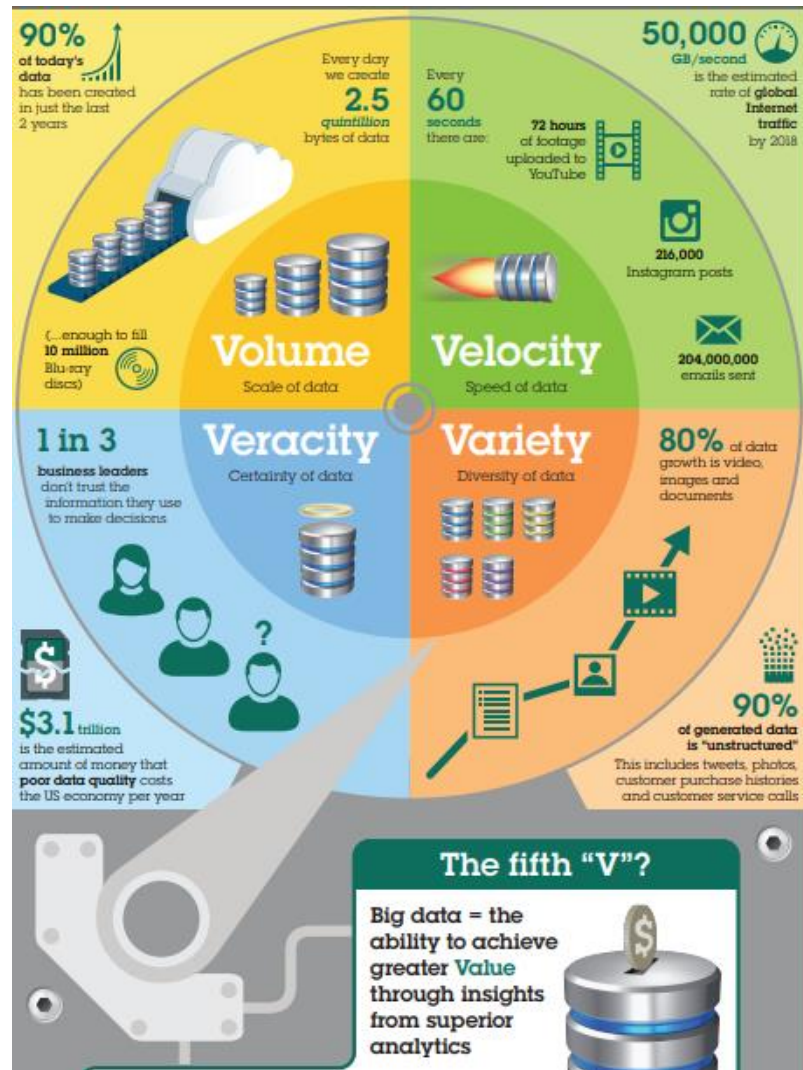
Figure 1: The Four V's of Big Data and Its Value [IBM 2019]

Volume

The sheer volume of data we create currently is perhaps unimaginable. We generated about 2.5 quintillion bytes of data just in 2018 [Marr 2018], and 90% of the data created in the world was created in the last 2 years. Data has always been big, but never nearly as massive as it is today, and never growing at this rate. With the exponential growth of IoT (Inter of Things), and high bandwidth applications such as Virtual Reality, Augmented Reality and Ultra High-Definition videos, the amount of data generated will only accelerate, and some estimates are as high as 175 Zettabytes by 2023 [Coughlin 2018]. Figure 2 shows the projected growth of Big Data in terms of its value in dollars [Columbus 2018].

Forecast Revenue Big Data Market Worldwide 2011-2027
Big Data Market Size Revenue Forecast Worldwide From 2011 To 2027 (in billion U.S. dollars)
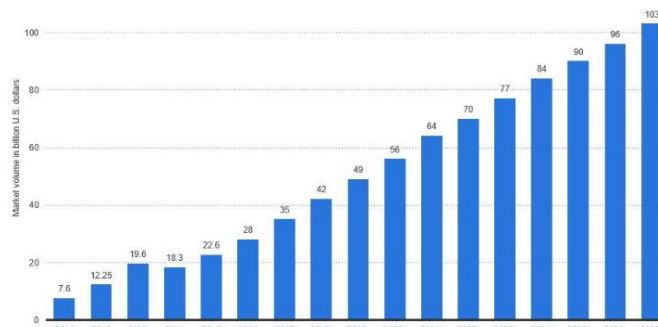
Figure 2: Big Data Growth Projection

Figure 3 shows the estimate of the data bombarding the Internet in one minute in 2017 [Domo 2017]. Additionally, there is an explosive growth in sensor based data generators in Hospital Intensive Care Units, Radio Frequency IDs tracking products and assets, GPS systems, smart meters, factory production lines, satellites and meteorology- and the list continues to grow rapidly. Just considering IoT growth, a recent Gartner report [Liton 2018] estimates that we will have more than 20 billion such sensors by 2020. These sensors are expected to generate more than 500 zettabytes of data per year just in 2019 – and continue to grow exponentially. The focus on the volume of Big Data is important, as it will determine the technologies used to store and retrieve these massive data stores effectively– and more importantly analyze them in a timely manner, to make them meaningful to the decision makers in the business.

Figure 3: Data Generation Sources

Velocity

Velocity is the second dimension of Big Data. Globally, data is being generated at an ever-increasing rate. There are several aspects of the speed of data, so we have to go beyond jus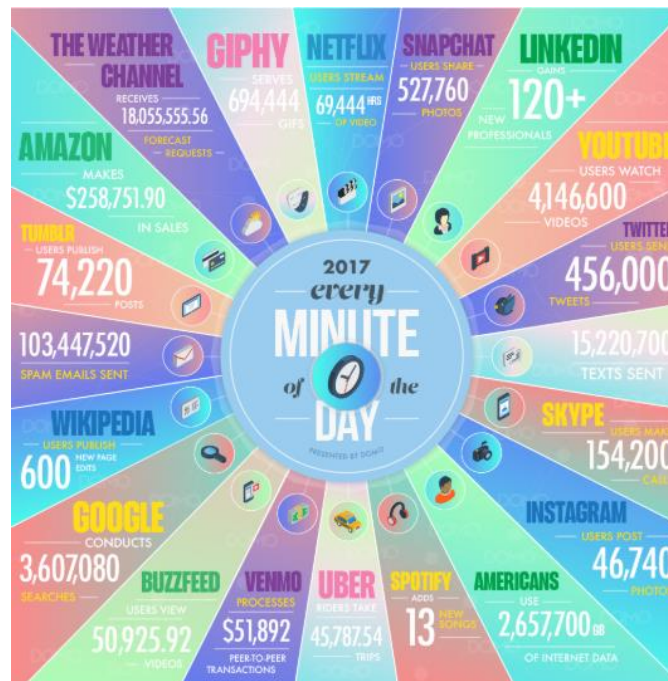t looking at the rate at which data is generated or received. No doubt, the "fire hose" sources like IoT and social media generate a lot of data very rapidly, however, the focus here is the frequency of data, and the degree of real-time response that is needed for obtaining true value. That velocity of data has to be processed rapidly too, if organizations want to make effective real time decisions, and then make course corrections along the way. There are many situations in which the data needs to be processed rapidly and immediately to gain value, or else the data might just lose its value and become stale or obsolete. Take for instance, the case of retailing seasonal items or perishable items. It is extremely critical to know which items are moving fast from which stores to minimize the perish rate, and, on the other hand, if the fast moving items are not restocked promptly, it would mean lost sales. So, near-real-time processing of the data can result in lower waste and losses, and simultaneously in increased sales and profits. Similarly, it would be a waste of capital and shelf space if excess products of a slow selling item is overstocked. Perishable items will have to be discarded, and unsold seasonal items must be discounted sharply to get them cleared.

Speed and agility is, hence, crucial for many organizations. Volatility (another potential V) is also a related term to velocity, as is it involves a temporal aspect. Data at high velocities can be volatile due to rapid rates of change, and the small window of time in which it could prove valuable (small lifetime). The ability to rapidly process and utilize the stream of data, to gain actionable insights for immediate execution, is indeed a much-required ability. For example, the barrage of feeds from social media sites can indicate sentiments and trends that can materialize rapidly, and dissipate equally quickly. On the other hand, trends for preferences for vehicles may be much slower to emerge, and stay around for a longer time.

Amazon takes velocity very seriously and strongly believes in high-velocity decision making [Dykes 2017]. Amazon realizes that it may have to make a sub-optimal decision on incomplete information using this approach, but is also confident that they can rapidly course correct as new data comes in later. For Amazon, making rapid decisions, with course corrections, has proved more beneficial than slow decision making.

Another example of velocity is when IoT sensors in a machine are detecting potential problems; if the rapidly collecting data is simply stored, but not analyzed rapidly, then the machine cannot be preemptively serviced to prevent breakdowns. The machine could be an aircraft engine, a locomotive engine or even an air-conditioner unit. The ability to rapidly process and act on the large volumes of data is clearly advantageous.

Agile organizations must not only collect and analyze high velocity data, but must also be prepared to act rapidly. So, the technology, processes, and the organizational culture has to all be aligned for such agility. Many executives utilize dashboards to track key performance indicators in their organizations, and then use them to make effective, real-time decisions. In order to handle high-velocity, short lifespan data we need to minimize movement and storage and increase the speed of analysis. More than ever, data must be analyzed and decisions made in real-time, which precludes storing the data in intermediate repositories because every touch point costs valuable time.

Variety

Data can be human generated or machine generated. Machine generated data, for instance, can be captured via sensors, surveillance cameras, and satellites. Humans could type data on web pages or word processors, put videos and pictures on social media, or record audio/video files and so forth. In either case, the data can be classified as structured, unstructured or semi-structured. Figure 4 [Taylor 2018] shows a good summary of the types of data and sources.

	Structured Data	Unstructured Data
Characteristics	• Pre-defined data models • Usually text only • Easy to search	• No pre-defined data model • May be text, images, sound, video or other formats • Difficult to search
Resides in	• Relational databases • Data warehouses	• Applications • NoSQL databases • Data warehouses • Data lakes
Generated by	Humans or machines	Humans or machines
Typical applications	• Airline reservation systems • Inventory control • CRM systems • ERP systems	• Word processing • Presentation software • Email clients • Tools for viewing or editing media
Examples	• Dates • Phone numbers • Social security numbers • Credit card numbers • Customer names • Addresses • Product names and numbers • Transaction information	• Text files • Reports • Email messages • Audio files • Video files • Images • Surveillance imagery

Figure 4: Sample of Data Variety and Sources

Structured data has a predictable format, and can be organized as rows and columns in tables. For example, an Employee database table record might have a EmployeeId, Name, AreaCode, Phone, GrossSalary, and CityStationed for each employee. It lends itself to relatively easy storage, analysis using traditional relational database management systems. Figure 5 shows how the structured Employee data could be represented in a table.

EmployeeID	Name	Date-Joined	AreaCode	Phone	GrossSalary	CityStationed
11	Michelle Piper	12/11/2016	505	555-1616	$ 999.00	Las Cruces
12	Mick L Mouse Jr.	12/30/2012	615	555-1313	$ 1,450.00	Nashville
13	Joe Fernandez	7/15/2011	913	555-2121	$ 1,275.00	Kansas City
14	Rhonda Lam	3/3/2012	615	555-1111	$ 3,200.00	Nashville
15	Ram Sharma	12/3/2013	501	555-1919	$ 3,100.00	Little Rock
16	Tiger Forests	1/23/2017	615	555-1717	$ 7,200.00	Nashville

Figure 5: Structured Data

Big Data, on the hand, is often associated with unstructured and semi-structured data. The data source is often diverse, such as web pages, audio files, video streams from close-captioned cameras, text messages, chats, social media platforms or even data feeds from device sensors on machines. Unstructured data does not fit neatly into rows and columns like structured data, so it cannot be stored effectively in relational databases, and cannot be meaningfully analyzed using database languages such as SQL. There are new technologies that are more suitable for storing and analyzing Big Data. Nonrelational databases like NoSQL (Not Only SQL) databases are less constrained than relational databases, and more suited to Big Data. MongoDB, Couchbase, Google's BigTable, and Amazon's DynamoDB are some examples of NoSQL databases.

Some data can also be semi-structured, and hence contains internal tags and separators identifying some distinct data elements and hierarchies - but not as clearly defined as structured data. Examples of semi-structured data include XML documents, and Open JSON (Javascript Object Notation). Email also is a common example of semi-structured data as its native metadata enables classification and keyword searching. Many of the NoSQL databases also are useful for storing semi-structured data, as unlike relational databases, the schema and the data are not separated. MongoDB, for instance, can store semi-structured documents in native JSON format. Similarly, MarkLogic is especially suited to store and take full advantage of XML documents. So

Unstructured data makes up about 80% to 90% of enterprise data, and growing at a rate of about 60% annually. It is, therefore, critical to have appropriate infrastructure to efficiently store and analyze these data streams for maximal return on investment. In comparison, structured data makes up about 10 to 15% of enterprise data, while semi-structured takes about 5% to 10% [Taylor 2018].

Veracity

The veracity aspect of Big Data deals with the conformance of data with truth and accuracy, and is perhaps the hardest to achieve. Veracity determines the level of trust in the data. Due to the velocity of the variety of large volumes of data (the other 3 V's), maintaining and verifying veracity is indeed a great challenge for Big Data. Many things can cause us to question the veracity of data, such as inconsistencies, model approximations, ambiguities, deception, fraud, duplication, spam and latency [Emani 2015]. The real purpose of Big Data, after all, is to

use it for making meaningful and effective decisions, therefore bad quality, and irrelevant data will often lead to undesirable decisions.

Data accuracy depends on many factors such as the data collection methods, the quality of the data sources, and the very methods used in processing the data. Factors such as data-bias, variability, inconsistencies and duplication can also significantly affect the quality of the data. Fortunately, data need not be perfectly accurate all the time, for all applications - so there maybe tradeoffs, when dealing with Big Data. If the data will be used for exploratory or experimental purposes, there may be some tolerance for inaccuracy in the sample (especially if it can be obtained quickly at a low cost).

In our current era of rising artificial intelligence (AI), the veracity of data is rather crucial. AI systems are often trained by Big Data, and the fair use of AI systems that affect us profoundly, depends heavily on the veracity of the training data. The use of "biased" AI systems is a topic of great interest currently, because the implications for organizations and society are profound. For example, if an AI system for detecting cancer is trained by data from just China, then it may prove very reliable in predicting cancer in people of Chinese ethnicity, but may lead to misleading results when diagnosing cancer in people of Caucasian descent. The ineffectiveness of the system will not necessarily minimize the case for using AI in healthcare – just that the training was based on a biased sample, whose veracity is in question when applying to all humans, in general. So, veracity is one of the most important dimensions of Big Data analysis. There is need to understand the allowable level of uncertainty or lack of veracity in the data, and re-define trust in the context of the questions that organizations are attempting to answer. There is also a need to weigh the cost of that uncertainty against the value the data brings to the problem.

BIG DATA STORAGE AND ANALYSIS

The four V's of Big Data, described above, present big problems for traditional data storage and analytics platforms. Despite the many advancements in database management and executive level support, most companies are still badly behind the curve, when it comes to analyzing Big Data, and reaping all the potential benefits. Surprisingly, less than 50% of structured data is actually used in decision making, and worse still, less than 1% of the unstructured data is analyzed or used at all [Davenport 2017].

As the purpose of Big Data analytics is more for predicting trends and future behavior, it is not necessary, nor realistic, to expect 100% accuracy. That is unlike traditional data analysis, as it is essential for a value, such as bank account balance, to be 100% accurate all the time. Due to the heavy volumes of wide varieties of data, of questionable veracity, arriving at high velocities, it is not easy or essential for Big Data to be neatly structured like relational databases. As traditional Relational Database technologies and methods of loading, storing and retrieving data were not really designed to process Big Data, newer technologies such as Spark, Hadoop, MapR, Cloudera, Teradata Aster, IBM Neteeza, NoSql, NuoDb, MongoDB, CouchDB, and HBase have made it easier and more efficient to handle these large volumes of data.

We next briefly describe how Big Data is better handled by Apache Hadoop, which is an Open source, free implementation of MapReduce (originally a Google Technology, but Open now). Hadoop is a programming model for processing large data sets with a parallel, distributed algorithm on a cluster. It utilizes a scale-out architecture that makes use of

commodity servers configured as a cluster, where each server possesses inexpensive internal disk drives. The HDFS (Hadoop Distributed File System) creates multiple replicas of data blocks and distributes them on compute nodes throughout a cluster to enable reliable, extremely rapid computations. The divide-and-conquer strategy of processing data is not really new, but the combination of HDFS being an open source software (which overcomes the need for high-priced specialized storage solutions), and its ability to carry out some degree of automatic redundancy and failover make it popular for modern businesses looking for Big Data analytics solutions. Hadoop is not only a receptacle for Big Data with its distributed file system, but it is also an engine that brings incredible potential to process data, and extract meaningful information in a timely manner.

NoSQL databases are often used in Hadoop environments to store Big Data, and analyze them expeditiously. Apache Spark also is another popular Open source, distributed computing platform for real time Big Data analytics. Let us now briefly study a non-traditional, popular, open source, NoSQL data store for Big Data known as MongoDB. MongoDB provides a flexible document storage system and analysis platform. It stores documents in a JSON-like format, so that the fields in each document can vary (unstructured data) and the data structure itself can be changed over time. It is a distributed database at its core, so it is designed for horizontal scaling, high availability and easy geographic distribution. MongoDB has a document model that allows software applications to easily use the stored documents (data). It is a powerful and useful platform for Big Data due to its ability to index, do real-time data aggregation and write ad-hoc queries – and it also provides end-to-end data security. Massive users like Amazon, Cisco, Comcast, eBay, eHarmony and Splunk are therefore using MongoDB, and adding to the credibility of this new technology. Table 1 [MongDB 2016] shows various ways in which NoSQL data stores like MongoDB powers Big Data applications, along with Hadoop and Spark.

Table 1: MongoDB Powered Big Data Apps using Hadoop/Spark

	MongoDB	Hadoop or Spark
eBay	User data and metadata management for product catalog	User analysis for personalized search & recommendations
China Eastern Airlines	Data supporting flight search application	Calculate fares based on permutations of rules stored in MongoDB
Orbitz	Management of hotel data and pricing	Hotel segmentation to support building search facets
Pearson	Student identity and access control, content management of course materials	Student analytics to create adaptive learning programs
Foursquare	User data, check-ins, reviews, venue content management	User analysis, segmentation and personalization
Tier 1 Investment Bank	Tick data, quant analysis, distribution of reference data	Risk modeling, security and fraud detection
Industrial Machinery Manufacturer	Storage and real-time analytics of sensor data collected from connected vehicles	Preventive maintenance programs for fleet optimization. Monitoring of manufactured components in the field
SFR	Customer service applications accessed via online portals and call centers	Analysis of customer usage, devices & pricing to optimize plans

BIG DATA POTENTIAL

The collection of Big Data, globalization and online real time business transactions has introduced a new level of complexity to the business world – but it also has opened up vast opportunities for new markets and efficiencies. Now that we have discussed the nature of Big Data, and briefly studied the way in which it is stored and analyzed, we next discuss the major benefits of implementing Big Data.

Many current businesses have global operations that serve several geographically dispersed customers with a wide variety of products and services, and use global networks of suppliers, and also utilize service providers such as Cloud vendors to do so. The complexity of such networks is hard to unravel, and makes it difficult to find where and why problems and opportunities occur. Fortunately, there is also a rapid increase in the volume of data available at various touch points, and smart organizations analyze them, and act swiftly using the insights gained. For example, an average Fortune 1000 company could just increase data usability by just 10% and gain about $2 billion a year [Crossover 2018].

In general, organizations strive to use Big Data to achieve advantages such as cost reductions; increased revenue and profits; enhanced customer satisfaction; higher employee productivity; increasing agility; more targeted marketing; risk/fraud mitigation and to effectively enter new markets with less uncertainty – essentially to gain competitive advantages, in a fast moving, hyper efficient business environment. Unlike most of the prior technologies, Big Data uses massive amounts of relevant data to make better and deeper levels of analysis to give actionable insights. Big Data analytics is almost an essential activity for modern enterprises, as it

offers several tangible advantages. About 97% of the executives in the Big Data Executive's Survey, reported that they were investing in Big Data and AI initiatives [Harvey 2018].

The rapidly increasing interest in the use of artificial intelligence (AI) is also another driver of Big Data. Machine learning is very dependent on the availability of large volumes of domain specific data. Without the availability of large data sets, it would be virtually impossible to have an effective AI system. So, we can readily see how the growth of AI and Big Data feed off each other, and perfectly complement each other – resulting in a virtuous circle that encourages both fields to grow rapidly. China's biggest fast food operation Yum China, for example, uses Big Data and AI very effectively. Yum China, which owns more than 8,400 KFC, Pizza Hut and Taco Bell restaurants, uses Big Data from their 180 million loyalty program members to drive its AI-powered menu that customizes the menu for each diner, based on preferences and local tastes. Since January 2019, these new systems have boosted the per-order spending by 1% , which amounts to about $840 million worth of fried chicken and pan pizzas per year [Ajello 2019].

Big Data also is very useful for medical studies. Big Data uses in healthcare include predictive modeling and clinical decision support; disease surveillance, public health, and research. Big Data analytics uses analytic methods developed in data mining, including classification, clustering, and regression, but are often complicated by many technical issues, such as missing values, curse of dimensionality, and bias control [Lee 2017]. As Table 2 [Lee 2017] depicts, there are significant differences between traditional medical analysis using statistics and medical big data analytics.

	Medical big data analysis	Classical statistical analysis
Application	Hypothesis-generating	Hypothesis-testing
Questions of interest	Overcoming the limitation of locally or temporally stable association with continually updating the data and algorithm	Trying to prove causal relationships
Domain knowledge	More important in interpretation of the results	Important both in collection of data and interpretation of the results
Sources of data	Any kind of sources; frequently multiple sources	Carefully specified collection of data; usually single source
Data collection	Recording without the direct supervision of a human	Human-based measurement recording
Coverage of data to be analyzed	Substantial fraction of entire population	Small data samples from a specific population with some assumptions of their distribution
Data size	Frequently huge	Relatively small
Nature of data	Unstructured and structured	Mainly structured
Data quality	Rarely clean	Quality controlled
Research questions of data analysis	May be different from those of data collection	Same as those of data collection
Underlying assumption of the model	Frequently absent	Based on various underlying probability distribution function
Analytic tools	Frequently automated with data mining algorithm	Manually by expert with classical statistics
Main outputs of analysis	Prediction, models, patterns identified	Statistical score contrasted against random chance
Privacy & ethics	Concerns about privacy and ethical issues	Data collection according to the pre-approved protocol; informed consent from the participants

Table 2: Statistical Versus Big Data Analytics in Medical Research

Modern successful enterprises also collect increasing amounts of data regarding all aspects of their supply and demand chains. Examples of data include logistics measures, vendor compliancy/lead times, POS data, inventory levels, prices, consumer behavior, demand forecasts, weather forecasts, and social media comments. Analyzing Big Data has helped businesses reduce inventory costs by up to 40 percent. [Krupnik 2013]. The ability to monitor and track real-time data sounds great, but making effective decisions quickly is likely more important. This is readily apparent for companies that are actually doing it, as they saw an increase in revenues and profits [Crossover 2018]. Predictive data analytics is fast becoming a tool to recognize key trends, patterns, and potential disruptions within supply chains, and a means to protect the enterprise's most valuable assets [Scott 2019].

In closing this section, it should be noted that decisions made from the analysis of Big Data can only be of high quality, if the underlying data itself is if good quality. The veracity dimension discussed before is very relevant to his aspect. High-quality data is a prime differentiator and is a valuable competitive asset that increases decision quality, efficiency, enhances customer service and drives profitability. Sadly, the bigger the data, the higher the chances of poor quality, and the cost of poor quality data is between 15% to 25% of revenue for many organizations [Leopold 2017].

Traditionally, companies have been shortsighted, when it comes to data quality by not having a full lifecycle view. They have implemented source system quality controls that only

address the point of origin, but that alone is not enough. Data quality initiatives have been one-off affairs at an IT level rather than collective efforts of both IT and the business side of the house. Failure to implement comprehensive and automated data cleansing processes that identify data quality issues on an ongoing basis results in organizations overspending on data quality and its related cleansing. A flexible data quality strategy is potentially required to tackle a broad range of generic and specific business rules and adhere to a variety of data quality standards. Data quality as a service (DQaaS) should be an integral part of data quality as it allows for a centralized approach. With a single update and entry point for all data controlled by data services, quality of data automatically improves, as there is a single best version of data.

SUMMARY AND CONCLUSIONS

This paper has provided a broad and useful discussion of Big Data for both practitioners and academics. The tremendous advantages of collecting Big Data, and analyzing it to gain insights and create competitive advantages is clearly getting a lot of attention in many modern successful organizations. Realizing this tremendous potential, and asking the right questions in a timely manner will help organizations collect the right type of data, and conduct the right type of analysis.

To better understand Big Data, it is useful to view it using the 4 dimensions – volume, velocity, variety and veracity, known as the 4 V's of Big Data. As organizations increase adoption rates and types of Big Data, they will need to pay careful attention to the 4 V's to maximize the benefits. As pointed out earlier, the collection of Big Data also allows organizations to initiate the adoption of artificial intelligence as well. The use of Big Data and AI opens up many new areas for research, as well as the need for identifying best practices. The use of these powerful technologies also opens up very important aspects like impacts on privacy, changes in society, and ethical uses of technology. Due to the tremendous potential it offers, the era of Big Data is here to stay for a long time.

REFERENCES

[Ajello 2019] Ajello, Robin and Kessenides, Dimitra; "KFC Aims to Keep Its China Edge With AI Menu, Robot Ice Cream Maker," Bloomberg News, March 2019. https://www.bloombergquint.com/businessweek/yum-china-is-building-the-kfc-of-the-future#gs.392c4z

[Cogn1 2012] Cognizant, "20-20 Insights, Big Data's Impact on the Data Supply Chain," White paper, May 2012. https://www.cognizant.com/InsightsWhitepapers/Big-Datas-Impact-on-the-Data-Supply-Chain.pdf

[Columbus 2018] Columbus, Louis, "10 Charts That Will Change Your Perspective Of Big Data's Growth," Forbes May 2018. https://www.forbes.com/sites/louiscolumbus/2018/05/23/10-charts-that-will-change-your-perspective-of-big-datas-growth/#23445d192926

[Coughlin 2018] Coughlin, Tom ,"Digital Storage Projections for 2019, Part 3," Forbes, Dec 2018. https://www.forbes.com/sites/tomcoughlin/2018/12/27/digital-storage-projections-for-2019-part-3/#53262abd29f8

[Crossover 2018] Crossover, "5 Ways Big Data Analytics Power Productivity & Profits," Jan 2018. https://medium.com/the-crossover-cast/5-ways-big-data-analytics-power-productivity-profits-41a17d802132

[Davenport 2017] Davenport, Thomas; "What's Your Data Strategy," Harvard Business Review; April 2017. https://hbr.org/webinar/2017/04/whats-your-data-strategy

[Domo 2017] Domo.com, "Data Never Sleeps 5.0," July 2017. https://web-assets.domo.com/blog/wp-content/uploads/2017/07/17_domo_data-never-sleeps-5-01.png

Dykes 2017] Dykes, Brent, "Big Data: Forget Volume and Variety, Focus On Velocity," Jun 2017. https://www.forbes.com/sites/brentdykes/2017/06/28/big-data-forget-volume-and-variety-focus-on-velocity/#6879b6646f7d

[Emani 2015] Emani, Cheikh; Cullot, Nadine; Nicolle, Christoph; "Understandable Big Data: A Survey," Computer Science Review, Vol. 17, 70-81, Aug 2015. https://www.sciencedirect.com/science/article/pii/S1574013715000064

[Gertner 2014] Gertner, Jon; "Behind GE's Vision For The Industrial Internet Of Things," FastCompany, June 2014. https://www.fastcompany.com/3031272/can-jeff-immelt-really-make-the-world-1-better

[Harvey 2018] Harvey, Cynthia; "Big Data Pros and Cons," Datamation August 2018; https://www.datamation.com/big-data/big-data-pros-and-cons.html

[IBM, 2019] IBM, "Extracting business value from the 4 V's of Big Data," https://www.ibmbigdatahub.com/infographic/extracting-business-value-4-vs-big-data

[Krupnik 2013] Krupnik, Yan, "Predictive Analytics—The Five Things You Need to Know," Supply and Demand Chain Executive, Feb 2013. https://www.sdcexec.com/sourcing-procurement/blog/10876460/predictive-analyticsthe-five-things-you-need-to-know

[Lee 2017] Lee, Choong Ho and Yun, Hyung-Jin, "Medical Big Data: Promise and Challenges," Kidney Research and Medical Practice, p 3-11, Vol 36, No. 1; Mar 2017. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5331970/

[Leopold 2017] Leopold, George; "As Data Quality Declines, Costs Soar," Datanami, Dec. 2017, https://www.datanami.com/2017/12/13/data-quality-declines-costs-soar/

[Liton 2018] Liton, Melissa; "How Much Data Comes From The Internet Of Things?;" Sumo Logic, Feb 2018. https://www.sumologic.com/blog/machine-data-analytics/iot-devices-data-volume/

[Lo 2018] Lo, Frank, "What is Big Data?," Datajobs 2018. https://datajobs.com/what-is-big-data

[Marr, 2018] Marr, Bernard, "How Much Data Do We Create Every Day? The Mind-Blowing Stats Everyone Should Read," Forbes May 20189. **https://www.forbes.com/sites/bernardmarr/2018/05/21/how-much-data-do-we-create-every-day-the-mind-blowing-stats-everyone-should-read/#79aa612b60ba**

[McNeil, 2018] McNeil, Cassandra; "Veracity: The Most Important 'V' of Big Data," Gutcheck, Jan 2018. **https://www.gutcheckit.com/blog/veracity-big-data-v/**

[MongoDB 2016] MongoDB; "Big Data: Examples and Guidelines for the Enterprise Decision Maker," MongoDB Whitepaper, 2016; **http://s3.amazonaws.com/info-mongodb-com/10gen_Big_Data_White_Paper.pdf**

[O'Sullivan 2013] O'Sullivan, F.; "Smarter Supply Chain: Using Predictive Analytics to Combat Risk," An IBM Case Study September 24, 2013, IBM Corporation, April 14th, 2014, http://www. apics-triangle.org/backoffice/documents/FrancisOSullivan%20Presention.pdf

[Scott 2019] Scott, G. Stephenson; "Analytics and Risk Management for Supply Chain Efficiency," March 2019 http://www.verisk.com/Verisk-Review/Articles/Analytics-and-Risk-Management-for-Supply-Chain-Efficiency.html

[Taylor, 2018] Taylor, Christine; "Structured Versus Unstructured Data," Datamation, March 2018. **https://www.datamation.com/big-data/structured-vs-unstructured-data.html**

[Wilder 2012] Wilder, Edd, "An Introduction To The Big Data Landscape," Oreilly 2012, **https://www.oreilly.com/ideas/what-is-big-data**

MINI COLA WARS: THE DIET COKE AND PEPSI SCUFFLE

Ahmed Maamoun, University of Minnesota Duluth

ABSTRACT

Coca-Cola is the world's largest beverage company. PepsiCo is one of the world's leading food and beverage corporations. The two American powerhouses are the biggest players in the carbonated soft drinks (CSD) global market. Coke and Pepsi were developed by pharmacists in 1886 and 1893 respectively. The fight between the two drink titans commenced in the late 1800s, and has known no bounds since. The two companies offer products that are very close substitutes, and hence are constantly fighting for greater sales volume and market share in 200 countries. A term has even been coined in the early 1980s to refer to this fierce rivalry: "Cola Wars". What makes the Coke/Pepsi global competition so intriguing is that their products are very similar. They are brown, cola-flavored, syrupy, carbonated beverages. They don't even taste that different. Therefore, tweaking the formula and altering taste of their core product (Coke vs. Pepsi) has never been a weapon in that war. The two cola giants resorted to marketing for differentiation and superiority. The diet cola mini war is a recent example. Each cola hulk has utilized comparable advertising and marketing tactics to beat the other. The ongoing warfare involves various weapons and firepower, such as extensive assortment, futuristic technology, celebrity endorsements, logos, slogans, co-branding, sponsorships, creative promotions, and constantly thinking outside the can. Coke dominates in the United States and most markets around the world; but Pepsi is always there to challenge the original cola drink. The fact that Pepsi survived, and even thrived, for so long is a verification to their persistent brand storytelling and their strategy of being the tough runner up. The war between the two iconic American brands has been fought for 120-plus years, and there are no signs it is going away. The whole world is the battlefield, and the rewards for winning are billions of loyal customers.

INTRODUCTION

In the late 1800s the Coca-Cola Company (Coke) and PepsiCo (Pepsi), the world's largest cola brands, were founded in Georgia and North Carolina, respectively. Since then, they have been engaged in something known as the "Cola Wars" that has tangled them against each other in an ultimate rivalry where the two companies have come to represent much more than just a beverage. For example, Coke's marketing tactics have traditionally focused on goodness, nostalgia, and the family as a wholesome unit. Pepsi, on the other hand, has been positioning itself as a youthful brand that keeps up with the artistic and social shifts that occur with the rise of every new generation of young people. The two titans compete fiercely with each other within multiple segments of the soft drink industry all over the world. It's not uncommon that when one launches a successful product or product line extension the other will follow with a similar competing variety of that item. The term "Cola Wars" was coined in the early 1980s to describe

the phenomenal sales, advertising, and marketing tactics of Coke and Pepsi against each other to develop and maintain market share.

POSITIONING

In marketing, positioning has been described as the process by which a company creates an image or identity in the minds of the target market for its products or brand. It refers to placing a brand in that part of the market where it will receive a favorable reception compared to competing products. It tells what the product stands for, what it is, and how customers should evaluate it. Although Coke and Pepsi are very similar products, their positioning is quite different. For example, Coke's advertising has traditionally focused on wholesomeness, nostalgia and the family as a nourishing unit. Pepsi on the other hand, has been positioning itself as a youthful brand that keeps up with the aesthetic and social shifts which take place with the emergence of every new generation of young people.

Pepsi, unlike Coca-Cola, has always had a clear target audience – the youth. It always targeted youngsters through its fun ads and hip celebrities. The first international popstar to become a spokesperson for the iconic beverage was Michael Jackson, who advertised Pepsi for "The New Generation" in a commercial featuring a reworking of his song "Billie Jean". The company has had a notorious association with celebrities, primarily popstars and athletes, over the last 35 years. Since the 1980s, Pepsi has used their slogans to seize the moment, the youth, and the future. The popularity of music celebrities among adolescents has helped Pepsi to become to be known as the brand of youth with a modern and fast moving lifestyle. However, it is not known to display "value advertising", which is a characteristic of Coca-Cola. Coke's message consistently focused on the family and positive values of life.

CELEBRITY ENDORSEMENTS

Gigantic brands love to use celebrities to help endorse their products. Target audience thinks that if a product is good enough for someone famous, then it's good enough for them as well. Using a celebrity's image in promotional campaigns helps to endorse products and raise its awareness. Marketers hope that the positive response to a celebrity will carry over to the products or brands. Celebrities have a broad reach and can give a face and meaning to a brand. Pairing a celebrity with a brand or campaign can be very tricky though. It starts with a thorough understanding of the target customer. Marketers need to consider the target customer's age, gender, lifestyle, personality, behavior, occupation, etc. Then, a celebrity spokesperson has to be selected, and available, to match with the customer and brand. Celebrity endorsing has frequently involved people on the downward slope of their careers. However, Pepsi signs them at the peak of their fame—which can't be cheap. In other words, a successful brand has to be prepared to spend big to make a marketing splash. The celebrity has to be a person who the target market will identify with, and have personal credibility and integrity for representing the brand. Basically, the celebrity becomes the source of information about the company.

There are advantages to this approach. Celebrity endorsements help consumers remember advertising messages and makes a brand more memorable than a brand that lacks a celebrity. But

it does not always work; it can backfire on both the brand and the celebrity when things go off track (Remember Kendal Jenner's controversial Pepsi ad?). Since by their very nature, celebrities are often in the news, and are monitored relentlessly, a celebrity who takes an unpopular or controversial stand risks damaging his or her image, as well as the brand they represent. Celebrities involved in scandals or contradicting stories can instantaneously provoke a negative consumer perception and damage the brand as they are the face of the company. Overdependence on celebrities for endorsements (Pepsi's strategy) is a huge risk. Any celebrity missteps or shenanigans can be disastrous to a brand. (Remember Jerod the Subway guy, Lance Armstrong, Lori Loughlin, Maria Sharapova, Olivia Jade, and Tiger Woods?).

MARKETING TO TEENS AND MELLENIALS

Millennials, people born between 1979 and 2000, spend about $600 billion a year. Companies are scrambling to develop loyal relationships with this large and growing market. The Millennial generation is three times larger than Generation X, and by 2030 Millennials will outnumber non-Millennials (Fry, 2018). Right now (2019), the youngest Millennials are attending colleges and the oldest are buying homes. They are health-conscious and care about what they ingest, turning away from sugar-sweetened beverages. They also love customization and will personalize anything. Coke's "Share a Coke" campaign is a good example of how the soda giant is connecting with its consumers on a more personalized level. Pepsi's Spire, the iPhone-inspired rethink of the soda fountain machine, was a vivid way to connect with this demographic. Pepsi was not first in this market—Coke was with its Freestyle—but its latest version is very slick with a touch screen that offers as many as 1,000 flavor combinations.

Coke and Pepsi are attempting to diversify their beverage portfolios with less sugary drinks. Coca-Cola has invested in juices, teas, coffees, and beverages made with organic and natural ingredients. It has also been reducing sugar, using alternative sweeteners throughout its existing portfolio, and offering smaller can sizes. As the CSD market shrinks due to health concerns, the beverage industry leaders have been looking for new paths. One recent deal concluded by Coca-Cola was to buy U.K.-based coffee company Costa, giving it entry into the hot drink market. And now PepsiCo has announced that it is buying do-it-yourself carbonation company SodaStream International. Unlike sugary soft drinks, SodaStream has taken advantage of the growing market for seltzer beverages. Consumers like that seltzers do not have sugar and are calorie-free. This gives consumers drinks that are healthier than the traditional soda drinks. Besides, the do-it-yourself carbonated drinks can be tailored for individual tastes with different fruits and flavors added to the drinks (something teens and millennials cherish).

It's a tough time for soda sellers. Consumers are turning away from sugary drinks and hollow calories. Soft drinks sales have been in decline since 2005, falling 3% in 2013 alone, according to market research publication Beverage-Digest (Wahba, 2014). Coke and Pepsi have both posted negative yearly sales changes for the last 15 years. If the two soda giants think soda's salvation lies in the word "Diet," they better think again. Health experts have for years rejected the perception that "diet" soda is a healthy alternative. Now, consumers are distancing themselves not just from sugar-sweetened drinks, but also their artificially-sweetened

ingredients. Besides emerging consumers' health consciousness, Coke and Pepsi have to deal with the threat from sugar taxes and warning labels.

Obesity rates have continued to climb in recent decades. The government and people's fingers pointed at fast food restaurants and soda drinks companies. Some cities in North America have even proposed and are working on enacting warning labels on soda drinks. San Francisco, for instance, has passed a law adding a warning labels of CSD products. The label reads: WARNING: Drinking beverages with added sugar(s) contributes to obesity, diabetes, and tooth decay. This is a message from the City and County of San Francisco (Steinmetz, 2015).

Facing mounting pressure to improve their products, both when it comes to calories and overall nutrition, they're eagerly shifting the attention—or blame—from their products to the American public. The message is: You are just not moving enough to burn off all the calories you are ingesting. In 2015, Coca-Cola and Pepsi, along with the American Beverage Association, launched Mixify, a campaign that emboldens young CSD drinkers to "mixify" their balance of sugared drinks and exercise, implying it's OK to indulge more if they work out on a regular basis (Parker, 2015). The Coca-Cola Company released a statement: "At Coke, we believe that a balanced diet and regular exercise are two key ingredients for a healthy lifestyle and that is reflected in both our long-term and short-term business actions", wrote the company's Chief Technical Officer.

Coke and Pepsi will have a hard time convincing their customers that their core iconic beverages are healthy. Even their diet and zero-sugar versions will not stand a chance making this argument. The new messaging is that our products can supplement a healthy and active lifestyle. If you exercise and watch what you eat, it is OK to indulge a little and have a refreshing cold drink to reward yourself.

PRODUCT ASSORTMENT

It has been a long time since Coca-Cola just sold Coke and Pepsi just sold Pepsi. Today, the two industry leaders offer hundreds of products to market segments based on diverse consumer preferences for flavors, calories, and caffeine content. Both companies have diversified their product lines, but the stakes in cola are higher for Coke. PepsiCo merged with Frito-Lay and now owns Quaker Oats, Tostitos and other food brands. Coca-Cola is still a beverage company, but it is the world's largest total beverage company, offering over 500 brands to people in almost 200 countries. The rule of thumb is that if one company introduces a new product or flavor, the other is sure to follow to prevent its competitor from gaining an advantage. A sample of the different products, brands, and flavors offered by the two main soda sellers in the U.S. market is shown in Table 1.

Table 1. Coca-Cola and Pepsi Product Portfolio

Flavor/type	The Coca-Cola Company	PepsiCo
Cola	Coca-Cola (Coke)	Pepsi
Diet/sugar-free cola	Diet Coke/Coca-Cola Light Tab Coca-Cola Zero Sugar Coca-Cola Life	Diet Pepsi/Pepsi Light Pepsi Max Pepsi ONE Pepsi Zero Sugar Pepsi Next Pepsi True
Caffeine-free cola	Caffeine Free Coca-Cola	Caffeine Free Pepsi
Cherry-flavored cola	Coca-Cola Cherry	Pepsi Wild Cherry
"Pepper" style	Mr. Pibb Pibb Xtra	Dr. Slice DOC 360
Orange	Fanta Minute Maid Simply Orange Royal Tru Orange	Mirinda Tropicana Twister Tango Slice
Lemon-lime	Sprite Lemon & Paeroa	Teem Slice Sierra Mist
Other citrus flavors	Mello Yello Vault Fresca Lift Lilt	Mountain Dew Kas Izze Citrus Blast
Ginger ale	Seagram's Ginger Ale	Patio
Root beer	Barq's	Mug Root Beer
Cream soda	Barq's Red Creme Soda	Mug Cream Soda
Juices	Minute Maid Fruitopia Simply Orange	Tropicana Dole
Iced tea	Gold Peak Tea Fuze	Lipton Brisk Pure Leaf
Sports drinks	Powerade Aquarius Vitamin Water	Gatorade Propel
Energy drinks	Full Throttle NOS Relentless Burn	AMP Rockstar Sting Kickstart
Bottled water	Dasani Kinley Smartwater	Aquafina LIFEWTR

Source: Coca-Cola and Pepsi Websites (https://www.coca-colaproductfacts.com/en/products/) (https://www.pepsico.com/brands/product-information)

THE DIET COLA SCUFFLE

Diet-cola is certainly a mature product. Pepsi launched its diet version in 1964 and dominated the market for almost two decades. Coca-Cola didn't introduce Diet Coke until 1982. The two soda giants relied on their flagship products for years to satisfy calorie-conscious customers. Nevertheless, Americans are increasingly moving away from soft drinks as health awareness increases. Obviously, this adversely impacted sales of Coke and Pepsi in their diet soft drink offerings. Over the last decade or so, both companies have been striving to turn things around to prolong the diet product life cycle. In 2007, Pepsi spent $55 million into marketing Diet Pepsi Max as a cross between a cola and an energy drink with the "Wake Up, People!" campaign. Then the company made a bold move, dropping the word "diet" from its name, though it continued to promote itself as the "diet cola for men" in a Super Bowl campaign labelled, "I'm Good". Pepsi Max met its rival, Coke Zero, right away. The Coca-Cola diet brand has proven to be a success in the zero-calorie, full-flavor category, and soared to be the 12th largest cola brand in the $74 billion U.S. carbonated soft-drink market (more than four times larger than Pepsi Max).

In 2014, Diet Coke released a "Get a Taste Campaign." This campaign invited consumers to "Get a Taste" of the world they love and featured playful examples of how to make routine moments a little brighter and bubblier. In 2015, Diet Pepsi saw a 5.2% decline and Diet Coke's sales drop by 6.6%. With declining sales over the last decade due to changing lifestyles, the Coca-Cola decided to relaunch the diet category with four bold, new flavors and a new packaging look. R&D for the new product extension took about two years. During the process, Coca-Cola tested more than 30 new flavors. Focus groups and marketing research narrowed it down to only four Ginger Lime, Feisty Cherry, Zesty Blood Orange, and Twisted Mango. The new Diet Coke flavors are also packaged in slick 12-oz. cans. Coke, however, did not remove the aspartame from its diet beverage. Pepsi, that mirrors Coke in most product categories, introduced its version in the late 1980s. The company decided to change the artificial sweetener contained in its Diet products, in order to draw some loyal customers from Coke, who want a beverage without the aspartame sweetener. Pepsi commenced reformulating its Diet recipe two years earlier in response to customer criticism against the notorious sweetener, aspartame. Concerns about aspartame are continually rising as consumers are increasingly looking for natural and organic ingredients in their food and drinks. Aspartame has been the soda industry's favorite diet sweetener since the 1980s. Although The FDA has repeatedly vouched for its safety, internet bloggers blamed aspartame for everything from cancer to autism.

To promote Pepsi's new diet beverage, the product was clearly labelled as "Now Aspartame Free." The same message was also used throughout Pepsi's in-store promotions. Ads boasted the new diet offering, describing Diet Pepsi as "Crisp, refreshing –now aspartame free." The Coca-Cola Company, however, stuck to its guns and announced it had no intentions to abandon the artificial sweetener in its diet beverages. The proved to be a smart position as less than a year after launching its new Diet Pepsi with sucralose, the company brought back the diet beverage with aspartame, citing declining sales. Diet Pepsi without aspartame will go down as

the latest in a list of memorable marketing mistakes, along with Sun Chips, Tropicana, and New Coke.

U.S. sales of Diet Coke overtook those of Pepsi-Cola for the first time in 2010, making the diet soda the No. 2 carbonated soft drink in the country behind Coca-Cola. As of 2018, the number 1 soft drink in the United States (in terms of sales) is Coke, followed by Diet Coke.

WHO WILL COME OUT ON TOP?

When it comes to conventional cola drinks, Coke is the undisputed champion. The question should be: Does Pepsi stand a chance of turning this around? Conducting a SWOT analysis for Pepsi is a good start to approach this billion-dollar-one-hundred-year-old question (Table 2).

Table 2. Pepsi SWOT Analysis

Strengths:	Weaknesses:
- Brand Equity: Brand evaluation of $20 billion. - Product Portfolio: Broad assortment of beverages and snacks. - Customer Loyalty: Strong customer base all over the world. - Strong Financials: Revenues $63 billion, Assets $80 billion in 2018. - Sponsorships: Glamorous sports events and music concerts.	- Unhealthy Products: Sugary soft drink. - Overdependence on Celebrities: Risky strategy. - Failed Products: Some products were not well received. - Failed Campaigns: e.g. Kendal Jenner.
Opportunities:	**Threats**:
- Healthy Options: Investing in nutritious and sugar-free products. - Sustainability and CSR: Environmentally friendly production, distribution, and packaging. - Innovation and R&D: New technologies appealing to youth.	- Global Competition: Chief rival Coca-Cola. - Anti-American Sentiments: American brands are not welcome in some countries. - Government Interventions: Soda tax and warning labels. - Economic Slowdown: Another recession would hurt sales.

The last decade was probably the bloodiest clash yet of the cola titans. Coke, with its relentless focus and original message, has kicked Pepsi's can all over the world. The beverage war continues as the two beverage mammoths reinforce their strength for the next battle. More research may be required to analyze what will transpire.

CONCLUSION

The largest cola rivalry in history is in full swing again as the two top names in beverages battle for a shrinking soda-drinking population. With regular Coke and Pepsi facing a sugar tax hit, can Diet and Zero Sugar gain enough new momentum to keep both companies afloat? As the two largest soft-drink brands, Coke and Pepsi have long been chief rivals. The two leading soft drinks producers have moved to reduce the amount of calories Americans consume from

beverages by focusing on the diet category. The initiative aims to increase access to drinks with less sugar and calories in stores, vending machines, and restaurants. Undoubtedly, the battlefield has shifted as Americans started to move away from soda in favor of other kinds of drinks, Coca-Cola and PepsiCo expanded their portfolios of beverages, putting less emphasis on their core brands. Coke Zero and Diet Coke, along with Diet Pepsi and Pepsi Max are the new weapons in this 100 years of contention. As Diet Coke and Diet Pepsi find their way back into people's fridges, the proper question is who will win this round?

REFERENCES

Bhasin, Kim (2011, November 2). Coke vs. Pepsi: The Amazing Story Behind the Cola Wars. Retrieved from https://www.businessinsider.com/soda-wars-coca-cola-pepsi-history-infographic-2011-11

Coca-Cola Company Annual Report (2018). Retrieved from https://www.coca-colacompany.com/content/dam/journey/us/en/private/fileassets/pdf/2019/annual-shareholders-meeting/2018-Annual-Report-on-Form-10-K.pdf

D'Addario, Daniel (2017, April 5). Why the Kendall Jenner Pepsi Ad Was Such a Glaring Misstep. Retrieved from http://time.com/4726500/pepsi-ad-kendall-jenner/

DeCosta-Klipa, Nik (2019, January 28). The Super Bowl is bringing the 'cola wars' to Coke's home turf. Retrieved from https://www.boston.com/sports/super-bowl/2019/01/28/pepsi-coke-atlanta-cola-wars

Flynn, Meagan (2019, February 7). Delta nudged passengers to slip their number to their 'plane crush' on napkins. Now the airline is sorry. Retrieved from https://www.washingtonpost.com/nation/2019/02/07/delta-nudged-passengers-slip-their-number-their-plane-crush-napkins-now-airline-is-sorry/?noredirect=on&utm_term=.883b32be0f05

Fry, Richard (2018, March 1). Millennials projected to overtake baby boomers as America's largest generation. Retrieved from https://www.pewresearch.org/fact-tank/2018/03/01/millennials-overtake-baby-boomers/

Global Rankings - Effie Effectiveness Index (2018). Most Effective Brands May 2018. Retrieved from https://www.effieindex.com/ranking/?rt=5

InvestorPlace (2012, February 8). Pepsi Mini-Movie is Most Popular Online Video in China. Retrieved from https://investorplace.com/2012/02/pepsi-mini-movie-most-popular-online-video-china-pep-nok-coh/

McDonald's Annual Report (2017). Retrieved from https://corporate.mcdonalds.com/content/dam/gwscorp/investor-relations-content/annual-reports/McDonald%27s%202017%20Annual%20Report.pdf

Meyer, Zlati (2018, May 18). Coca-Cola, Bluetooth let you make personalized drinks. Retrieved from https://www.usatoday.com/story/money/2018/05/18/coca-cola-bluetooth-let-you-make-personalized-drinks/607958002/

Morton, Andy (2019, November 14). The Coca-Cola Co, Pepsico and Keurig Dr Pepper Target US Calorie cut. Retrieved from https://www.just-drinks.com/news/the-coca-cola-co-pepsico-and-keurig-dr-pepper-target-us-calorie-cut_id129724.aspx

Park, Alice (2015, August 11). How Coke Is Subtly Blaming You for Obesity. Retrieved from http://time.com/3992692/coca-cola-obesity/

PepsiCo Annual Report (2018). Retrieved from https://www.pepsico.com/investors/annual-reports-and-proxy-information

Rooney, Ben (2015, April 14). 'Share a Coke' is back with more of your names on bottles. Retrieved from https://money.cnn.com/2015/04/14/news/companies/name-share-a-coke-bottle/index.html

Russell, Mallory (2012, May 12). How Pepsi Went From Coke's Greatest Rival to an Also-Ran in the Cola Wars. Retrieved from https://www.businessinsider.com/how-pepsi-lost-cola-war-against-coke-2012-5

Shultz, E. J. (2019, January 8). Pepsi Ends 'LIVE FOR NOW' Global Campaign, Starts 'FOR THE LOVE OF IT'. Retrieved from https://adage.com/article/cmo-strategy/pepsi-ends-live-global-campaign/316171

Sorto, Gabrielle (2019, May 15). Sugary drink sales plummeted in Philadelphia after soda tax. Retrieved from https://www.cnn.com/2019/05/15/health/philadelphia-soda-tax-sales-decrease/index.html

Steinmetz, Katy (2015, June 10). San Francisco Approves Warning Label for Sugary Drink Ads. Retrieved from http://time.com/3915485/san-francisco-soda-warning-label/

Wahba, Phil (2014, March 31). UPDATE 1-U.S. soda sales fall to lowest since 1995–report. Retrieved from https://www.reuters.com/article/usa-soda-beverages/update-1-u-s-soda-sales-fall-to-lowest-since-1995-report-idUSL1N0MS16O20140331

GENDER EQUITY IN BUSINESS SCHOOLS – PERCEPTION OR REALITY: A CONVENTIONAL CONTENT ANALYSIS

H. Steve Leslie, Arkansas State University
Natalie A. Johnson-Leslie, Arkansas State University

ABSTRACT

The continued disparity in compensation, career advancement, and equitable access to leadership positions in traditionally male-dominated disciplines both in the business sector and higher education, continue to be an essential area of research. This paper examines the relationship of gender equity to; academic staff/faculty compensation, career advancement, and access to leadership roles in selected colleges of business in Finland, Jamaica, and the United States. The open and unembellished response of business school academic staff/faculty regarding their perceptions of gender equity in three culturally diverse societies, Finland, Jamaica, and the United States, were evaluated using the Conventional Content Analysis methodology. The three societies analyzed in this paper reflect distinct cultural, political, economic, and societal structures as well as views regarding gender equity. Mores and culturally imbued societal structures influence the perceptions and, ultimately, the level of distrust and dissatisfaction relating to gender equity. The findings confirm that female faculty/academic staff in colleges of business continue to experience inequitable working conditions. Furthermore, these unfair conditions are extraordinarily widespread, as they relate to compensation, career advancement, and access to leadership roles. The progress of female faculty members continues to lag when compared to males with similar or equal human capital. Our findings add vital insights to the cross-continental conversation on the inequitable experiences faced by business school academic staff/faculty, based on gender.

Keywords: gender, equity, compensation, leadership, higher education, career advancement, conventional content analysis

INTRODUCTION

This year, 2020 marks the 41st year since the United Nations (UN) Convention on the Elimination of Discrimination Against Women (CEDAW) recommended that women should not be victimized in any form, primarily because of their gender. Nevertheless, discrimination against women persists in both developed and developing countries (United Nations, 2020). Why do discrimination and inequity still exist today? Discrimination and inequity continue because fundamentally, individuals are still perceived and valued based on defining entrenched qualities such as gender, ethnicity, and race. Gender continues to be a significant barrier in the area of human growth and development. Women play an essential role in sustaining the social and economic fabric within all societies, and their unfair treatment and marginalization are significant and must be researched (United Nations, 2020). When women are mistreated there is,

". . . continued poverty, abuse, social stratification, social injustice, and the widening of the gender gap" (World Economic Forum Report 2014, p. 3), among other disparities, are perpetrated. Gender equity education for both women and men is needed that addresses equitable policies and practices to reduce and ultimately dispel disparities.

Gender equity continues to be a point of debate and discussion both in higher education as well as the business world. Increasingly, more women are assuming positions of power, leadership, and authority in both corporates as well as institutions of higher education. Despite these positive movements toward gender equity and equality in the workplace, many women still lag behind their male counterparts in compensation, career advancement, and access to leadership roles. In higher education, gender inequities persist and are often overtly reflected in the lower compensation of women compared to their male counterparts.

More covert reflection of the inequity is the imbalance in the representation of women in positions of leadership and access to career advancement opportunities when compared to males with the same/similar human capital. The issue of gender equity is often more chronic in the male-dominated fields of science, technology, engineering, mathematics (STEM) and core business disciplines such as accounting, economics, data analytics, finance (American Association of University Women (AAUW) 2016; Grove, 2015, 2016; Jones, 2011; Tickle, 2013; Ud Din, Cheng & Nazneen, 2018). Therefore, more research must be conducted in this area, specifically in business schools.

PURPOSE OF THE STUDY

The purpose of this study is to examine the perceptions of business school faculty members regarding gender equity concerning compensation, career advancement opportunities, and access to leadership roles. Three arguably different social, economic, and cultural experiences of faculty in Finland, Jamaica, and the United States are the focus of this study. Perception and reality are often at odds, and this significant study provides a cross-cultural perspective on how faculty members/academic staff in schools of business perceive gender equity.

Rationale of the Study

Gender equity concerns is a worldwide phenomenon. This research on gender equity focused on three disparate countries in different parts of the world. The researchers were interested in exploring how a developing country Jamaica, ranks when compared to a developed country the United States and Finland a Nordic Welfare state. Research has shown that more women than men enter and graduate from institutions of higher education in Finland, Jamaica and the United States. Yet, females are still being compensated less than males for the same jobs (Bellony, Hoyos, & Ñopo, 2010; European Institute for Gender Equity, 2105; Lassila & Teivainen, 2014; Salmi, 2014; Statistics Finland, 2018; Webster, 2006). Women in Jamaica graduate at higher rates than men but are compensated at lower rates (The University of the West Indies (UWI) Statistical Review, 2009/2010; UWI Statistical Digest 2010/11 to 2014/2015 Reports; Jamaica STATIN Labor Force Survey Report, 2015). The Statistics Finland Report (2018), reflected a reduction in the wage/opportunities gap between men and women, indicating that women on average earn 15 - 20% less than men for doing similar jobs.

Jamaica a developing country was selected for this research because of access the researchers had for obtaining data from the two business schools in the country. This is a country that would give a Caribbean perspective. This region has not been well researched and the researchers selected Jamaica so that the research would add to the body of literature. United States was part of the sample because the researchers work in higher education at a Southern university. Again, the researchers would have access to obtaining the required data. The United States is seen as the model of democracy, equality and fair play. The researchers wanted to explore if gender equity was simply a façade of a reality. Finally, Finland was selected because of the contrasting views that would be offered because Finland is a Nordic Welfare State that on the surface proports equity, equality and fairness. In addition, a visiting professor in the College of Business also helped in the researchers gaining access to get participants in 5 universities across Finland based on the research criteria.

In 2020, Finland was ranked third only to Iceland and Norway, on the 2020 World Economic Forum Report as it relates to the Global Gender Index. This index further supports the reality that in Finland in 2016, a total of 46.1% of all faculty are females having roles such as assistants and full-time visiting teachers (43.8%), lectures and senior assistants (58%) as well as professors (30.3 %). Revealing that 69.7 % of the professors across Finland are males (Statistics Finland, 2018).

The United States was ranked 20th out of 142 countries when measured against five critical factors; gender equality, economic participation, educational attainment, political empowerment and health and survival indices (World Economic Forum Report, 2014). The composite score of 0.746 out of a possible 1 also was reported for the USA. In 2020, The United States slipped to the 53rd position with a composite score of 0.724, out of 153 countries. On the surface, these statistics look as though the United States is advancing the rights of women for equal and equitable access. However, a detailed analysis, shows that the United States has made great strides since women gained voting rights in the early 20th Century, but there are still glaring issues of inequality and inequity in academia and the wider society. Presented in this conventional content analysis, are the frank and, at times, polarizing views of faculty members on gendered compensation policies, career advancement opportunities, and access to leadership roles.

METHOD

Research Question and Study Design

For this study of 410 participants, 96 faculty members from three countries responded to the following question: *What comments do you have regarding how faculty members in your college are compensated, advance in their careers, and access leadership roles based on gender?* Using conventional content analysis methodology, the researchers examined the common themes/categories/clusters that emerged from the responses received regarding gender equity of business school faculty, as it relates to compensation, career advancement, and access to leadership roles?

Population and Sample

The targeted study population comprised of all public schools of business in the United States, Finland, and Jamaica. According to the National Center for Education Statistics (2017),

there are 710 public 4–year colleges in the United States, representing 23.6% of all institutions of higher education, both private and public combined. Finland has 35 public universities, and Jamaica has two. Colleges of business were selected based on four criteria: (1) accreditation by a national, regional or international board, such as the Association to Advance Collegiate Schools of Business (AACSB); and (2) masters granting or higher-level institutions; (3) public universities and (4) university full-time enrollment (FTE) of 10,000 or more students. The sample was faculty members from 25 colleges of business in the United States, four in Finland, and one college in Jamaica. A total of 466 of the 1,500 faculty members at the ranks; instructors, lecturers, senior lecturers, tenured or tenure-tracked faculty at the assistant; associate; and full professors started the survey. Of the 466 who started the survey, 55 did not complete the survey. These 55 surveys were dropped from the study. Thus, 410 participants completed the entire survey. Of the total 410, only 96 participants completed the open-ended question at the end of the survey. This yielded a response rate of 23.4% of participants who completed the open-ended question. Feedback from faculty in administrative positions (chairs, deans, directors, coordinators) provided a sense of the relationship of gender equity to compensation, career advancement, and access to leadership roles for female faculty in their business school. The open-response findings were analyzed using a Conventional Content Analysis Methodology.

RESEARCH METHODOLOGY: CONVENTIONAL CONTENT ANALYSIS

In conventional content analysis, meanings are interpreted directly from the content of qualitative or text data adhering to the naturalistic paradigm (Hsieh & Shannon, 2005), leading to coding categories derived directly from the text data. Based on the naturalistic paradigm, the authors coded the data physically. This physical coding was deemed to be most effective because there were 81 Likert type quantitative questions and one open-ended or qualitative question (number 82). The seminal research of Hsieh and Shannon (2005); as well as Zhang and Wildemuth (2009) outlined the 8 steps that were followed in this content analysis. These researchers recommended the naturalistic approach of combing through the data over and over with the natural eyes long before commercial qualitative data analyses software such as NVivo, Research Text Provalis Analytics, STATA, ATLAS.ti, MAXQDA, DATAgrav, webQDA and HyperRESEARCH (to name a few).

These commercial qualitative data analysis software packages are recommended for large data. These large data sets generally include; transcribed interview data, field notes from observations and large sets of documents to be analyzed. Realistically, having only one qualitative research question did not merit the use of a commercial qualitative data analysis software. Furthermore, the use of the commercial qualitative data analysis software would no longer deem the naturalistic paradigm relevant in this conventional content analysis (Assarroudi, Heshmati Nabavi, Armat, Ebadi, & Vaismoradi, 2018; Fealy, Donnelly, Doyle, Brenner, Hughes, Mylotte, & Zaki, 2019; Zamawe, 2015; Zhang, Wildemuth, 2009).

This conventional content analysis technique allowed the researchers to categorize/group responses under emergent themes. The advantage of the conventional approach to content analysis is "gaining direct information from study participants without imposing preconceived categories or theoretical perspectives" (Hsieh & Shannon, p. 1281). The open-ended research question was appropriate for using this approach in letting the data speak for itself by finding the themes that emerged.

According to Creswell (2013), "Themes in qualitative research (also called categories [groups] are broad units of information that consist of several codes aggregated to form a common idea" (p. 186). Thus, the researcher conducted a detailed conventional content analysis to find out the final themes that would emerge to support or disconfirm the perceptions of faculty in colleges of business regarding gender equity and compensation, career advancement, and access to leadership positions.

According to Hsieh and Shannon (2005), utilizing a research method to collect personal information and interpretation of data can be successfully carried out using a system of coding, recoding, grouping, identifying themes, and patterns. This method of data collection gives way to a conventional content analysis approach as a useful tool for analyzing the subjective views of participants collected from the open-response item. Furthermore, this ". . . process of analysis reduce[s] the volume of text collected, identifies and group categories together and seeks some understanding of [the responses] . . . the researcher attempts to "stay true" to the text . . . (Bengtsson, 2016 p. 8). The researchers stayed true to the text by using direct quotes (verbatim) from respondents. The rigorous process of reading, re-reading, sorting, resorting, grouping, coding and categorizing and finally resulting in the themes that emerged was adhered to as tenets that ". . . undergird the credibility of [the research] findings" (Patton, 2014, p. 3). It was from the researcher's social capital, that is ". . . background, experience, training, skills, interpersonal competence, capacity for emphasis, cross-cultural sensitivity and engagement . . ." (p. 3) that makes the research inquiry have meaning. There is a plethora of stakeholders and consumers who will read this research from scholars to politicians. Therefore, it is incumbent on the researcher to provide a meaningful analysis. In general, conventional content analysis, unlike statistical analysis, provides meaning but does not measure or quantify patterns. Rather, it relies on trustworthiness on the part of the researchers whereby personal biases are suspended and not used consciously or unconsciously to taint the data.

Trustworthiness

In qualitative research, the rigor, credibility and truthfulness of the study is referred to as trustworthiness (Lincoln and Guba, 1985; Pilot & Beck, 2014; Leung, 2015). Research including content analysis must have an established "degree of confidence in data, interpretation, and methods" that will lead to a study of a high caliber (Pilot & Beck, 2014, pg. 35). In other words, the research has authenticity, credibility as well as validation in its methodology, procedures, protocols, data collection and analysis as well as the interpretation of the data presented to readers (Amankwaa, 2016). The vast number of qualitative researchers agree that trustworthiness is vital in validating qualitative research (Creswell, 2013; Leung, 2015).

Trustworthiness in the interpreting the opinions and perspectives of various participants is the basis of conventional content analysis (Connelly, 2016). According to Kohlbacher (2006) ". . the strength of qualitative content analysis is that it is strictly controlled methodologically and that the material is [collected and] analyzed step-by-step" (p. 14). Trustworthiness in this study, was strengthened in the following ways: (1) strict data collection from 96 participants who volunteered their response; (2) step-by-step content analysis following the eight steps outlined in Figure 1; (3) outlining the three phases of the content analysis protocol (preparation, organization and reporting as outlined by (Elo, Kääriäinen, Kanste, 2014); (4) detailing the guidelines of each

phase; (5) showing how the categories emerge from the data in keeping with the work of (Elo and Kyngäs, 2008; Graneheim & Lundman, 2004; Vaismoradi et al., 2016); and (6) having a second researcher who coded and analyzed the data. All these crucial steps added to the rigor and trustworthiness as well as removed any potential biases from the interpretation of the data collected from 96 participants.

DATA COLLECTION AND UNIT OF ANALYSIS

Conventional content analysis is the most appropriate research methodology because of its relevance to the nature of the data collected. The open-response item was analyzed to find out the perceptions, feelings, views, and ideas participants have regarding gender equity in their college of business. Direct quotes provide a vivid description of participants' perceptions and experiences regarding gender equity issues within colleges of business.

The open-ended responses received from the study sample were collated as one running document for analysis. In order to establish and maintain reliability (critical to establish trustworthiness), two independent coders worked on, *first*, grouping all the responses to the open-ended question and defining the unit of analysis. *Second*, in the organizing phase, the coders worked on coding the data separately, developing primary and secondary themes and clusters. The criterion was to read the data line by line and color code whenever any part of the data addressed gender equity. Furthermore, in the organizing, the coders shared their themes, double-checked for coding consistency, and formed one analysis matrix/tree of the primary, secondary, and latent themes that emerged from the text data. Again, the coders collaborated on the final phase of presentation/reporting and interpreting the themes that emerged from the data. The process for coding of the open-responses was deliberate, systematic, and rigorous in order to support the unit of analysis.

The unit of analysis is an essential component of the conventional content analysis process. According to Banerjee and Bagchi (2017), the unit of analysis comprises "the objects of interest in the study such as the data collected about a particular content through a collection of facts, by conducting interviews and by analyzing documents" (p. 1288). Written response describing the perceptions of faculty members regarding gender equity in colleges of business is the unit of analysis in this study. In keeping with the systematic approach to conventional content analysis, the researchers did much self-reflection (Bengtsson 2016; Charmaz 2014) on the process followed. After such self-reflection, the researchers created the following guidelines based on the extensive work of researchers Bengtsson (2016); Birks, Chapman, and Francis (2008); Coghlan and Filo (2013); Datt (2016); Hsieh and Shannon (2005); Kohlbacher (2006); as well as Patton (2014). Figure 1 presents the guidelines.

Figure 1: Eight guidelines (G1-G8) for conventional content analysis process in three phases—
preparation, organization and presentation
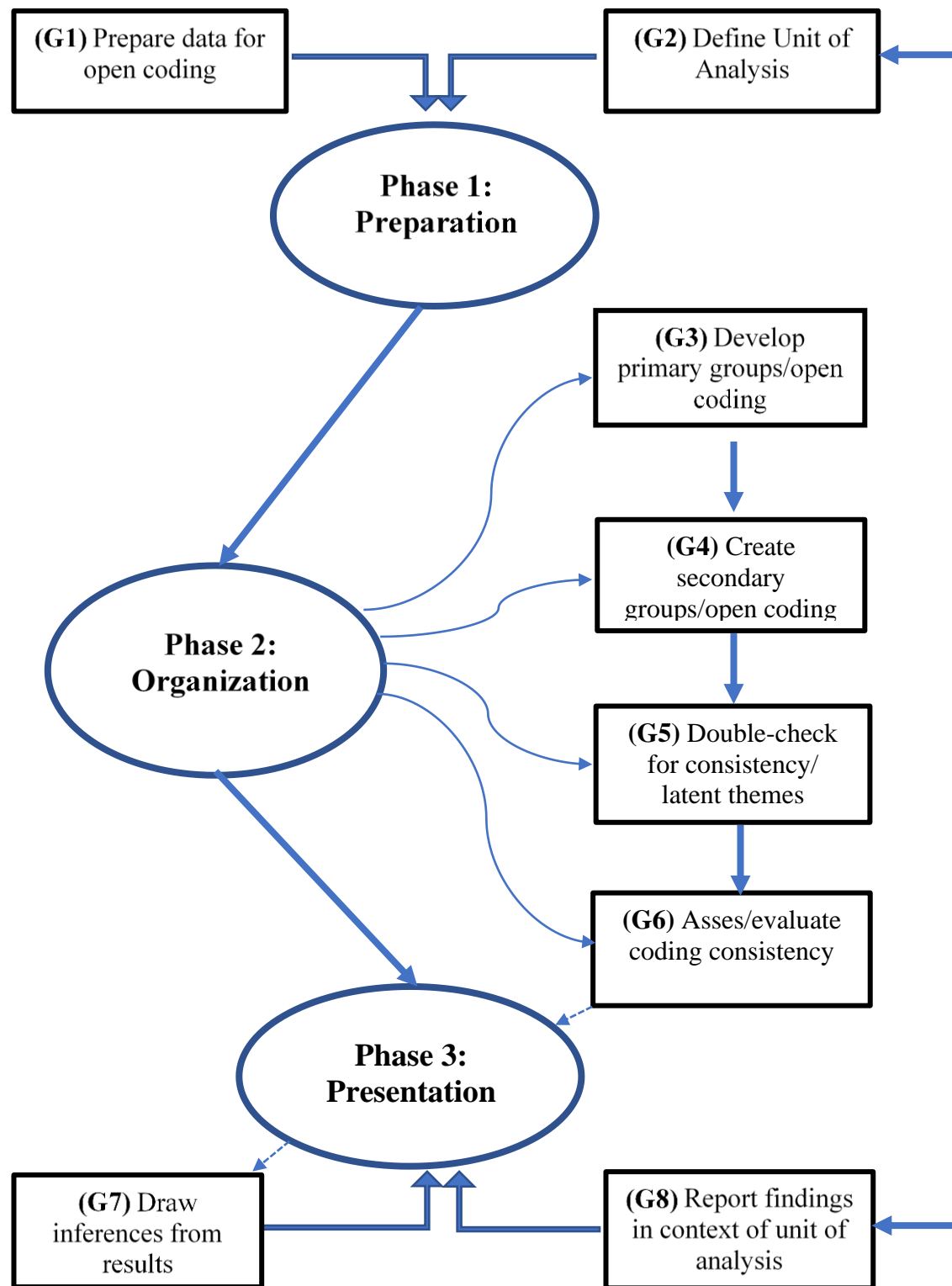
As seen in Figure 1, there are three distinct phases for conducting conventional content analysis (preparation, organization, and presentation). Each phase is further sub-divided to accommodate the eight content analysis guidelines.

PHASE 1: PREPARATION (OPEN CODING, DEFINE UNIT OF ANALYSIS)

Guideline 1 (G1): Careful Preparation and Scrutinization of Data

Using SurveyMonkey to collect the data, the researchers curated the lone open-response data by country Finland, Jamaica, and the United States. Table 1 shows the open-response count based on the country.

TABLE 1. OPEN-RESPONSE TO ITEM BY COUNTRY		
Country	Number responding to survey	Number responding to open-response item
Finland	66	16
Jamaica	30	10
United States	264	70
Country not identified/reported	50	0*
Total	**410**	**96**

*open-responses were not reported for participants who did not identify their country, because open-response findings are presented based on country.

As seen in Table 1, a total of 96 responses were obtained from participants. There were (16/96) 16.6% of the responses from Finland (10/96), 10.4% from Jamaica, and (70/96) 72.9% responding from the Unites States. The researchers exported all the open-responses from SurveyMonkey as a PDF. This PDF was then converted to a workable Microsoft Word document. The 14-page word document was printed for mark-up and scrutinization. Hence, the scrutinization of the data assured that no textual information in the transformation from PDF to Microsoft Word was lost.

According to Ryan and Bernard (2003), scrutinizing techniques are areas to pay close attention to in the data. Scrutinizing continued as the researchers conducted an initial reading by way of subjective eyeballing (Huber, 1995) the responses based on the country. Therefore, the researchers read approximately 45% of the responses from each country initially. Eyeballing is a subjective process that is used to ". . . examine casual relationships in the coded event (p. 174). The researchers deemed this subjective eyeballing as sufficient for this initial stage, in order to get a sense of what participants were saying across countries in answer to the open-response question posed. This scrutinizing set the stage for defining the unit of analysis.

Guideline 2 (G2): Define the Unit of Analysis

In this research, the unit of analysis is defined as the individual feedback from each participant. The work of Bengtsson (2016), as well as Hill and Thompson-Hayes (2015), corroborates the unit of analysis identification. Having identified the unit of analysis, the researchers analyzed the responses. The analysis revealed the following: (1) there were 96 responses from the sample of 410 respondents, yielding a response rate of 23%, (2) 6,827 words, (3) 100 paragraphs, (4) 389 sentences, and (5) 14 single-spaced pages of responses. Furthermore, the analysis revealed that participants' responses ranged from three to 472 words, with an average of 198 words. The step that followed was developing primary groups of themes.

PHASE 2: ORGANIZATION (PRIMARY GROUPS, SECONDARY GROUPS, LATENT THEMES, CODING CONSISTENCY)

Guideline 3 (G3): Develop the Primary Group(s) of Themes

The researchers read through all the responses independently in one sitting two days later after data scrutinization to get a full sense of the entire data set. For Hsieh and Shannon (2005), in this step ". . . text data are read word for word to derive codes" (p. 1,279). Developing the primary group(s) was more than eyeballing (Huber, 1995) because attention was now placed on the details as the researchers began ". . . pawning through text" (Ryan & Bernard, 2003 p. 88) of each response. The researchers independently marked the open-responses, using multiple colored highlighters to highlight words, phrases, and sentences. It was agreed on by the researchers that the following color coding would be utilized. (1) Compensation—yellow highlighter; (2) career advancement opportunities—green highlighter, and access to leadership roles—blue highlighter. According to Hsieh and Shannon (2005) during this section, coders are expected to code information that stands out as being significant/relevant that capture the primary views, thinking, perceptions and ideas of the respondents

Simultaneously, researchers jotted informal notes and potential categories into the margins, also known as memoing (Birks, Chapman & Francis, 2008; Hill & Thompson-Hayes, 2015). This process of memoing allowed the researchers ". . . to engage with the data to a depth that would otherwise be difficult to achieve" (Birks, Chapman & Francis, 2008 p. 69), for example, through simple eyeballing.

Next, the researchers read and re-read the text, making copious notes in the margins and on the document. Continuous pawning through the text led to the identification of repetitive words (Ryan & Bernard, 2003) and phrases that were coded using the same colored highlighters. The researcher continued to highlight the data as potential keywords and groups started to emerge. For example, some new potential groups were (abuse, lower expectations, tradition, trust, and contentment), to name a few. These potential groups formed the base of the secondary groups.

Guideline 4 (G4): Create Secondary Groups to Provide even Richer Detail

The researchers re-read the full data set inclusive of the memos and progressed to place (sort) responses in respective groups and piles, then named and renamed some groups constantly. Throughout this process, the researchers noted occurring and reoccurring themes that started to pop-up (emerge) from the data set (Bahn, 2016) related to compensation, leadership, and career advancement. The frequency of the word and phrase occurring in the margin reflected the general themes that started to emerge. The words and phrases were further color-coded again to

solidify the groups and themes that Creswell (2013) outlined, as used interchangeably with categories. Furthermore, Creswell defined categories [groups] as "broad units of information that consist of several codes aggregated to form a common idea" (p. 186). Labeled as common ideas are the themes/categories in this research. Double-checked in the next stage are the themes/categories.

Guideline 5 (G5): Double-check for Coding Consistency and Latent Themes

The researchers collaborated at this juncture and reviewed and re-read the notes in the margin of the respective printed open-responses. Also, to make certain themes fitted in the assigned theme/category/cluster, the data were double-checked collaboratively. Collaboratively, double-checking the data was done to ensure consistency. Throughout this process, there were keywords later used as labels that popped-up, and these sometimes-reflected many thoughts. These keywords later became an essential tenet of the latent coding scheme developed. Multiple groups had some of the same responses assigned to them. Some groups identified were (teaching evaluations, compensation, leadership, career advancement, work/life balance, and gender bias), to name a few. According to Thomas (2006), coding consistency checks are essential in ". . . establishing credibility" (p. 243) of the findings and trustworthiness of the research. Each coder had to assess the consistency of the coding pattern that emerged.

Guideline 6 (G6): Assess the Consistency of Coding Employed between Coders

Additionally, after coding the entire data obtained from the open-responses, the researchers placed words and phrases under themes/categories/clusters as they emerged from the text on the whiteboard. During this process, there was a continued check for validity (code does what it should do) and for reliability (consistency). When researchers were satisfied with the consistency, they proceeded to draw inferences.

PHASE 3: PRESENTATION (DRAW INFERENCES, REPORT FINDINGS)

Guideline 7 (G7): Draw Inferences Based on Groups or Themes/Categories/Clusters

The researchers began drawing inferences based on codes for the groups generated. In this step, the researcher analyzed the groups and new themes/categories/clusters then narrowed them down based on constantly comparing the notes and categories. The data in the general themes/categories/clusters that emerged from the text were later coded and narrowed down into smaller, more condensed clusters. The three final themes/categories/clusters after constant comparisons were dissatisfaction, distrust, and societal perceptions. Constant comparison, as used in this process, is defined as analyzing the data, looking for any similarities or differences (Charmaz, 2014; Coghlan & Filo, 2013; Glaser & Strauss, 1967; Lewis-Beck, Bryman & Futing-Liao, 2004; Ryan & Bernard, 2003). These similarities and differences were used to form the major themes/categories/clusters that emerged from the data.

Noteworthy is the fact that words and phrases in similar groups were combined and re-combined to provide the best representation of the emerged themes/categories/clusters on the whiteboard. For example, words and phrases such as ("women are expected to accomplish more; women do more of the grunt work; whose career comes first; and boys that play and drink together advance") provided the basis for the theme, dissatisfaction. As this step continued, the researchers continued to identify the possible relationships to gender equity as purported

throughout the study in terms of compensation, career advancement, and access to leadership in colleges of business. One inference drawn and presented was how much the clusters/themes that emerged supported the research question (*What common themes/categories/clusters emerged from the open-response regarding compensation, career advancement, and access to leadership roles*?).

Guideline 8 (G8): Present the Resulting Themes/Clusters

Finally, the resulting themes/categories/clusters of dissatisfaction, distrust, and societal perceptions of gender equity were used to present the findings in the section that follows. These findings were presented and used to establish relevant conclusions and implications in this study addressing gender equity in colleges of business in Finland, Jamaica, and the United States.

FINDINGS, PRESENTATION AND INTERPRETATION OF DATA

In presenting the results, the paper answers the research question (*What common themes/categories/clusters emerged from the open-response data regarding compensation, career advancement, and access to leadership roles*?)*.* The three primary themes/categories that emerged from the open-response were (1) dissatisfaction, (2) distrust, and (3) societal perception of gender equity.

Table 2. FREQUENCY OF THE PRIMARY THEMES THAT EMERGED ACROSS COUNTRIES (N=96)			
	Finland (N = 16)	Jamaica (N = 10)	United States (N = 70)
Dissatisfaction	11 = 68.8%	6 = 60%	60 = 85.7%
Distrust	9 = 56.3%	3 = 30%	45 = 64.5%
Societal perception of gender equity	5 = 31.3%	7 = 70%	56 = 80%

As seen in Table 2, the three primary themes/categories/clusters were presented in different magnitudes across all three counties, Finland, Jamaica, and the United States. The open-responses received from each country were analyzed utilizing a conventional content analysis. In keeping with the eight guidelines for conducting conventional content analysis, the data will be presented by country Finland, Jamaica, and the United States. The findings from Finland are now presented.

FINLAND

Theme/Category/Cluster # 1: Dissatisfaction

From the open-responses, it was clear that some Finnish business faculty were covertly dissatisfied with how they were treated based on gender. For example, one faculty member indicated, "recruitment seems to favor young men." **[Finland Participant (FP) 3]** Another faculty member provided support for the previous statement, indicating "In higher positions (tenured full-professor in economic sciences) the university [still has] very few women although

it is gradually changing." From the open-response data analyzed, some Finnish faculty members do not overtly show their dissatisfaction with any gender inequities because they perceive it to be subtle or minimal and not as harmful. A Finnish faculty member indicated ". . . I don't think there is explicit or malicious gender discrimination in our college . . . still, I agree that there are subtle gendered [preference] practices that most women will recognize in our college. . ." **[FP 9]**

The levels of dissatisfaction among Finnish faculty gleaned from the open-ended response data, suggests that Finnish business school faculty do perceive being treated inequitably, as it relates to career advancement and access to leadership/senior roles in some colleges. Distrust is the next theme to be presented and analyzed.

Theme/Category/Cluster # 2: Distrust

From the open-response data, some Finnish business school faculty indicated distrust in the equitable allocation of service versus research, based on gender. For example, one faculty member advanced that male faculty members generally head many committees, tend to have women as their deputies, and these female faculty members end up doing the work, and then the men reap the accolades. This faculty member indicated

. . . if there are research seminars to be organised somehow it is the female colleagues responsible for them - even if explicitly the responsibility is assigned to a male colleague. After a few reminders, it seems easier to organise it yourself than chase somebody (a male colleague) to do it. Hence, it is easier for men to hide [from assigned responsibility], for example, become these absent-minded professors/researchers that are allowed (and can only) concentrate on one thing at a time. This implies that they can carve up their space to conduct research in their little bubble, and then it is the others (i.e., women) who need to be multitasking. **[FP 1]**

Some faculty being doubtful that equal opportunities to advance in their careers or into leadership positions, reflected the theme of distrust. For example, a faculty member expressed

. . . our dean told our team head that the lack of tenure position is a challenge/problem that needs to be overcome in case of a male colleague. It is as if the male colleagues have the self-evident right to advance to professorship, and this needs to be secured 'somehow.' In case of women, it is assumed that they are happy where they are, in their current position; hence, this right is not there, and therefore there is no problem either! **[FP 15]**

The open-response data provided for the second theme/category/cluster suggests that inherent distrust still exists in the experiences of Finnish business school faculty. Finally, presented and analyzed is the theme/category/cluster, the societal perception of gender equity.

Theme/Category/Cluster # 3: Societal Perception of Gender Equity

Finland is an advocate of the Nordic Welfare State's egalitarian societal model (Andersen, Holmström, Honkapohja, Korkman, Tson & Vartiainen, 2007). Hence, Finnish faculty members tend to believe that members of their society, as it relates to compensation,

leadership, and career advancement, are treated equitably. This view was articulated by a faculty member who said

> The merits, experience and achievements of the candidate form the basis for their compensation, career advancement, promotion and nomination to leadership positions etc., not their gender. Sometimes personal ties, social networking and the character of the candidate (e.g. ability to cooperate, be a team player, be supportive to the common cause) can have an influence, but again, the focus is not on the gender per se. **[FP 12]**

These comments were echoed by many other faculty members, who perceived that gender equity is not an issue that negatively impacts the Finnish workplace. Another faculty member summarized the Finnish societal perception of gender inequity as more covert and subtle. The faculty member indicated that

> The discrimination and unequal treatment are often of a more subtle and hidden nature in terms of e.g. exclusion from social networks. This is more difficult to detect. Overall, there are few full female professors in my field; most of them are young post-docs and assistant professors. **[FP 7]**

Overall, the theme/category/cluster of societal perception of gender equity as gleaned from the open-response data did not further explain gender differences regarding equitable compensation, career advancement, and leadership of business faculty, respectively. Presented for Jamaica is the open-response data relating to the three themes.

JAMAICA

Theme/Category/Cluster # 1: Dissatisfaction

The open-response indicated that some Jamaican female faculty are dissatisfied with their treatment as it relates to career advancement and access to leadership positions. A Jamaican faculty member indicated

> . . . . achieving senior level leadership in the University is difficult. When one looks at the number of men and women in senior leadership positions, there are many women but not at the very top. There are suggestions that females generally carryout more responsibilities at the senior level in the University and the men tend to delegate more than the women. From my experience and observations, this appears to be so. **[Jamaican Participant (JP) 5]**

Additionally, the data indicated that some faculty members perceive that females are disadvantaged because of the "boys club" mentality within their business school. This view, echoed by one faculty member, indicated "boys that play and drink together advances." As it relates to access to leadership roles, the data revealed that faculty perceive the university to ". . . be more male-dominated" **[JP 9]** at the upper levels with more females in supporting roles. Another issue of unspoken dissatisfaction gleaned from the open-ended response data was the need to balance workload and work-time with family and childcare responsibilities for female faculty.

Overall, as it relates to theme/category/cluster # 1, dissatisfaction, the open-response data did not indicate any gender equity issues as it relates to compensation. Jamaican faculty members perceived that compensation was not an issue related to gender because salaries are determined by collective bargaining through unions and centrally controlled by human resources. On the contrary, the open-ended response data revealed that gender plays a role in how male and female faculty perceived access to leadership roles and advance in their career. The next theme/category presented is distrust.

Theme/Category/Cluster # 2: Distrust

From the open-response item analyzed for the theme/category/cluster, no clear indication of distrust regarding gender equity and compensation, career advancement, and access to leadership roles, were gleaned from faculty members in Jamaica. For example, a faculty member indicated:

> Jamaica also has far more women than men in academia, and taking of maternity leave is normal and I have not seen where that has affected anyone's career advancement. There is no discrimination for being a woman that I have perceived or that has been related to me by any female colleague including my mother (Lecturer and Head of Department at a tertiary level institution), my Mother-in-Law (Lecturer and Administrator at a tertiary level institution) and my sister (Lecturer at a tertiary level institution). **[JP 3]**

This quote exemplified a faculty member's perception that there was no distrust concerning gender inequities in the business school. The next theme/category presented is societal gendered perception.

Theme/Category/Cluster # 3: Societal Perception of Gender Equity

Jamaica is a highly patriarchal society, and as such gender roles tend to be defined. Men are still viewed as the "head" or superior to women, and that view more often than not impacts how gender roles are perceived. Overall, the majority of faculty who provided open-responses perceived that gender inequity is not a significant issue in colleges of business in Jamaica. One respondent shared that

> No discernable differences that are based on gender. In fact, women assume roles in the University consistent with their preponderance in enrollment, graduation and accreditation. The university is an equal opportunity employer regarding gender. Both genders are impacted negatively by relatively low compensation levels, given the quantum and quality of output required. **[JP 7]**

From the open-ended response data provided, access to equitable compensation was not a significant factor impacted by gender in Jamaican business schools. However, some faculty members do perceive, often covertly, that gender plays a role in how female faculty advance in their career and access leadership positions. For example, "Career advancement/promotion still favours males and we often refer to same as a 'boys club.' Boys that play and drink together advance." **[JP 1]** Therefore, the perception is that males do advance in their careers and leadership roles because of the gender and societal biases that men look out for each other based

on the "hidden" fraternity rule, engendered in a patriarchal society. The open-response data relating to the three themes/categories/clusters are now presented for the United States.

UNITED STATES

Theme/Category/Cluster # 1: Dissatisfaction

The open-response data revealed that the majority of respondents perceived gender inequity exists within United States business schools. These disparities stem primarily from perceived inequitable compensation, access to leadership roles, and opportunities for career advancement based on gender. Faculty members indicated that, more often than not, discrimination is subtle and therefore becomes difficult to prove. One faculty member poignantly summarizes the dissatisfaction felt by many faculty members in the United States.

> The bias is subtle, in the form of who is granted respect when speaking up, who is listened to, and what sorts of claims are regarded as legitimate. The norms against speaking out when some part of a process is unfair are very strong. **[United States Participant (USP) 12]**

Another issue found in the data that supports the dissatisfaction theme is the impact of gendered student evaluations of faculty members. The data revealed that many faculty members perceived that students rate female faculty lower than males, and that impacts their overall rating, compensation, and career advancement. The use of gendered evaluations impacting faculty members' compensation and career advancement was presented in the data as significant, especially for schools that place a high premium on teaching. For example,

> One of the challenges that I see for women in colleges of business is that they are routinely rated lower by students in their teaching evaluations. Since my school takes the teaching evaluations very seriously, women are always disadvantaged in their performance evaluations and pay raises as a result. **[USP 32]**

As indicated by this quote, there is the perception that, in general, female faculty members were rated lower than males by their students. Lower performance ratings result in females having lower overall compensation and career advancement, especially in schools of business that place a premium on teaching.

Having equitable maternity/family leave policies and procedures was another area of common dissatisfaction among United States business school faculty members. The data revealed that many female faculties were leery in accessing maternity/family leave because they were fearful of the negative impact taking such absence would have on their career. The sentiment expressed by one faculty member reflected the general feeling of many business school faculty members in the United States ". . . there is a culture that thinks a woman may not be serious if she takes leave." **[USP 2]**

From the open-response data, the issue of inequitable compensation is a crucial driver of perceived inequitable treatment impacting female faculty members. Simply put, a faculty member said ". . . compensation is not transparent. The last pay increase I got was because I accidentally saw what a new [male] lecturer was being paid and it was more than I was being paid after 20+ years." **[USP 44]** Overall, as it relates to dissatisfaction (theme # 1), the open-

ended response data indicated that gender impacted equitable compensation, access to leadership roles, and career advancement of business school faculty members in the United States. The next theme/category presented is distrust.

Theme/Category/Cluster # 2: Distrust

From the open-response data analyzed, it was found that the majority of faculty who provided open-response feedback had some level of distrust regarding equitable compensation, access to leadership roles and opportunities for career advancement in their business school. The distrust was not related to just female faculty but also male faculty who felt they were unfairly treated because their college placed "too much" focus on women. As one faculty member indicated ". . . my university favors women, period." **[USP 62]** On the other hand, many female faculty members indicated they did not trust their college system to treat them equitably. They also indicated they were fearful of repercussions to their career if they made their angsts towards the system known. For example, a faculty member summarized the inherent distrust many faculty members feel in the following quotation.

> Discrimination is not overt—it is subtle. Women and people of color are not heard. Any suggestion that discrimination might have occurred is treated as if the individual making the allegation is some kind of traitor to the University. Investigations at the University level are designed to "protect" the University, not to find out whether discrimination actually took place. From the perspective of the top University administrators, discrimination never has and never will occur at this University. They don't want to address problems; they want to whitewash them. **[USP 42]**

From the responses collected and analyzed, it was found that many faculty members did not trust that college leadership (Deans, Chairs, Directors) to make gender-equitable decisions regarding the value of service, teaching and research. This perception was aptly summarized by a faculty member who indicated, ". . . there seems to be a double standard regarding (1) teaching evaluations, (2) expectations for publication, and (3) expectations for service with respect to gender. Similar behaviors from male colleagues are perceived/rated differently." **[USP 3]**

In contrast, some faculty members were also distrusting of college leadership from a different perspective. These faculty members perceived there were ". . . a clique of women in charge . . . [who] seem to take care of their own." **[USP 52]** In other words, perspectives were divided regarding trust in colleges of business.

Overall, as it relates to theme/category # 2, distrust, the majority of faculty responding to the open-response item perceived they are dealt with inequitably as it relates to equitable compensation, access to leadership roles, and career advancement. This negative perception of inequities based on gender reflects a sense of distrust by the majority of respondents. The next theme/category presented is societal gendered perception for faculty members in the United States.

Theme/Category/Cluster # 3: Societal Perception of Gender Equity

Societal perceptions of gender do impact how males and females are perceived and ultimately treated. The open-response data revealed that the majority of respondents perceived that women were treated inequitably because of how a male-centric business school environment

perceives them. For example, from the data analyzed, the words of a business school faculty member provided a strong sense of how gender equity was perceived.

> Men are more likely to have endowed chairs. Men who don't perform as endowed chairs keep them, earning tens of thousands (for some $100k) more than others. No women have endowed chairs, despite better performance. 2) Women's scholarship and publication outlets are devalued, which affects the ability to earn tenure or be promoted. 3) Male dominance is unrecognized, even by some women, who buy into the only publications in certain venues are valuable charade. **[USP 27]**

Comments such as those above reflect the general views of some faculty members in the data analyzed from the open-responses. The data further revealed that many faculty members perceived they were unfairly given, and in many instances, they inadvertently took on more administrative or service work than their counterparts. Responses with identifiers showed that some female faculty members suggested that taking on more service activity such as being advisers for college clubs and societies as well as leading community outreach projects, serve only to hurt their chances for tenure/promotion. In the words of a business school faculty, "women tend to take on more administrative responsibility than men. This damages their careers as service is not rewarded in the same way as research." **[USP 5]**

Another societal gendered perception found in the open-response data was reflected in the view that some faculty were treated differently based on gender. The findings indicate that based on gender, some faculty members were often treated differently as it relates to being included in social events and activities. The gendered treatment of business faculty was aptly summarized by a female faculty as

> . . . my (male) department chair plays golf with all of the (male) professors and did not even think to ask if I play golf or to invite me when I started here. The department also hosts golfing events with our community business partners, which ends up excluding all of the women in our department. **[USP 10]**

Views like those articulated above were standard in the data analyzed from the open-responses. Overall, as it relates to theme/category # 3, societal perception of gender equity, the open-response data was useful in gaining a better understanding of the impact of gender on equitable compensation, access to leadership roles and opportunities for career advancement explored in this research. The issue of inequity in colleges of business can be sensitive in today's' geopolitical context. Multiple implications need to be clearly understood in order to deconstruct gender inequity finally. Implications for reducing and eventually closing the gender equity gap are outlined in how they inform policy decisions going forward in colleges of business.

IMPLICATIONS FOR POLICY AND PRACTICE IN COLLEGES OF BUSINESS

Equitable compensation, access to career advancement opportunities, and leadership positions continue to be a critical factor that is advanced by researchers in the literature regarding male and female faculty/academic staff (AAUW 2016 & 2018 Report; AACSB (2014) Report; Curtis, 2011). The open-response data obtained and analyzed from business faculty/academic

staff in Finland, Jamaica, and the United States suggest dissatisfaction with how they are treated by fellow faculty/academic staff, including those at the leadership levels, based on gender. This dissatisfaction has led to many faculty members exhibiting distrust regarding equitable treatment in the business academy. Our findings further indicate that female faculty members perceived that since there are more male than female faculty members in leadership positions in colleges of business across the three countries, males tend to be treated equitably, compared to females. This finding is supported by the work of AACSB 2018 –19 Staff Compensation and Demographics Survey – Executive Summary; Business School Data Guide, 2018, as well as other literature reviewed.

This finding implies that even though in Finland, Jamaica, and the United States, legislation and policies have been enacted to assure females have equitable access to jobs and opportunities, based on their human capital, females still lag behind males. The academic staff/faculty members forcefully express dissatisfaction with the inequitable perceived treatment in the verbatim open-responses provided. Academic staff/faculty members' dissatisfaction with their treatment in colleges of business has and continues to enculture a climate of distrust towards administrators (Deans, Chairs, Directors) and colleagues. This distrust is reflected in the perception that workload for research, access to resources, and use of teaching evaluations to determine tenure/promotion is inequitable, based on gender.

We imply that at the policy and practice levels in colleges of business, as well as stakeholders/legislators at the country and university level need to reexamine and redefine current Equal Employment Opportunity (EEO) mandates. Following such redefinition, policymakers need to determine necessary changes that will positively impact female business faculty access to leadership roles, equitable compensation, and career advancement opportunities that reflect their human capital. Crafting policies that lead to acceptable policies and practices that place a specific focus on providing opportunities for more females to access leadership positions will be a step in the right direction. Policies should include provisions for paid maternity leave without a negative impact on the females' tenure and promotion clock. The more females in positions of leadership and policymaking will provide both a real and psychological boost to women advancing through the pipeline to leadership roles.

Often perception reflects our realities. Hence, academic administrators and policymakers in higher education need to establish safe spaces or forums that allow the unfettered voices of academic staff/faculty members. Having a seat at the proverbial table is especially critical for those in the junior ranks, especially females, to share their hopes, fears, apprehensions, and expectations regarding gender equity within the academy. In essence, these voices ought to be sought and encouraged in every policy discussion.

CONCLUSIONS

Conclusively, we set out to examine gender equity in schools of business being a perception or a reality by analyzing the relationship between gender equity compensation, career advancement, and leadership. We found a lack of gender equity from this conventional content analysis. Evidence showed there were powerful connections between gender and the distrust as well as dissatisfaction as it relates to compensation, career advancement, and access to leadership positions in colleges of business in Finland, Jamaica, and the United States. From the analysis, it

was also clear that cultural norms play a significant role in the perceptions of gender equity across the three countries, Finland, Jamaica, and the United States.

Gender inequity persists throughout the broader society, and its impact in colleges of businesses is far-reaching as these business schools have the enviable task of preparing students who will likely be the business leaders of tomorrow or future faculty members. This research findings suggest the need for intense focus in terms of policy and practice for fixing or providing equity for current gender inequities, as is reflected in the perceived implicit or explicit biases toward females over males in the academy. Many of the inequities elucidated in the open-responses provided by academic staff/faculty are the direct or indirect results of traditional and entrenched male hegemony, as reflected in cultural norms.

The meaningful change would require placing greater emphasis on societal norms, values, mores, and beliefs that shape each individual. Hence, placing greater focus on deconstructing societal perceptions from the formative years, that women are less than or unequal to men would be an excellent first step in eliminating the implicit and eventually the explicit bias that leads to gender inequity. This deconstruction of entrenched societal and cultural norms must begin in the formative years for both males and females. The findings of our study indicate perceived unequal treatment by gender should inform legislation, policies, and other measures that seek to change cultural, institutional, and personal perceptions regarding gender equity. In this area of gender equity, not only in colleges of business but in all areas of life, critical attention is needed. For decades women have fought and won many battles of inequity and are now able to vote and have access to education and jobs. Now in the 21st Century, more needs to be done to enrich and deepen understandings, followed by appropriate actions in order to break down the barriers of gender inequity established in classrooms, scholarship, boardrooms, institutions of higher education, as well as in the broader private and public sectors.

LIMITATIONS OF THE STUDY

First, data for this study were collected from a geographically dispersed population spanning two continents and three countries, Finland, Jamaica and the United States. The use of surveys to collect qualitative data from this disparate population resulted in logistical issues, which negatively impacted the overall response rate of the surveys. Collecting data from business faculty in Finland, Jamaica, and the United States proved to be extremely challenging. It required the researcher to make consistent contact with college administrators and colleagues in these countries soliciting help to encourage other colleagues to complete the gender equity questionnaire. Since the data were collected from three culturally diverse populations, the findings may only be generalizable for these three countries or for populations of business faculty members in geographically and culturally similar environments.

Second, a major limitation of the study is that a convenient sample is used to collect the data. Asking colleagues and college administrators to encourage business faculty to complete the survey questionnaire may have led to biased results. To mitigate the likelihood that faculty would feel uncomfortable responding honestly to the open response item because of the source, the survey was sent to listservs. In addition, no follow-up surveys were sent directly to business faculty. Internal and external validity of the survey was maintained during the data collection process by not storing and using any identifying data inclusive of IP addresses. Hence, the researchers were not able to identify participants who did not attempt or completed the open response item. Not being able to send reminders directly to respondents, who did not complete

the questionnaire, negatively impacted the completion and the overall response rate. As a result, the overall response rate was 27.3%. Such a response rate may have negatively impacted the overall power and effective size of the research, therefore increasing the risk of making incorrect predictions.

RECOMMENDATIONS FOR FUTURE RESEARCH

Findings from the study suggest further study focusing on three key areas.

(1) Increasing the population of business faculty in each geographic region. This would involve including faculty from at least three additional Nordic States such as; Norway, Denmark, and Sweden as well as the United Kingdom. Also, including faculty from at least two other colleges of business in Jamaica and adding in colleges from Caribbean states such as Barbados as well as Trinidad and Tobago. Adding these countries and business schools will lead to a larger population and one that is more representative of geographical and the cultural environment. Additionally, increasing the number of colleges of business in the United States will lead to a more representative sample and results that are generalizable to that population.

(2) Collecting both quantitative and qualitative (interviews) data regarding business faculty members' perceptions of gender equity relating to compensation, leadership and overall productivity (service, teaching and research). Additionally, utilizing the mixed methods approach of utilizing questionnaires along with structured and unstructured interview protocol will likely lead to more reliable and generalizable results. Understanding the perceptions of business faculty members using the gender lens (perspective) will help to inform and possibly provide recommendations for policy and practice as it relates to gender equity in colleges of business.

(3) Replicate the study in other disciplines with diversified groups at the national and international levels. This diversification will lead to greater generalizability across fields of study and cultures.

REFERENCES

American Association of University Women – AAUW. (Spring, 2016). The simple truth about the gender pay gap. from http://www.aauw.org/files/2016/02/SimpleTruth_Spring2016.pdf

Amankwaa, L. (2016). Creating protocols for trustworthiness in qualitative research. *Journal of Cultural Diversity*, 23(3), 121-127.

Andersen, T., Holmström, B., Honkapohja, S., Korkman, S., Tson, S., & Vartiainen, J. (2007). The Nordic Model. Embracing globalization and sharing risks. ETLA B.

Assarroudi, A., Heshmati Nabavi, F., Armat, M. R., Ebadi, A., & Vaismoradi, M. (2018). Directed qualitative content analysis: the description and elaboration of its underpinning methods and data analysis process. *Journal of Research in Nursing*, *23*(1), 42-55. Retrieved from, https://journals-sagepub-com.ezproxy .library.astate.edu/doi/full/10.11.77/1744987117741667.

Association to Advance Collegiate Schools of Business International-AACSB, (2018 – 19). Staff compensation and demographics survey – Executive summary. Retrieved from https://www.aacsb.edu/-/media/aacsb/publicat ions/data-reports/global-salary-survey/ 201819% staff%20compensation%20%20demographics%20survey %20executive%20summary.ashx?la=en&hash= A7B4598C50D58AFE0D96873396A93E14AE06BEE3

Bahn, C. (2016). @Coping_with_PTSD: A textual and visual thematic analysis of Instagram as supportive communication (Order No. 10241381). Available from Dissertations & Theses @ Arkansas State University; ProQuest Dissertations & Theses Global. (1861664481). Retrieved from https://ezproxy .library.astate.edu   /login?url=http://search.proquest.com.ezproxy.library.astate.edu/docview/1861664 481?accountid=8363

Banerjee, P., & Bagchi, S. (2017). A Content Analysis of the Leadership Styles of Steve Waugh and Sourav Ganguly: Leadership Lesson from the Game of Cricket. *The Qualitative Report*, *22*(5), 1284-1296. Retrieved from https://nsuworks.nova.edu/tqr/vol22/iss5/8

Bellony, A., Hoyos, A., & Ñopo, H. (2010). Gender earnings gaps in the Caribbean: Evidence from Barbados and Jamaica. Retrieved, from http://papers.ssrn.com/so l3/papers.cfm?abstract_id =1818749

Bengtsson, M. (2016). How to plan and perform a qualitative study using content analysis. *Nursingplus Open*, 2(1), 8-14. Retrieved from http://www.sciencedirect.com/science/article/pii/S2352900816000029

Birks, M., Chapman, Y., & Francis, K. (2008). Memoing in qualitative research: Probing data   and   processes. *Journal of Research in Nursing*, 13(1), 68-75.

Business School Data Guide. (2018). Challenging core foundations. AACSB. Retrieved from https://www.aacsb.edu/-   /media/aacsb/publications/data-trends-booklet/2018.ashx?la=en&hash=D38952C6CF 98C3A24A 6D32EB5313696D6D5D6B9A

Coghlan, A., & Filo, K. (2013). Using constant comparison method and qualitative data to understand participants' experiences at the nexus of tourism, sport, and charity events. Tourism Management, 35(2), 122-131.

Connelly, L. (2016). "Trustworthiness in qualitative research." *MedSurg Nursing*, 25(6). Nov-Dec. 2016, p. 435+. *Gale Academic OneFile*, Accessed 2 Aug. 2020.

Creswell, J. (2013). Qualitative inquiry and research design: Choosing among five approaches. Thousand Oaks, CA: Sage

Charmaz, K. (2014). Constructing grounded theory. Thousand Oaks, CA: Sage

Curtis, J. (2011, April 11). Persistent inequality: Gender and academic employment. *American Association of University Professors*. Washington, DC.

Datt, S. (2016). 8-step procedure to conduct qualitative content analysis in research. Retrieved from https://www.projectguru.in/publications/qualitative-content-analysis-research/

Elo, S., Kääriäinen, M., Kanste, O. (2014). Qualitative content analysis: A focus on trustworthiness. SAGE Open4(1): 1–10.

Elo, S., Kyngäs, H. (2008). The qualitative content analysis process. Journal of Advanced Nursing 62(1): 107–115.

European Institute for Gender Equity. (2015, December). Men control the money in the EU. Retrieved fromhttp://eige.europa.eu/news-and-events/news/men-control-money-eu

Fealy, G., Donnelly, S., Doyle, G., Brenner, M., Hughes, M., Mylotte, E., & Zaki, M. (2019). Clinical handover practices among healthcare practitioners in acute care services: A qualitative study. *Journal of clinical nursing*, *28*(1-2), 80-88. https://search-proquestcom.ezproxy.library.astate.edu/abicomplete/docview/ 1863947725/.EAB4300F778.547BC.PQ/1?accountid=8363

Glaser, B., & Strauss, A. (1967). The discovery of grounded theory: Strategies for qualitative research. New York, NY: Aldine.

Graneheim, U., Lundman, B. (2004). Qualitative content analysis in nursing research: Concepts, procedures and measures to achieve trustworthiness. *Nurse Education Today*, 24(2): 105–112.

Grove, J. (February 2015). Proportion of female professors up, but still below a quarter. Times Higher Education – World University Rankings. Retrieved from https://www. timeshighereducation.com/news/proportion-of-female-professors-up-but-still-below-a-quarter/2018824.article

Grove, J. (2016, June 23). Gender equity or else. Inside Higher Ed – Times Higher Education. Retrieved from https://www.insidehighered.com/news/2016/06/30/ireland-considers-plan-financially-punish-universities-.dont-meet-gender-equity-goals?utm_source=Inside+Higher+Ed&utm_campaign=c3d228de60-DNU20160630&utm_medium=email&utm_term=0_1fcbc04421-c3d228de60-198442985

Hill, M., & Thompson-Hayes, M. (2015). Do you like it on the...? A case-study of reactions to a Facebook campaign for breast cancer awareness month. The Qualitative Report, 20(11), 1747.

Hsieh, H., & Shannon, S. (2005). Three approaches to qualitative content analysis. Qualitative Health Research, 15(9), 1277-1288. DOI: 10.1177/1049732305276687. Retrieved from http://journals.sagepub.com/doi/ pdf/10.1177/1049732305276687

Huber, G. (1995). Longitudinal field research methods: Studying processes of organizational change (1). Sage. London

Jamaica STATIN Labour Force Survey Report (2015). Retrieved from http://jis.gov.jm/statin-labour- force-report-january-2015/

Jones, J. (May 2011). Expecting balance. The Chronicle of Higher Education. Retrieved from http://chronicle. com/blogs/profhacker/expecting-balance/3367

Kohlbacher, F. (2006). The use of qualitative content analysis in case study research. Forum: Qualitative Social Research, 7(1), 1.

Lassila, A., & Teivainen, A. (2014, March). Men left behind as gender gap in education widens. Helsinki Times. Retrieved from http://www.helsinkitimes.fi/finland/ finland-news/domestic/9904-men-left-behind-as-gender-gap-in-education-widens.html

Leung, L., (2015). Validity, reliability, and generalizability in qualitative research. J Family Med Prim Care Available from: http://www.jfmpc.com/text.asp?2015/4/3/324/161306

Lewis-Beck, M., Bryman, A., & Futing-Liao, T. (2004). The SAGE encyclopedia of social science research methods: SAGE Publications Ltd DOI:10.4135/978141295058. Retrieved from http://methods. sagepub.com/reference/ the-sage-encyclopedia-of-social-science-research-methods/n161.xml

Lincoln, Y., & Guba, E. (1985). Naturalistic Inquiry. Beverly Hills, Calif: Sage Publications.

National Center for Education Statistics. (2017). Fast facts: U.S. Department of Education, Public elementary/secondary school universe survey. Table 105.50. Retrieved from https://nces.ed.gov/ programs/digest/d17/tables/dt17_105.50.asp

Patton, M. (2014). Qualitative research and evaluation methods: Integrating theory and practice (4th Edition). Saint Paul, MN.

Polit, D., & Beck, C. (2014). Essentials of Nursing Research: Appraising Evidence for Nursing Practice. 8th Edition, Lippincott Williams & Wilkins, Philadelphia.

Ryan, G., & Bernard, H. (2003). Techniques to identify themes. Field methods, 15(1), 85-109.

Salmi, J. (2014). Tertiary education in Finland: Achievements, challenges and opportunities. Retrieved from http://www.minedu.fi/export/sites/default/OPM/Tapahtumakalenteri/2014/12/Kk_johdon_seminaari_liitteet /Jamil_Salmi_Report_Tertiary_Education_in_Finlan.d.pdf

Statistics Finland. (2018). Gender equality in Finland. Retried from http://www.stat.fi/tup/julkaisut/tiedostot /julkaisuluettelo/yyti_gef_201800_2018_19723_net.pdf

Thomas, D. (2006). A general inductive approach for analyzing qualitative evaluation data. American Journal of Evaluation, 27(2), 237-246.

Tickle, L. (March 2013). Gender equality in higher education must be made a global priority. The Guardian. Retrieved from http://www.theguardian. com/higher-education-network/2013/mar/06/gender-equality-universities-global-issue

Ud Din, N., Cheng, X., & Nazneen, S. (2018). Women's skills and career advancement: A review of gender (in) equality in an accounting workplace. Economic research-Ekonomskaistraživanja, 31(1), 1512-1525.

United Nations. (2020). Gender equality. Retrieved from https://www.un.org/en/sections/issues-depth/gender-equality/

University of the West Indies (UWI) Higher education and statistical review (2013). Issues and trends in higher education. Retrieved, from http://www.uwi.edu/sf-docs/default-source/uopd--general/hesr2013--issues-and-.trends-in-higher-education-march2015-for-univer-council.pdf?sfvrsn=2

UWI Statistical Digest 2010/11 to 2014/2015. (2016, April). A statistical review of 5-year trends in student enrollment and graduation statistics at the UWI during the period 2010/11 to 2014/15 for selected datasets. The University of the West Indies—the university office of planning and development. Retrieved from https://www.mona.uwi.edu/opair/statistics/2014-2015/Statistical-Review-2010-11-to-2014-15.pdf

Vaismoradi, M., Turunen, H., Bondas, T. (2013). Content analysis and thematic analysis: Implications for conducting a qualitative descriptive study. Nursing & Health Sciences, 15(3): 398–405.

Webster, F. (2006). Gender mainstreaming: Its role in addressing gender inequality in Jamaica. Caribbean Quarterly, 52(2/3), 104-120. Retrieved from http://www.jstor.org/stable/40654564.

World Economic Forum Report. (2014). Retrieved http://reports.weforum.org/global-gender-gap-report- 2014 /economies/#economy=IND

Zamawe, F. (2015). The Implication of Using NVivo Software in Qualitative Data Analysis: Evidence-Based Reflections. Malawi medical journal: The journal of Medical Association of Malawi, 27(1), 13–15. Retrieved from, https://doi.org/10.4314/mmj.v27i1.4

Zhang, Y., Wildemuth, B. (2009). Qualitative analysis of content. In Wildemuth, B (ed.). Applications of Social Research Methods to Questions in Information and Library Science, Westport, CT: Libraries Unlimited, pp. 308–319.

MILLENNIALS: FACTORS THAT INFLUENCE THE JOB SEARCH AFTER COLLEGE GRADUATION

Jenifer Skiba, Missouri State University
Christina S. Simmers, Missouri State University
Sherry Cook, Missouri State University

ABSTRACT

There has been much discussion about generational differences in the literature. However, this discussion has mixed views of what employers can expect from the Millennial generation in the workforce. As the Millennials graduate from college, or seek out employers and pursue satisfying careers, employers want to know how to get their attention, how to secure their employment, and how to keep them. Based on a survey of 747 Millennials and non-Millennials, the authors sought to answer these questions. Significant differences between Millennials and non-Millennials were found in both the job seeking process and in the job itself. Within the job seeking process, some of the key findings are that Millennials are more influenced by their friends and associates, tend to more significantly judge a company on its social and web presence, and are more likely to accept the first job offer they receive. Millennials are also looking for a job that is innovative and exciting, with a caring supervisor who provides feedback. The authors also found some gender differences among the Millennial group.

INTRODUCTION

The landscape of the United States workforce has been changing over the past decade as the Silent Generation and Baby Boomers retire and younger workers flood the workforce (De Hauw & De Vos, 2010; Twenge, Campbell, Hoffman, & Lance, 2010). Research generally agrees that there are three unique generational groups that dominate the American workforce today (Becton, Walker, & Jones-Farmer, 2014; Calk & Patrick, 2017). Although time periods and labels may vary, these generational groups are typically identified as: Baby Boomers (born between the early 1940s and mid-1960s), Generation X (born between 1965 and 1980), and Millennials (born between 1981 and 2000). Managers struggle to bring these three generations together, as each group purportedly has unique beliefs, work ethics, values, expectations, and attitudes that they bring into the workplace (e.g., Calk & Patrick, 2017; Kupperschmidt, 2000; Macky, Gardner, & Forsyth, 2008). Many managers, and researchers alike, agree that there may be a negative impact on organizations if these differences are not recognized (Becton et al., 2014).

Millennial college graduates first entered the workforce in 2004 and will continue to enter through approximately 2022 (Hershatter & Epstein, 2010). As of 2016, Millennials have taken over as the largest generational group in the United States workforce (Fry, 2018; Gong, Ramkissoon, Greenwood, & Hoyte, 2018). An analysis by Pew Research Center indicates that, as of 2017, 35% of the American workforce were Millennials (Fry, 2018). In 2018, according to the International Labour Organization (Organization, 2018), that percentage increased to

approximately 43% (age range of 20-39, roughly equivalent to the Millennial age at that time). This shift in workforce has given Millennials the "power to reshape the rules of play at work" (De Hauw & De Vos, 2010, p. 293; Twenge et al., 2010). However, Millennials are the least understood generation in the workplace (Calk & Patrick, 2017).

Millennials are often viewed as a fickle lot who are very mobile, especially when it comes to employment. In the early stages of their careers, Millennials have not shown a commitment to their organizations over the long-term (Calk & Patrick, 2017; Lancaster & Stillman, 2002) and have been said to lack loyalty and work ethic (Marston, 2009; Myers & Sadaghiani, 2010). This may cause leadership voids in the future, unless organizations can learn to change and adapt to the younger workforce and recruit, motivate, and retain these potential leaders (Calk & Patrick, 2017). As Millennials continue to enter the workforce, there is concern about how their dispositions and tendencies will impact their organizations and colleagues (Gong et al., 2018; Myers & Sadaghiani, 2010).

THE MILLENNIAL COHORT

The concept of a generational differences is not new. The idea that generations differ and that they have a significant impact on other generations, and society in general, has been discussed by researchers in anthropology, sociology, and social psychology (Becton et al., 2014; Hung, Gu, & Yim, 2007) for a long time. A generation, or cohort, is typically made up of a group of individuals who are similar in age and location, and who have experienced similar significant historical and social life events (Becton et al., 2014; Calk & Patrick, 2017; Kupperschmidt, 2000). These experiences shape their attitudes and beliefs and create gaps between generations.

As a cohort, Millennials (also known as Generation Y) have been identified as the most educated, well-traveled, and technologically savvy generation ever (Crampton & Hodge, 2009; Gong et al., 2018). They have grown up with computers, in a world of the Internet, technology, smart phones, and social media. They are independent, and are the most diverse generation in terms of race and ethnicity (Becton et al., 2014; Crampton & Hodge, 2009). As such, they tend to value diversity and change. Millennials are also said to be socially conscious (Costanza, Badger, Fraser, Severt, & Gade, 2012), highly cynical, narcissistic (Twenge et al., 2010), overly self-confident, and self-absorbed (Calk & Patrick, 2017; Myers & Sadaghiani, 2010). A common stereotype of Millennials is that they have a sense of entitlement, perhaps stemming from the supportive and protective environment created by their parents (typically Baby Boomers) (Gong et al., 2018).

At work, Millennials value positive reinforcement, autonomy, and teamwork (Calk & Patrick, 2017). They have a strong desire to succeed (Becton et al., 2014), value flexibility (Crampton & Hodge, 2009), and prefer meaningful work (De Hauw & De Vos, 2010). They seek open communication and constant feedback (Crampton & Hodge, 2009), social connections at work (De Hauw & De Vos, 2010; Macky, Gardner, Forsyth, & Cennamo, 2008), and career advancement (De Hauw & De Vos, 2010; Wong, Gardiner, Lang, & Coulon, 2008). They value mentoring and training (De Hauw & De Vos, 2010; Sturges, Guest, Conway, & Davey, 2002). However, Millennials are also said to be distrustful of organizations (Becton et al., 2014), less committed to work (Crampton & Hodge, 2009), and have high expectations for work-life balance (De Hauw & De Vos, 2010).

The research on Millennial work/career habits is mixed, at best. In some studies, Millennials are quick to hop from one job to the next (Calk & Patrick, 2017; Solomon, 2000). Other research shows that this lack of loyalty may be a sign of the economic times or their age/stage in life (Buckley, Viechnicki, & Barua, 2015; Calk & Patrick, 2017). Ng, Schweitzer, and Lyons (2010) found that Millennials place the highest importance on individualistic aspects of the job. The authors also note that Millennials have realistic expectations regarding salary and their first job, but seek rapid advancement and meaningful life outside of work. In examining workplace motivation, Calk and Patrick (2017) found that Millennial workers are motivated by basic needs, such as pleasant working conditions, more leisure time, and increased salary. They also have a desire for belonging or social relationships at work, and seek actualization through challenging and meaningful work.

Understanding and adapting to Millennial workplace motivation can be a source of competitive advantage for organizations that are successful in this endeavor (Calk & Patrick, 2017; Lancaster & Stillman, 2002). As such, this research addresses the following research questions: What factors do Millennials deem to be important when considering potential employers? What factors influence a Millennial to select one company over another? What factors impact a Millennial's desire to stay with an employer versus "job hopping" to another employer down the road? How do all of these factors differ between Millennials and non-Millennials? As Rigoni and Adkins (2016) found, companies trying to attract Millennials have to make it easy for the prospects to choose them over their competition.

METHODOLOGY

The impetus for this research came when a local business person, who served as a client to a marketing class at a Midwest university, expressed an interest in identifying the best way to recruit and retain Millennials for employment. This served as a basis for the research questions. In order to answer these questions, the research began with a series of focus group-style meetings between the students and professor of the marketing class. The goal was to identify job-related attributes that Millennials would consider when selecting an employer. At the completion of this process, a total of 41 factors were identified, as indicated in Table 1 (Appendix). Each of these factors were turned into questions, measured using 5-point Likert scales ranging from strongly disagree (1) to strongly agree (5), that would be used in a survey. Questions regarding age, highest level of education, gender, if the respondent has children, area of educational background, area currently working in (or desire to work in), income, and the state of residence were also included. The survey was created on Survey Monkey. The students and professor then used their social media contacts to send the survey link to both Millennials and non-Millennials, in order to understand differences between the two groups.

RESULTS

A total of 815 responses were received, 747 of which were usable. The remaining responses were not included because the surveys were not completed. The sample was 66.5% female. Respondents were of various ages, with age ranges of 18 – 24 (62.0%, n = 463), 25 – 34 (14.9%, n = 111), 35 – 49 (10.6%, n = 79), 50 – 64 (10.8%, n = 81) and 65 and over (1.7%, n = 13). The age groups of 18 – 24 and 25 – 34 are used to represent the Millennial generation. This group made up the majority of the respondents (76.9%, n = 574). Most of the respondents did not

have children (72.3%, n = 540). The majority had some college experience (59.3%, n = 443) or a bachelor's degree (22.5%, n = 168), with educational background being varied. The most common background was business (33.1%, n = 247), followed by education (15.9%, n = 119), arts and letters (14.2%, n = 106) and medicine (11.4%, n = 85). Educational background corresponds to the area in which the respondents currently work or desire to work, with the most common being business (35.5%, n = 265), education (16.3%, n = 122), arts and letters (10.8%, n = 81) and medicine (14.5%, n = 108). Household income ranges were across the board, with the majority being below $49,999 (52.9%, n = 395). Household income ranges were as follows: below $25,000 (32.7%, n = 244), $25,001 – $49,999 (20.2%, n = 151), $50,000 – $74,999 (16.9%, n = 126), $75,000 – $100,000 (13.5%, n = 101) and more than $100,000 (16.7%, n = 125). Respondents reported that they lived in one of 24 states, with the largest percent coming from Missouri (84.5%, n = 631).

A new variable was created, Millennials, to separate age groups into either Millennials (M) (ages 18-34) or non-Millennials (NM) (ages 35 and older). One-way ANOVAs were run for all 40 items representing job attitude, job selection, job influences and location (See Table 1). Seven items from job attributes were significant. Millennials were more likely to accept the first job offer they received, if they perceived it to be a good one, than non-Millennials (F = 10.29, sig = .001, M mean = 3.72, NM mean = 3.44). Millennials were also more likely to be flexible regarding job location (F = 87.04, sig. = .000, M mean = 3.41, NM mean = 2.47), to look for job security (F = 14.91, sig. = .000, M mean = 4.31, NM mean = 4.01), and to look for flexible scheduling/work hours (F = 3.80, sig. = .052, M mean = 3.88, NM mean = 3.71). Millennials feel it is important to find a social (F = 83.86, sig. = .000, M mean = 3.69, NM mean = 2.86) and a fun work environment (F = 40.11, sig. = .000, M mean = 4.19, NM mean = 3.71), and to have a supervisor/employer who really cares about them (F = 21.65, sig. = .000, M mean = 4.29, NM mean = 3.93) versus non-Millennials.

Table 1 JOB SELECTION CRITERIA FOR MILLENNIALS Survey Results and Analysis				
Item	Mean	F-Statistic (Sig.)	Millennial Mean	Non-Millennial Mean
Job Attributes				
I would probably accept the first job offer I received, if I perceived it to be a good one.	3.66	10.29 (.001)	3.72	3.44
I am flexible regarding job location.	3.19	87.04 (.000)	3.41	2.47
Job security is something I look for in a job.	4.24	14.91 (.000)	4.31	4.01
Flexible scheduling/work hours is something I look for in a job.	3.84	3.80 (.052)	3.88	3.71
I would sacrifice some salary for more paid time off.	3.42	.22 (.641)	3.41	3.45
Being in a social work environment is important to me (meeting after work, celebrating together, having sports teams after work, etc.)	3.50	83.86 (.000)	3.69	2.86
A fun work environment is something I look for.	4.08	40.11 (.000)	4.19	3.71

Table 1 JOB SELECTION CRITERIA FOR MILLENNIALS Survey Results and Analysis				
Item	Mean	F-Statistic (Sig.)	Millennial Mean	Non-Millennial Mean
Having a supervisor/employer who really cares about me is something I seek in a work environment.	4.21	21.65 (.000)	4.29	3.93
I want to do a variety of different things on my job.	4.05	.16 (.686)	4.06	4.03
I would sacrifice some salary for challenging work experiences.	2.92	.34 (.559)	2.94	2.89
Job Selection				
The work location (city) is very important to me.	3.77	2.78 (.096)	3.74	3.88
The internal work environment (décor, cubes, design of workspace) is important to me.	3.26	3.52 (.061)	3.30	3.13
I want there to be other people close to my own age in my work environment.	3.51	87.36 (.000)	3.67	2.97
Being able to live close to my workplace is important to me.	3.83	3.16 (.076)	3.86	3.72
I want a supervisor who provides a lot of feedback.	3.88	24.03 (.000)	3.96	3.62
Having an employer who is engaged in the community is important to me.	3.55	3.76 (.053)	3.59	3.42
Access to volunteer opportunities through work is important to me.	3.17	7.70 (.006)	3.22	2.97
Access to networking opportunities through work is important to me.	3.77	58.51 (.000)	3.91	3.29
My family is a key influencer in the job I have (or hope to have).	3.55	16.35 (.000)	3.44	3.88
My professors/university are a key influencer in the job I have (or hope to have).	2.92	28.76 (.000)	3.04	2.51
Social media is a key influencer in the job I have (or hope to have).	2.36	3.13 (.077)	2.40	2.24
Job Influencers				
An organization's website is a key influencer in the job I have (or hope to have).	3.21	2.43 (.120)	3.25	3.10
Friends/associates are a key influencer in the job I have (or hope to have).	3.46	12.23 (.001)	3.53	3.22
I judge a company by its social media presence.	2.69	16.70 (.000)	2.79	2.38
I judge a company by its web presence.	3.09	34.57 (.000)	3.24	2.63
Salary/wage is the most important consideration when taking a job.	3.19	.04 (.082)	3.15	3.32
Benefits are the most important consideration when taking a job.	3.37	13.16 (.000)	3.29	3.62
Potential growth/learning environment is the most	3.87	4.02	3.90	3.75

Table 1 JOB SELECTION CRITERIA FOR MILLENNIALS Survey Results and Analysis				
Item	Mean	F-Statistic (Sig.)	Millennial Mean	Non-Millennial Mean
important thing when considering a job.		(.046)		
Location is the most important consideration when taking a job.	3.19	5.62 (.018)	3.14	3.36
Having a job I perceive to be innovative and exciting is important to me.	4.05	29.56 (.000)	4.14	3.74
Being able to express my creativity on the job is important to me.	3.94	5.04 (.025)	3.99	3.79
Location				
Living in a large city (million plus area) is important to me.	2.45	30.45 (.000)	2.59	2.01
A diverse culture (different lifestyles, ethnicities, etc.) is important to me in choosing somewhere I would want to live/work.	3.18	32.27 (.000)	3.31	2.74
A robust arts community is important to me in choosing somewhere I would want to live/work.	2.86	4.37 (.037)	2.91	2.69
Outdoor/nature activities are important to me in choosing somewhere I would want to live/work.	3.61	4.12 (.043)	3.66	3.45
A multi-faceted downtown with shopping, eating and entertainment activities is important to me in choosing where I would want to live/work.	3.51	30.89 (.000)	3.64	3.10
Having sporting events is important to me in choosing where I want to live/work.	3.01	5.79 (.016)	3.08	2.81
A low cost of living is important in choosing where I want to live/work.	3.70	.317 (.573)	3.69	3.73
Feeling safe is important in choosing where I want to live/work.	4.33	1.62 (.204)	4.35	4.26
A short commute time to work is important in choosing where I want to live/work.	3.78	1.02 (.312)	3.77	3.85
A good school system is important in choosing where I want to live/work.	3.77	6.99 (.008)	3.70	3.97

Seven items from job selection were also significant. Millennials want there to be other people close to their age at work (F = 87.36, sig. = .000, M mean = 3.67, NM mean = 2.97) and a supervisor who provides a lot of feedback (F = 24.03, sig. = .000, M mean = 3.96, NM mean = 3.62) compared to non-Millennials. Millennials also rated having an employer who is engaged in the community (F = 3.76, sig. = .053, M mean = 3.59, NM mean = 3.42) and having access to volunteer (F = 7.70, sig. = .006, M mean = 3.32, NM mean = 2.97) and networking (F = 58.51, sig. = .000, M mean = 3.91, NM = 3.29) opportunities through work as more important when looking for a job than non-Millennials did. Millennials indicated that they were neutral in their opinion that their professors/university are key influencers in selecting the job they have (or hope to have) (F = 28.76, sig. = .000, M mean = 3.04, NM = 2.51), whereas non-Millennials were less likely to be influenced by professors/university. Non-Millennials indicated that their family is

more of a key influencer in job selection than Millennials did (F = 16.35, sig. = .000, M mean = 3.44, NM = 3.88).

Eight items of job influencers were significant. The Millennials indicated that their friends/associates are key influencers in the job they have (or hope to have) more so than the non-Millennials (F = 12.23, sig. = .001, M mean = 3.53, NM mean = 3.22). Millennials are more likely than non-Millennials to judge a company by its social media (F = 16.70, sig. = .000, M mean = 2.79, NM mean = 2.38) and web presence (F = 34.57, sig. = .000, M mean = 3.24, NM mean = 2.63), though social media less so. For Millennials, a potential growth/learning environment (F = 4.02, sig. = .046, M mean = 3.90, NM mean = 3.75), a job they perceive as innovative and exciting (F = 29.56, sig. = .000, M mean = 4.14, NM mean = 3.74), and being able to express their creativity (F = 5.04, sig. = .025, M mean = 3.99, NM mean = 3.79) was more important to them than for non-Millennials. Non-Millennials viewed benefits (F = 13.16, sig. = .000, M mean = 3.29, NM mean = 3.62) and location (F = 5.62, sig. = .018, M mean = 3.14, NM mean = 3.36) to be the most important considerations when taking a job.

For location, there were seven significant items. Millennials found living in a large city (F = 30.45, sig. = .000, M mean = 2.59, NM mean = 2.01), a diverse culture (F = 32.27, sig. = .000, M mean = 3.31, NM mean = 2.74), a robust arts community (F = 4.37, sig. = .037, M mean = 2.91, NM mean = 2.69), outdoor/nature activities (F = 4.12, sig. = .043, M mean = 3.66, NM mean = 3.45), a multi-faceted downtown (F = 30.89, sig. = .000, M mean = 3.64, NM mean = 3.10) and having sporting events (F = 5.79, sig. = .016, M mean = 3.08, NM mean = 2.81) more important for choosing where they would live/work than non-Millennials. However, living in a large city and a robust arts community were not as important to the Millennials as the other attributes. Non-Millennials rated a good school system (F = 6.99, sig. = .008, M mean = 3.70, NM mean = 3.97) as more important to them in choosing where they want to live/work than the millennials.

To delve further into the Millennial responses, deeper analysis was performed to identify if there were any differences between males and females. The data was divided so only the Millennial cases were selected. A one-way ANOVA was run for all items with the factor of gender. Significant differences were found based on gender. Males indicated they were more flexible regarding job location (F = 9.14, sig. = .003, male mean = 3.61, female mean = 3.31), that access to networking opportunities through work was important (F = 8.04, sig. = .005, male mean = 4.06, female mean = 3.84), that a potential growth/learning work environment was important (F = 7.61, sig. = .006, male mean = 4.05, female mean = 3.83) and having sporting events was more important to them when choosing where they wanted to live/work (F = 19.25, sig. = .000, male mean = 3.42, female mean = 2.91) than females. Females indicated they were more likely to accept the first job offer they received if they perceived it to be a good one (F = 9.05, sig. = .003, male mean = 3.55, female mean = 3.81). Females also indicated that job security (F = 8.19, sig. = .004, male mean = 4.17, female mean = 4.38), flexible scheduling/work hours (F = 4.15, sig. = .042, male mean = 3.77, female mean = 3.94), having a supervisor/employer who really cares about them (F = 10.06, sig. = .002, male mean = 4.13, female mean = 4.37), having access to volunteer opportunities through work (F = 5.83, sig. = .016, male mean = 3.07, female mean = 3.30), and that feeling safe were more important in choosing where they want to live/work (F = 13.95, sig. = .000, male mean = 4.17, female mean = 4.44) than males. Males were neutral on the importance of having a robust arts community where they lived/worked, whereas females considered it less important (F = 3.70, sig. = .055, male

mean = 3.05, female mean = 2.84). Living in a large city was not important to either gender, though less important to females (F = 7.83, sig. = .005, male mean = 2.79, female mean = 2.48).

DISCUSSION / MANAGERIAL IMPLICATIONS

The primary goal of this research was to investigate the factors that Millennials deem to be important when looking for their first job out of college. The results show that there are some differences between Millennials and non-Millennials in what they are looking for from a job and the location in which they live and work. When seeking a job, Millennials are influenced by their friends and associates in what job they pursue. This may stem from their having grown up in a world of social media, where obtaining opinions and recommendations is both easy to do and socially acceptable. Millennials also judge a company by both its social and web presence. Millennials are considered "digital natives," having grown up in "era of information technology" (Gong et al., 2018; Hershatter & Epstein, 2010). As such, they likely perceive a greater fit between themselves and an organization that effectively uses social media and the web. In other words, there is a match between their communication styles, especially if the organization supports employee social media use (Cho, Park, & Ordonez, 2013). Managers seeking to hire and keep Millennials should make sure their social media policies line up with this perspective. Millennials are more likely to accept the first reasonable job offer made to them than non-Millennials woul, but they are looking for flexibility in their work hours. Although this was truer for females than males, this finding is in line with Ng et al. (2010) who found that Millennials were realistic when thinking about their first job, but quickly seek advancement. This means that managers not only need to provide a first offer that is attractive and will bring the Millennial in the doors, but they also need to highlight the path to advancement. In addition, providing flexible hours helps to bring about the work-life balance and autonomy that Millennials expect in their lives (De Hauw & De Vos, 2010; Macky, Gardner, Forsyth, et al., 2008). In choosing the location where they would live and work, they are flexible in the location of the job but seek a location with a diverse culture, a robust arts community, outdoor/nature activities, sporting events and a multi-faceted downtown.

For the job itself, Millennials are looking for a job that is innovative and exciting in which they can express their creativity and can grow and learn on the job. They also seek a caring supervisor/employer who provides a lot of feedback. This finding helps to support the idea that Millennials prefer meaningful work and seek to be challenged on the job (De Hauw & De Vos, 2010). Organizations should provide mentoring and training on the job which can help Millennials develop new skills and allow them to better utilize the skills and creativity they currently have. At the same time, autonomy in the job may allow Millennials the flexibility to stay creative.

Millennials prefer a social and fun work environment with people close to their age. This finding supports the research by Macky, Gardner, Forsyth, et al. (2008) that shows that Millennials desire social connections at work and social involvement. Providing opportunities for colleagues to come together in a social setting, and giving permission for that socialization, is key for managers working with the Millennial generation. Millennials are also interested in access to volunteer and networking opportunities, as well as a supervisor/employer who is engaged in the community. This is not too surprising given this generation's concern with the environment and making a difference in the world (e.g., McGlone, Spain, & McGlone, 2011).

Job security is important to Millennials, surprisingly more so than to the older non-Millennials. This is interesting, especially given the stereotype that Millennials lack loyalty to their organization and tend to hop from one job to the next. This shows that Millennials value job security, even if they don't expect it (De Hauw & De Vos, 2010). It also should be noted that it may reflect a desire to be proactive in terms of job security and their own employability (De Hauw & De Vos, 2010).

Gender differences were found among the Millennials. Males were more flexible in the job location, but indicated that access to networking opportunities, the potential for growth/learning and having sporting events were more impactful factors than for females. Females were more likely to accept the first offer they received if they perceived it to be a good one. They also indicated that job security, feeling safe, flexible scheduling and a caring supervisor/employer was more important to them than to the males. These differences provide some insight to organizations when attempting to hire Millennials.

LIMITATIONS / FUTURE RESEARCH

There are some limitations to the results of this research. First, the research utilized a self-reported, cross-sectional survey. This may lead to issues such as social desirability and response-set biases. It also limits the ability to assess for life stage or career stage effects. Future research should utilize other methods such as longitudinal designs to help account for these effects. Second, as this was a preliminary study, job-related attitudes were assessed based on single item questions. This limits the analysis that could be performed. Future research should focus on creating scales for the related items in order to further investigate the differences between generational work attitudes. Finally, the sample was accessed through the social media network of students at a Midwest university. Great care must be taken when generalizing the results to other regions and countries. Future research should examine Millennial views across regions and countries.

REFERENCES

Becton, J. B., Walker, H. J., & Jones-Farmer, A. (2014). Generational differences in workplace behavior. *Journal of Applied Social Psychology, 44*(3), 175-189. doi:10.1111/jasp.12208

Buckley, P., Viechnicki, P., & Barua, A. (2015). A new understanding of Millennials: Generational differences reexamined. *Issues by the Numbers*, 1-20.

Calk, R., & Patrick, A. (2017). Millennials Through The Looking Glass: Workplace Motivating Factors. *Journal of Business Inquiry: Research, Education & Application, 16*(2), 131-139.

Cho, J., Park, D. J., & Ordonez, Z. (2013). Communication-oriented person-organization fit as a key factor of job-seeking behaviors: Millennials' social media use and attitudes toward organizational social media policies. *Cyberpsychology, Behavior, and Social Networking, 16*(11), 794-799. doi:10.1089/cyber.2012.0528

Costanza, D. P., Badger, J. M., Fraser, R. L., Severt, J. B., & Gade, P. A. (2012). Generational differences in work-related attitudes: A meta-analysis. *Journal of Business and Psychology, 27*(4), 375-394. doi:10.1007/s10869-012-9259-4

Crampton, S. M., & Hodge, J. W. (2009). Generation Y: unchartered territory. *Journal of Business & Economics Research, 7*(4), 1-6.

De Hauw, S., & De Vos, A. (2010). Millennials' Career Perspective and Psychological Contract Expectations: Does the Recession Lead to Lowered Expectations? *Journal of Business & Psychology, 25*(2), 293-302. doi:10.1007/s10869-010-9162-9

Fry, R. (2018). Millennials are the Largest Generation in the U.S. Labor Force.   Retrieved from http://www.pewresearch.org/fact-tank/2018/04/11/millennials-largest-generation-us-labor-force/

Gong, B., Ramkissoon, A., Greenwood, R. A., & Hoyte, D. S. (2018). The Generation for Change: Millennials, Their Career Orientation, and Role Innovation 1. *Journal of Managerial Issues, 30*(1), 82-86.

Hershatter, A., & Epstein, M. (2010). Millennials and the world of work: An organization and management perspective. *Journal of Business and Psychology, 25*(2), 211-223. doi:10.1007/s10869-010-9160-y

Hung, K. H., Gu, F. F., & Yim, C. K. B. (2007). A social institutional approach to identifying generation cohorts in China with a comparison with American consumers. *Journal of International Business Studies, 38*(5), 836-853.

International Labour Organization. (2018). *LABORSTA [Database].* Retrieved from: https://www.ilo.org/shinyapps/bulkexplorer31/?lang=en&segment=ref_area&id=USA_A

Kupperschmidt, B. R. (2000). Multigeneration employees: strategies for effective management. *The health care manager, 19*(1), 65-76.

Lancaster, L. C., & Stillman, D. (2002). When generations collide: Who they are. Why they clash. *How to solve the generational puzzle at work. New York: Collins Business.*

Macky, K., Gardner, D., & Forsyth, S. (2008). Generational differences at work: Introduction and overview. *Journal of Managerial Psychology, 23*(8), 857-861.

Macky, K., Gardner, D., Forsyth, S., & Cennamo, L. (2008). Generational differences in work values, outcomes and person-organisation values fit. *Journal of Managerial Psychology.*

Marston, C. (2009). Myths about Millennials: Understand the myths to retain Millennials. *Retrieved June, 23*(2009), 113-123.

McGlone, T., Spain, J. W., & McGlone, V. (2011). Corporate Social Responsibility and the Millennials. *Journal of Education for Business, 86*(4), 195-200.

Myers, K. K., & Sadaghiani, K. (2010). Millennials in the workplace: A communication perspective on millennials' organizational relationships and performance. *Journal of Business and Psychology, 25*(2), 225-238. doi:10.1007/s10869-010-9172-7

Ng, E., Schweitzer, L., & Lyons, S. (2010). New Generation, Great Expectations: A Field Study of the Millennial Generation. *Journal of Business & Psychology, 25*(2), 281-292. doi:10.1007/s10869-010-9159-4

Rigoni, B., & Adkins, A. (2016). What millennials want from a new job. *Harvard Business Review, 11.*

Solomon, C. M. (2000). Ready or not, Here Come the Net Kids. *Workforce, 79*(2), 62-67.

Sturges, J., Guest, D., Conway, N., & Davey, K. M. (2002). A longitudinal study of the relationship between career management and organizational commitment among graduates in the first ten years at work. *Journal of Organizational Behavior: The International Journal of Industrial, Occupational and Organizational Psychology and Behavior, 23*(6), 731-748.

Twenge, J. M., Campbell, S. M., Hoffman, B. J., & Lance, C. E. (2010). Generational differences in work values: Leisure and extrinsic values increasing, social and intrinsic values decreasing. *Journal of Management, 36*(5), 1117-1142.

Wong, M., Gardiner, E., Lang, W., & Coulon, L. (2008). Generational differences in personality and motivation: do they exist and what are the implications for the workplace? *Journal of Managerial Psychology, 23*(8), 878-890.

TECHNOLOGY MANAGEMENT IN CENTRAL AMERICAN MAQUILAS

Robert D. Morrison, University of Texas Permian Basin

ABSTRACT

This study of four individuals managing technology transfer, implementation, and support in the Central American manufacturing facilities of US multinational corporations provides empirical support for five of six daily technology management activities (Acquisition, Exploitation, Identification, Learning, Protection, and Selection) suggested by Cetindamar, Phaal, and Probert (2016). The technology managers accomplished their jobs through communication and learning activities as multilingual boundary spanners in the interorganizational network by facilitating the transfer of tacit, explicit, and codified knowledge. As repositories of special information in the organization's transactive memory system, they exercised referent and expert power making them more influential than one would expect based on their position in the global organizational hierarchy.

INTRODUCTION

Although technology management has become a traditional business subject and recognized as an essential component of strategic planning for decades (e.g., Bursic, & Cleland, 1991), the literature is rather limited in the area of the people who are responsible for the management of technology and technology management education (Cetindamar, Phaal, & Probert, 2016; Gudanowska, 2017). The increasing use of computer and robotic technologies on the manufacturing shop floor has significantly reduced the dependence on traditional worker skills in many industries. However, the increased use of technology increased the need for skilled technicians and technically oriented managers to support and manage the technology in the modern manufacturing firm. Concurrent with these technological advancements, neoliberal trade policies, usually in the form of trade agreements such as the 1983 Caribbean Basin Initiative (CBI) now DR-CAFTA, and the 1994 North American Free Trade Agreement (NAFTA), facilitated the shift of manufacturing to many low wage nations.

Initially, the significant difference in wages in industrialized nations versus lesser-developed nations allowed manufacturing firms to use labor-intensive processes and avoid investment in state-of-the-art technology for offshore factories. However, in the global economy of the twenty-first century where manufacturing in low wage countries is now the norm, low wage labor alone no longer provides a sustainable competitive advantage for manufacturing firms. In terms of productivity, manufacturing facilities in low wage nations must meet or exceed global benchmarks, "Low labor productivity endangers the company's survival" and "low labor costs no longer give enough of a cost advantage to offset low labor productivity" (Drucker, 1999, p. 61). The implications in developing nations is that comparative advantage requires a combination of lower-cost and technological edge (Sharif, 1997); therefore, all manufacturing plants must implement cutting edge technology to obtain "productivity equal to that of the world's leaders in a given industry" (Drucker, 1999, p. 62). This also holds true for the Latin American maquila industry (Mital, Girdhar, & Mital, 2002). However, "effective management of

globally dispersed project teams involves a complex set of variables" (Thamhain, 2011, p. 35) and even intra-company transfers of technology are seldom efficient and differences in knowledge backgrounds, competency levels, language, and skills are factors in multi-national enterprises (Malik, & Bergfeld, 2015).

Although researchers pointed out the importance of incorporating manufacturing strategy in to corporate strategy decades ago (e.g., Hill & Still, 1980; Skinner, 1969, 1985; Wheelwright, 1978, 1984), corporate strategy is still predominately based on marketing decisions and manufacturing is forced to react at the backend of the process (Hill & Hill, 2009). This places additional burdens on the technology manager (TM) because "technology is a primary cause of change….technology managers must be able to forecast and assess technological change to obtain competitive advantage" (Roper et al., 2011, p. 1). As a result, while marketing may drive the strategy at the beginning of the process, implementing the strategy in the operational phase requires the TM to quickly identify, acquire, and implement the appropriate technologies. Given that global manufacturing strategies often include co-production across multiple facilities, management of intrafirm technology transfer is of increased strategic importance (Malik, 2002). This indicates that language and communication skills would be a key factor in a TM's successful execution of their duties. Regardless of whether a TM's input is part of the front end of strategic planning or during the back-end operationalization, it is apparent that the TMs play a key role in the success of any multinational manufacturing firm. Obviously, technology transfer is a long-term competence and someone must coordinate the development and implementation of technological capabilities in order to shape and accomplish the strategic and operational objectives of an organization (Cetindamar et al., 2016, 2009; Malik, & Bergfeld, 2015).

The number of technology management, management of technology, engineering management, and engineering technology degree programs in the US has increased in recent years. A cursory Internet search reveals well over 100 easily identifiable degree programs at the associate, bachelor, masters, and doctoral levels, offered at higher education institutions ranging from community colleges to Tier 1 land grant research universities. Despite this increased interest on the part of academia to develop competent TMs, the extant literature provides little insight about what TMs actually do (Cetindamar et al., 2016; Minty, 2003) and the interactive nature of intra-company technology transfer (Malik, & Bergfeld, 2015).

This study provides a valuable contribution to the literature by using field research, as suggested by Meredith (1998), to understand the work of TMs in the off-shore factories of publicly traded US multinational manufacturing firms through direct observation of the tasks they perform. These observations of "the people who actually work in the area in their daily life", as suggested by Cetindamar et al. (2016, p. 10), provide empirical support for five of six specific activities/capabilities that Cetindamar et al. (2016) suggest TMs exercise in their daily work. These TMs engaged in *acquisition* through purchases, collaboration with suppliers, and in some instances, internal development. *Exploitation* was the most obvious activity and it took place through technology implementation, operation, and ongoing support in the factory. *Learning*, *identification,* and *selection* were omnipresent and overlapping as the TMs were routinely called on to seek out information, usually in English and then transfer it into the organization through translation to Spanish, identify solutions for a wide range of needs, gather data to report to management on ongoing projects, and to inform themselves and provide recommendations for technology implementations needed to support the organization's strategic goals. However, *protection* was not a commonly observed activity because these TMs were not

involved in obtaining patents and intellectual property protection and employee retention to protect trade secrets was not a frequent issue in the manufacturing facilities where they worked.

LITERATURE REVIEW

A popular definition of technology management combines Fayol's (1949) commonly cited management processes of planning, directing, controlling, and coordinating with developing and implementing technological capabilities to accomplish strategic and operational objectives (National Research Council, 1987). This definition combines the hard aspects of technology with the softer dimensions related to the management aspects (Phaal, Farrukh, & Probert, 2004); "however, it does not make explicit distinction between technical and managerial issues associated with TM and is a rather static definition" (Cetindamar, Phaal, & Probert, 2009). While the literature contains countless studies that highlight the importance of managing technology to create and maintain competitive advantage, the vast majority of empirical research is at the firm or industry level and provides suggestions, models, frameworks, or identifies obstacles in the area of technology transfer and technology management (e.g., Bommer, Janaro, & Luper, 1991; Gilbert & Cordey-Hayes, 1996; Jensen & Szulanski, 2004; Levin, 1997; Ounjian & Carne, 1987) without providing insight into how individual TMs go about accomplishing their work (Cetindamar et al., 2016). Johnson and Medcof (2007, p. 485) emphasize both the importance and difficulties of the TM's job:

> *Technology managers currently grapple with tremendous challenges as they attempt to mobilize internationally dispersed capabilities within globally integrated strategies. The leveraging of subsidiary technology initiatives has come to be seen as one effective strategy for attaining competitive advantage. However, we know little about the work these individuals perform.*

The literature is virtually silent about the daily work of the people responsible for technology management at the factory level. Despite an increasing number of degree programs in technology management or the management of technology, there is very little empirical evidence on the tasks that constitute a TM's work (Cetindamar et al., 2016; Minty, 2003) and "practitioners feel that the literature on the management of technology is too sparse and fragmented and does not adequately address their concerns, issues, and problems" (Levin & Barnard, 2008, p. 23). The goal of this study is to provide needed insight into the work of TMs at the factory level in offshore subsidiaries of MNCs and identify promising issues for future research.

Technology

The context of technology in this study relates to equipment and process technology in the manufacturing industries, which aligns with Level II (technology acceptance), and Level III (technology application) technology transfer (see Gibson & Smilor, 1991). Level I (technology development) was not a significant part of the TMs daily routines because these factories focused on manufacturing and not research and development. The geographical context of this study is the underdeveloped region of Central America and the TMs firms had factories in Honduras, El Salvador, and Costa Rica.

The Evolution of Manufacturing Strategy Thought

Since the early works of Skinner (1969, 1985) and Wheelwright (1978, 1984) manufacturing strategy has evolved from being viewed as ridged processes focused on planning and trade-offs toward a view of manufacturing strategy being more of a cumulative capability model that responds to the dynamic environment through manufacturing tasks following a sequence of improvement in order to build manufacturing capability more effectively (Dangayach & Deshmukh, 2001; Paiva, Roth, & Fensterseifer, 2008). Drawing on previous studies (Amundson, 1998; Marucheck, Pannesi, & Anderson, 1990; St. John, Cannon, & Pouder, 2001), Paiva et al. (2008) examines organizational knowledge and the manufacturing strategy process through the lens of the resource-based view (RBV) (Barney, 1991; Peteraf, 1993; Teece, 1986; Wernerfelt, 1984). From the RBV perspective a heterogeneity of capabilities and resources exists among a population of firms; therefore, firms can gain competitive advantage through the causal ambiguity related to difficult to duplicate resources, proprietary processes, and equipment that result from internal and external learning (Schroeder, Bates, & Junttila, 2002); therefore, one can conceptualize a manufacturing firm with a sustainable competitive advantage as "an accelerated learning organization driven by dynamic processes that create superior knowledge and translate that knowledge into competitive capabilities and core competencies" (Roth, Marucheck, Kemp, & Trimble, 1994, p. 27). Arguably, having competent TMs throughout the organizational network to efficiently facilitate knowledge transfer through communication would be a prerequisite to becoming an accelerated learning organization.

Cetindamar et al. (2009) argue that technology management is a dynamic capability (Eisenhardt & Martin, 2000; Teece, Pisano, & Shuen, 1997). Dynamic capabilities theory retains RBV's concept of the heterogeneity of capabilities and resources among firms and addresses how a firm allocates resources to sustain continual innovation, how the firm deploys existing resources, and where the firm obtains new resources (Teece et al., 1997). Lall (1990) defined technological capability as the ability to execute all technical functions entailed in operating, improving, and modernizing a firm's productive facilities. Jin and von Zedtwitz (2008) enhanced that definition to not only make effective use of technical knowledge and skills to improve and develop products and processes but also to improve existing technology and generate new knowledge and skills in response to the dynamic business environment. Relevant to this research context, Kim (1997) brings the discussion back into the realm of organizational learning and knowledge by pointing out that in developing countries technological capabilities could be used interchangeably with absorptive capacity (Cohen & Levinthal, 1990). Finally, these two streams of research have merged and moved toward a dynamic resource-based theory (Helfat, 2000) that includes the concept of a capability lifecycle (Helfat & Peteraf, 2003).

Technology transfer research exists in the literature across multiple disciplines and at numerous levels of analysis ranging from the national level, and even economic development classifications such as least developed nations, to the interpersonal level. There is even some degree of confusion over what the term technology transfer means (Williams & Gibson, 1990). This study adopts the definition of technology transfer being fundamentally the application of knowledge (Segman, 1989 as cited in Gibson & Smilor, 1991). Technology transfer between subsidiaries in MNCs is an essential element in terms of developing and maintaining a strategic advantage (e.g., Mital, Girdhar, & Mital, 2002)); however, much of the knowledge is tacit and not codified so transfer in a complex multinational organization requires considerable resources

(Teece, 1977). Although modern information and communication technologies certainly facilitate knowledge transfer when compared to the process just a couple of decades ago, these technologies favor codified knowledge and tacit knowledge is best captured by personal interactions (Nonaka, 1991; Persaud, Kumar, & Kumar, 2001). Therefore, the true opacity that makes a dynamic capability a competitive advantage in the multinational context lies in the organization's ability to transmit tacit and non-codified knowledge effectively across national, cultural, and linguistic boundaries.

Although the literature provides little insight into the work that TMs do, it is axiomatic that language plays a major role in international knowledge transfer (Welch, Welch, & Piekkari, 2005; Welch & Welch, 2008) and strategy implementation (Brannen & Doz, 2012). Nonetheless, several scholars argue that international business researchers have not examined the role of language sufficiently (e.g., Brannen, Piekkari, & Tieze, 2012; Welch et al., 2005). Operating across nations with different cultures provides the MNC promising opportunities (Doz, Santos, & Williamson, 2001); however, language can create significant barriers that inhibit information from reaching decision makers (e.g., Harzing, Köster, & Magner, 2011) and the transfer of knowledge (Welch et al., 2005; D. E. Welch & Welch, 2008). One approach to this dilemma is to adopt a common organizational language (Harzing et al., 2011; Welch et al., 2005) as the default business language. Organizations often choose English even if the firm does not speak English in the headquarters or subsidiaries. Even with a common organizational language, knowledge transfer issues still exist because language fluency varies greatly across functions and organizational levels in MNCs (Barner-Rasmussen & Aarnio, 2011) and individuals across the organization analyze the information from different interpretive frames (Henderson, 2005). Therefore, "projects involving cross-national and multidisciplinary teams are likely to be influenced by the cultural filters team members use to create, share, and transfer knowledge. Thus, it is fairly easy for a receiver to interpret information in a way not intended by the original sender" (Persaud, Kumar, & Kumar, 2001, p. 13). Brannen (2004) argues that the message goes through some degree of adaptation to the host country context if only through the process of cross-cultural communication. If this is the case, then TMs must have a good understanding of all cultures across the global organization to transfer the knowledge across subsidiary boundaries effectively. This paper provides a significant contribution by providing insight into the role of language and communication in the daily activities associated with the transfer of knowledge and technology in and out of MNC manufacturing subsidiaries.

RESEARCH METHODOLOGY

Qualitative research methods such as field research, observation, and interviews allow the researcher to engage the phenomena first hand and gain insight into complex issues that researchers know little about (e.g., Creswell, 2005; Glaser & Strauss, 1967; Mintzberg, 1968, 1973, 2005; Wright, 2003). In the field of international management research, "we are only beginning to know the right questions to ask" (Wright, 2003, p. 49) and qualitative methods allow the researcher to "understand new dimensions, to probe, to be systematic" (Mintzberg, 1973, p. 229) as to "develop an understanding of things we know nothing about" (Mintzberg, 1970, p. 89).

Following the reasoning that a job is no more or less than the sum of all the individual activities (Mintzberg, 1968), this study used the structured observation research methodology. It recorded tasks in a chronology record and multi-coded them, collected anecdotal information,

assigned purpose codes, and from that determined the roles of TMs in this context. Mintzberg's (1968) framework with some modifications for modern communications technology and the particular context and objectives of this study proved effective.

The researcher functions as a kind of "black box" that records events and translates them into abstract categories and theories (Mintzberg, 1968, p. 67); therefore, the credibility of the study depends on the readers' confidence in the researcher's theoretical sensitivity and ability to make appropriate decisions in the field (Patton, 2002). The awareness and insight of the researcher gives meaning to the data, the capacity to understand, and the capability to separate the pertinent information from the irrelevant (Glaser & Strauss, 1967; Strauss & Corbin, 1990) and germane professional experience and familiarity with related literature provide theoretical sensitivity. Addressing this point, I speak Spanish fluently as a second language and lived in Central America for over a decade while working in the maquila industry implementing information and process technologies.

The Coding Key

Mintzberg (1973) contains a full explanation of his framework, codes, and logic in assigning them. Like Stephens (1991), I found it necessary to change some codes and add others. The term director changed to superior and peer expanded to specify the contact as internal or external to the TM's global organization. The code of subordinate applied to operatives on the shop floor, warehouse, and the receptionist even though they were not technically the subordinates of the TM. All other persons working in the TM's global organization but not in the direct line of authority above the TM received the code of internal peer. In this study, the purpose code technical task facilitates identification of activities where the TM engaged in hands-on technical tasks such as adjusting shop floor machines, writing computer program code, performing time studies, and testing devices in the quality lab. Every task except email received a code of international or local and technical or managerial in nature.

This study coded mail with the same twelve purpose codes for incoming mail and nine purpose codes for outgoing mail used in Mintzberg (1968, 1973). Email was only in its infancy in academia in 1968 and only a few commercial businesses were using it in, mostly internally, in 1991 and cell phone text-messaging did not even exist. Stephens (1991) assigned purpose codes and role codes to email; however, there were only 102 of them over the five-week observation period; there were thousands of emails in this study. A pilot study revealed that assigning purposes and roles to email required a detailed analysis requiring real-time input from the TM and that would severely affect the validity of the study. My interest was observing the tasks of TMs under normal work conditions; therefore, this study did not code the emails or text messages received or sent by the TMs because doing so completely disrupted the normal course of activities. Data from software developed and installed on the TMs' computers for self-reporting of email proved to be time consuming and insufficient to resolve the problem; the TMs simply did not have time to enter the needed information consistently. Due to confidentiality concerns, the firms would not allow the storage or forwarding of emails for afterhours evaluation.

This study added the roles of technologist and consultant. The need for these roles formed during the first observation and the distinction between the two evolved throughout the study. The consultant roll is ostensively a one-way flow of technical knowledge from the TM to another person, usually in response to a request for that information. The technologist role is a

more collaborative two-way interaction, often with a technical peer or subordinate, or when the TM performs technical tasks that address a need of the firm.

Selection of the Research Participants

There are four main industry segments of the maquila sector in Central America, apparel, automotive components, electronics, and textile. This study purposefully selected the subjects for this study. "In qualitative inquiry, the intent is not to generalize to a population, but to develop an in-depth exploration of a central phenomenon;" therefore, the researcher "purposefully or intentionally selects individuals and sites" (Creswell, 2005, p. 203). The study included one TM from each segment; however, the objective was to get and aggregate view and not to compare and contrast the work of TMs in each segment with each other.

Potential candidates worked in wholly owned subsidiaries and joint ventures of publicly traded US based MNCs in each segment that had a position where a technically oriented individual performed a managerial role as a middle manager. Within the companies, people referred to each participant with the title of engineer, which is common practice in Spanish speaking countries. This study classified middle management as having clearly identified subordinates and the authority to hire and terminate those subordinates as well as delegate task, assign responsibility, and allocate resources as opposed to supervisors with extremely limited or nonexistent authority to allocate company resources. The selected TMs had worked in their current positions for more than two years and all had started their careers as technicians and risen to management positions. They all held undergraduate degrees in engineering or industrial technology and the apparel and textile TMs also held MBA degrees. The textile mill and apparel manufacturer operated within the same large-cap conglomerate; however, they operated in separate divisions and had no business interactions. The automotive components supplier was a large-cap industry leader with operations around the globe. The electronics firm was a small-cap firm with a global supply and distribution chain. The apparel TM was female while the remaining three were male.

<div align="center">

RESULTS

</div>

Observation Time and Locations

This study is of the four selected TMs at work in their respective factories for five consecutive working days for each TM. During the observation period, the four TMs perform 927 tasks during 12,275 minutes or 204 hours and 35 minutes. The study omits 41 tasks that consumed 1,014 minutes or 16 hours and 54 minutes because they were non-work activities, such as lunch, travel between facilities, and personal hygiene breaks. As a result, there were 886 work tasks performed by the TMs in 11,261 minutes or 187 hours and 41 minutes (see Table 1). This study did not code individual emails; therefore, some results, as noted, exclude 1,669 minutes spent in150 email sessions.

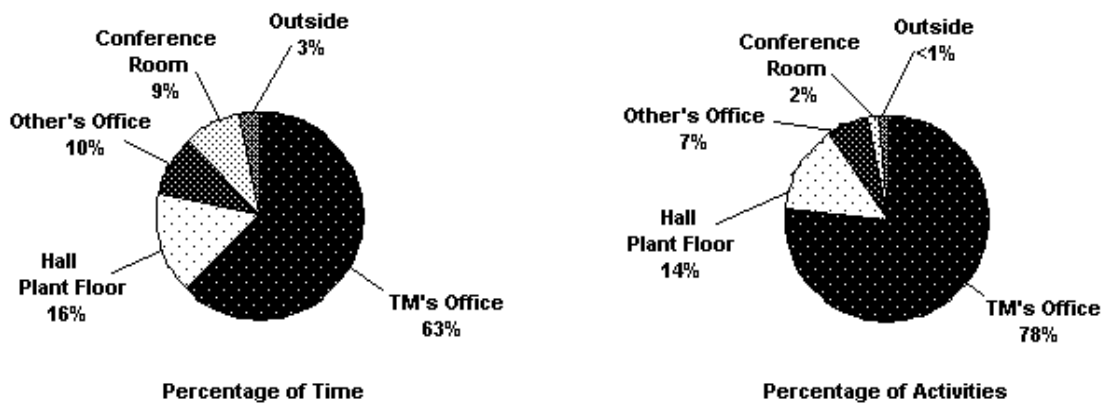| Table 1 OBSERVATION TIME BREAKDOWN			
Observation Breakdown	Activities	Minutes	Min/Activity
Total Activities Observed	927	12275	13.24
Non-Work Activities Omitted	41	1014	24.73
Net Activities Observed	886	11261	
Synchronous Communications	625	7802	12.48
Deskwork Total	261	3459	13.25
Deskwork Non-Email	111	1790	16.13
Deskwork Email	150	1669	11.13
Net Work Observed	886	11261	12.71
Work Observed Email Excluded	736	9592	13.03
Work Observed Deskwork Excluded	625	7802	12.48

Verbal or synchronous communication, meetings, and observational tours accounted for 69% of the time and 71% of activities for all TMs combined. The TMs spent the remaining 31% of the time doing deskwork that accounted for 29% of the activities (see Figure 1). Email accounted for 48% of the deskwork time and 57% of the deskwork activities.

Figure 1. Distribution of Deskwork versus Other Activities
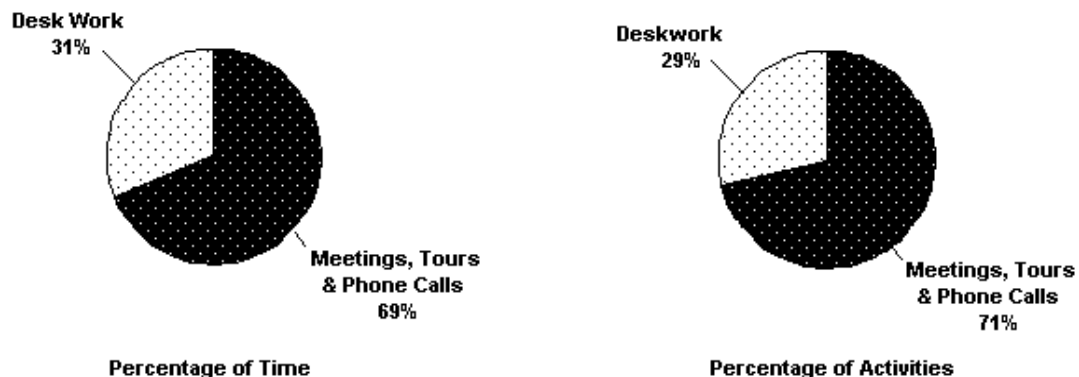
Combined, TMs spent 63% of the time in their offices and 78% of all activities took place there. Note that time spent sitting at the desk but speaking on the phone applied to the verbal contact record and is not included in the deskwork time; therefore, the deskwork activities category is not a comprehensive indicator of the total time spent in the office (see Figure 2). The automotive TM and the electronics TM had one task each outside of the facility with people from another organization.

Figure 2: Distribution by Location

Outside 3%
Conference Room 9%
Other's Office 10%
Hall Plant Floor 16%
TM's Office 63%

Percentage of Time

Outside <1%
Conference Room 2%
Other's Office 7%
Hall Plant Floor 14%
TM's Office 78%

Percentage of Activities

Technology versus Management

As a group, TMs spent 64% of their time on activities that were ostensively managerial in nature and they constituted 66% of all activities (see Figure 3). This study excluded time dedicated to email when evaluating technical versus managerial tasks because it was impossible to identify the context of each individual email without affecting the activities of the TM; however, this study did code time spent on other deskwork as technical or managerial in nature.

Figure 3. Distribution Between Technical and Managerial Tasks (non-email)

Technical 36%
Managerial 64%

Percentage of Time

Technical 34%
Managerial 66%

Percentage of Activities
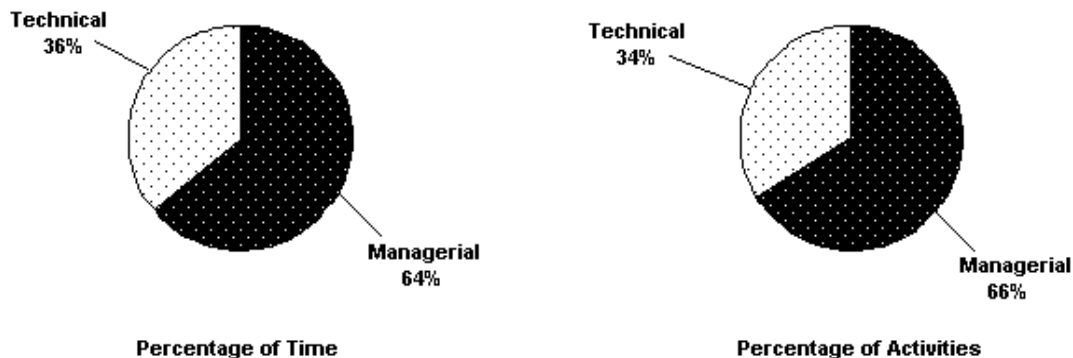
International versus Local

As a group, local issues accounted for 77% of the TMs' non-email time and 76% of the non-email activities (see Figure 4). The TMs spent the remaining time on issues that contained an international component. All activities coded as international in this study involved a language other than Spanish or translating. The other spoken language was always English but the textile TM dealt with German, French, English, and Spanish when modifying the information system to print out export documents for shipments to the European Union and North Africa.

Figure 4. Distribution Between Local and International Tasks.

International
23%

Local
77%

Percentage of Time

International
24%

Local
76%

Percentage of Activities
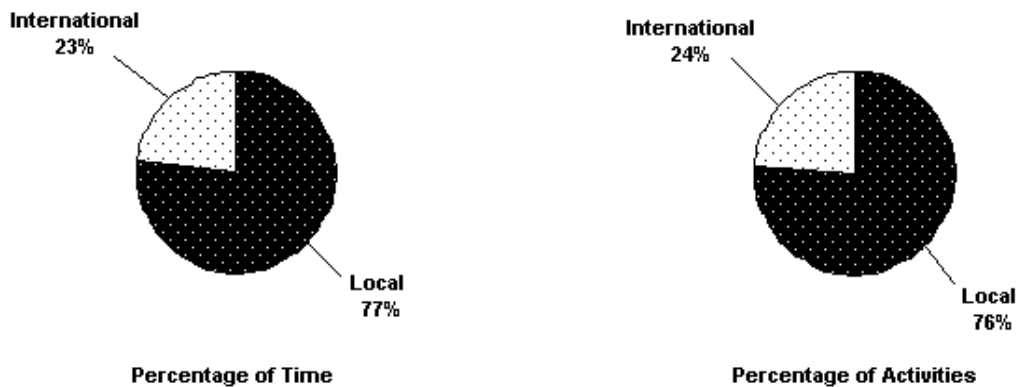
Forty-three percent of these international issues activities involved logistics and they accounted for 31% of the time spent on international issues. Although not anticipated, logistics issues always contained a language component because the export documents and discussions always had terms in at least Spanish and English. Spanglish more appropriately describes the language used in the maquila industry. Those working in the maquila have adopted the English names of many machines and other terms like BL for Bill of Lading or Invoice and even non-English speakers use them in conversations and written communications.

Activity Categories

As a group, deskwork activities, including email but not counting telephone calls, accounted for 31% of TMs' time and 29% of their tasks. Email accounted for 48% of the time spent on deskwork but only 17% of deskwork activities. TMs spent the remaining deskwork time working on computer applications, miscellaneous sorting and organizing, operations reports, purchase orders, reading paper mail, performing technical skills, or browsing the Internet (see Figure 5).

Figure 5. Distribution of activities
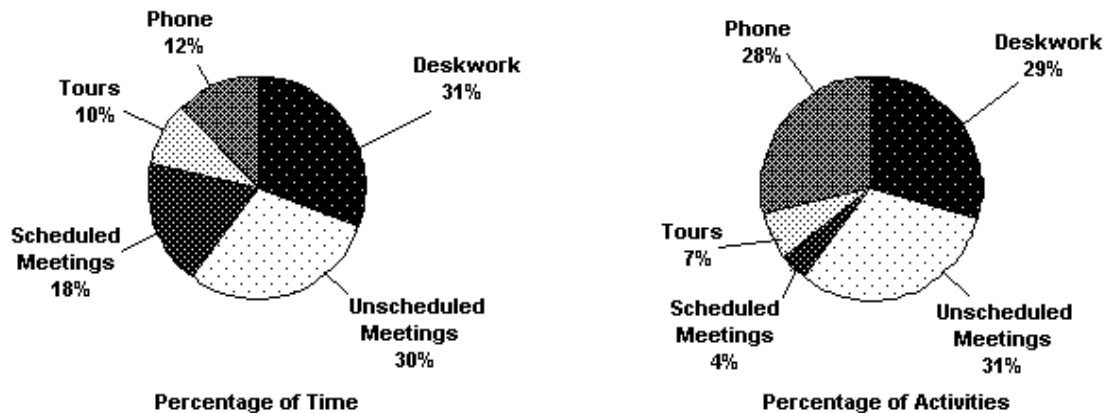
Unscheduled meetings consumed 30% of the TMs' time and accounted for 31% of all activities. The other party, not the TM, initiated most, 57% of the unscheduled meetings. The majority occurred in the TM's office, 63%, with only one other person who was usually a subordinate. Scheduled meetings averaged 55.36 minutes and consumed 18% of the TMs' time; however, they amounted to only 4% of all activities. Scheduled meetings were most often with internal peers, held in a conference room, and more than four people attended. While verbal telecommunications consumed only 12% of the TMs' time, the category accounted for 28% of the total activities. The average conversation lasted 5.2 minutes, usually occurred in the TM's office with the TM initiating the call. Most conversations, 45%, were with subordinates and 37% were with internal peers. Only 6% of the conversations were with the TM's superior. TMs spent 10% of their total time, including email time, on observational tours.

Purpose Categories

Following the framework used in Mintzberg (1968) and Stephens (1991), this study coded verbal or non-desk work activities according to purpose (see Figure 6). The TMs spent 59% of their time and 54% of the activities exchanging information with others in review sessions where information flowed two ways or received information or gave information in one-way exchanges. In strategy sessions information flow was two way, so they were also review sessions, but not double coded.

Figure 6. Distribution of purpose
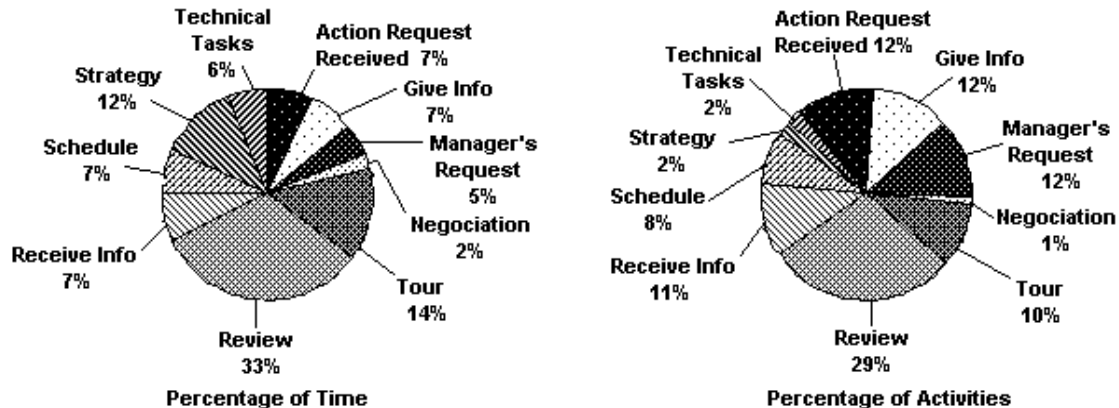
As a group, TMs spent 14% of the non-email time on observational tours and they accounted for 10% of their activities. The tours varied in length; while the mean was 17.92 minutes, the mode was 5 minutes. TMs conducted 69% of all tours alone. The TMs used observational tours for two main reasons: monitoring the activities of subordinates or going to see something firsthand.

TMs dealt with action requests received from others and that consumed 7% of the TMs' time or 12% of their activities. These requests were from internal peers, subordinates, superiors, and external suppliers. TMs spent 5% of their time and 12% of their activities making requests of others. TMs spent time scheduling and that consumed 7% of the TMs' time and constituted 8% of their activities. Two purpose categories, negotiation, and ceremony received little activity. Only 6% of the TMs' time and 2% of the activities were technical tasks.

Role Analysis

The TM plays many roles in the performance of his or her job (see Figure 7). The informational role of monitor was most prominent and consumed 27% of the non-email time accounting for 32% of the activities. As a monitor, the TM receives information from within his or her department, inside the larger organization, and from outside the organization. The TMs spent 7% of the non-email time and 13% of the activities on the informational role of disseminator. Tasks that fit the informational role of spokesperson did not occur during the study.

The interpersonal role of liaison consumed 14% of the TMs' time and accounted for 5% of the non-email activities. The TMs in this study played the figurehead role on only five occasions and they constituted less than 1% of the non-email time. The interpersonal role of leader constituted 5% of both the non-email time and activities. The leader role applied to interactions with employees including educating and mentoring subordinates on technical issues. A broad view of leadership skills permits many of the TMs activities to fall into the leader role; however, for the purposes of this study only activities where the TM exerted the extra effort to coach a subordinate, provide positive feedback, or demonstrate a unique skill received the leader code.

Figure 7. Distribution of roles
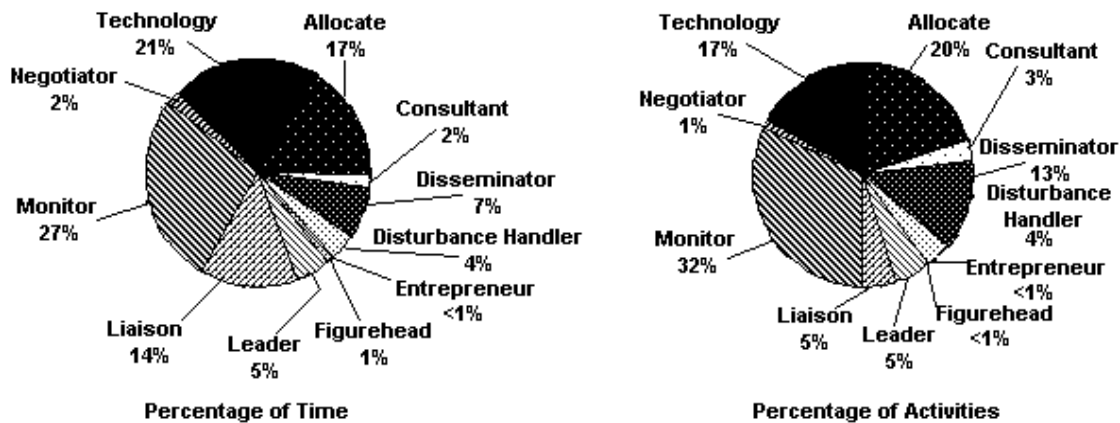
The decisional role of being the person authorized to allocate department resources consumed 17% of the non-email time and 20% of the TMs activities. The decisional role of disturbance handler accounted for 4% of the TMs' non-email time and activities. The decisional role of negotiator consumed only 2% of the TMs time and 1% of the non-email activities. There were only three activities of one TM where the decisional role code of entrepreneur applied.

The TMs spent 21% of their non-email time and 17% of the activities playing the role of technologist. Since the technologist role also includes discussing and collaborating, it includes activities that fell outside the purpose category of technical task, which amounted to only 6% of the time. The role of consultant accounted for only 2% of the time and 3% of the non-email activities.

Mail Analysis

There were only 72 pieces of incoming paper mail and 31 pieces of outgoing paper mail in this study. The coding of incoming paper mail used the codes: events, authority request, general reports, reports on operations, and periodical news. All outgoing paper aligned with one code: written report. All of the paper mail was routine, and the TMs gave little importance to it. It was the instantaneous information via email and the corporate information systems that attracted the TMs' attention; unfortunately, attempts to code the email were unsuccessful.

DISCUSSION

The chronology record of tasks collected during the observations, anecdotal evidence, and discussions with the TMs during meals, travel, after working hours and follow up interviews form the basis for the discussion and conclusions. While the total time of observation was similar (see Table 2), a comparison of the chronology record indicates that the distribution of activities for the TMs in this study is different (see 10) from those of the CIOs studied by Stephens in 1991 (see also Stephens, et al., 1992), and the CEOs studied by (Mintzberg, 1968, 1973). At first glance, the number of activities—886 versus 623 and 527 respectively—stands out and further analysis indicates that continuously checking email throughout the day accounts for most of that increase. The frequent use of email in today's business environment further underlines the important role that electronic communication plays in the global transfer of knowledge and technology.

Table 2 PREVIOUS STUDIES TIME COMPARISONS			
Comparison Categories	This	Stephens CIO	Mintzberg
Total Hours Observed	204.58	215	220
Excluded (lunch, travel) Hours	16.9	7	18
Net Hours of Work	187.68	208	202
Net Number of Activities	886	623	547

International Issues

The TMs spent most of their time gathering and disseminating information in the local context and less time receiving or disseminating information in a language other than Spanish. The fact that they used their foreign language skill in only about one out of four activities does not undermine the importance of speaking more than one language fluently; it was a key job requirement and critical to the organization's ongoing operation.

International logistics issues occupied only 7% of the TMs' non-email time, and only 31% of the total time spent on international issues, but the international logistics situations were the most dramatic because of the potential to stop production or delay important projects. The expected arrival date of parts, supplies, and equipment was the main constraint for scheduling projects and important to decide when foreign peers or installers from the supplier should fly in to help set up equipment. These situations usually arose because some issue, usually human error by the sender, delayed the import of needed items. The procedures and documents required for international shipments are quite different from those for domestic shipments and most errors traced back to the sender's lack of understanding. Unlike domestic delivery routes that run daily, ships depart every few days, containers must have seals with documents submitted well in advance. Airfreight is faster and more frequent but without the correct documentation, one wastes the additional cost as the shipment sits in customs for days. Shipping delays had a ripple effect. The TMs in this study were not directly responsible for performing the task of customs brokers or import/export agents; however, they had to get involved because the issue effected receiving items they needed to start a project or their language skills were essential to resolving the issue through communication with the foreign supplier or company subsidiary.

Table 3 PREVIOUS STUDIES CATEGORY COMPARISONS			
Categories	This Study	Stephens CIO	Mintzberg CEO
Desk Work - % Time	31%	28%	22%
Time Spent - Hours	57.65	59	44
Number of Activities	261	122	179
Desk Work - % Activities	29%	20%	33%
Mean Duration - minutes	13.25	29	15
Maximum Duration - minutes	80.00	44	20
Minimum Duration - minutes	1.00	16	12
Unscheduled Meetings - % Time	30%	14%	10%
Time Spent - Hours	56.00	30	20
Number of Activities	275	176	101

Unscheduled Meetings - % Activities	31%	28%	18%
Mean Duration - minutes	12.22	11	12
Maximum Duration - minutes	148.00	17	24
Minimum Duration - minutes	1.00	8	6
Scheduled Meetings - % Time	18%	48%	59%
Time Spent - Hours	33.22	103	120
Number of Activities	36	109	105
Scheduled Meetings - % Activities	4%	17%	19%
Mean Duration - minutes	55.36	59	68
Maximum Duration - minutes	218.00	73	98
Minimum Duration - minutes	4.00	44	40
Verbal Telecom - % Time	12%	9%	6%
Time Spent - Hours	21.62	19	13
Number of Activities	249	174	133
Verbal Telecom - % Activities	28%	28%	24%
Mean Duration - minutes	5.21	6	6
Maximum Duration - minutes	58.00	12	20
Minimum Duration - minutes	1.00	3	12
Observational Tours - % Time	10.19%	2%	3%
Time Spent - Hours	19.12	3	5
Number of Activities	64	42	29
Observational Tours - % Activities	7%	7%	5%
Mean Duration - minutes	17.92	6	11
Maximum Duration - minutes	104.00	9.5	8
Minimum Duration - minutes	2.00	2	0
Percentage Activities Over 60 Min	2.03	9	10

Technology Gatekeepers

In this study there were actions that clearly aligned with the daily activities/capabilities of *Identification, Selection,* and *Acquisition* suggested by Cetindamar et al. (2016). The TMs did play a significant role in evaluating technology investments and acting as gatekeepers to address the control of the consumption of technology being like "drinking from a fire hydrant" as described by Synnott and William (1981, p. 12). Calculating and discussing the return on investment (ROI) for technology expenditures was common as was evaluating competing technologies. The TMs were key participants in the decision-making process any time technology was involved. They considered support cost, local availability of support, total cost of acquisition and life cycle among other things when providing their input. The TMs' superiors and peers sought out the TMs' opinion and it was often the pivotal information contributing to the final decision.

The Factory's Technical Information Expert

In all four firms, the daily activities/capabilities of *Learning* and *Exploitation* (see, Cetindamar et al., 2016) occurred and intermixed with activities related to *Identification*, *Selection*, and *Acquisition*. The TM was the factory's technical information expert, the one with the precursory technology knowledge (Harris, 1989). This ranged from explaining how an email spam filter worked to determining the British Thermal Unit (BTU) value of bunker fuel based on the American Petroleum Institute (API) number (related to two competing quotes from suppliers

that listed different API values) even though the TM had to look it up on the internet because he did not have any background in petroleum products. Superiors, peers, and subordinates relied on the TM's technical expertise and research skills and expected them to know or find out quickly. The TMs where called upon several times a day to provide technical advice or explanations to others. Peers and superiors also asked them to investigate technology solutions for a wide range of situations. The *learning* activity directly relates to the *exploitation* activities, which also links to technology *identification*, *selection*, and *acquisition*. The TMs constantly scanned for relevant new technologies and knowledge and that lead to *identification, selection,* and *acquisition* activities. *Learning* linked to *exploitation* through the transfer of knowledge gained from outside the local factory to those inside the factory that would implement and utilize the knowledge and technology.   Technology evolves at a rapid pace and this requires technologist to be constantly aware of innovations. The TMs spent very little time on browsing the Internet, reading technical manuals, or industry periodicals during working hours. However, from the content of conversations it was obvious that they kept themselves well informed on current issues related to their respective industries and the technologies they worked with. Follow up interviews revealed that they all spent time outside of working hours to keep themselves current and the Internet was the source they used most frequently. They also traveled to headquarters, subsidiaries, and suppliers for training several times per year.
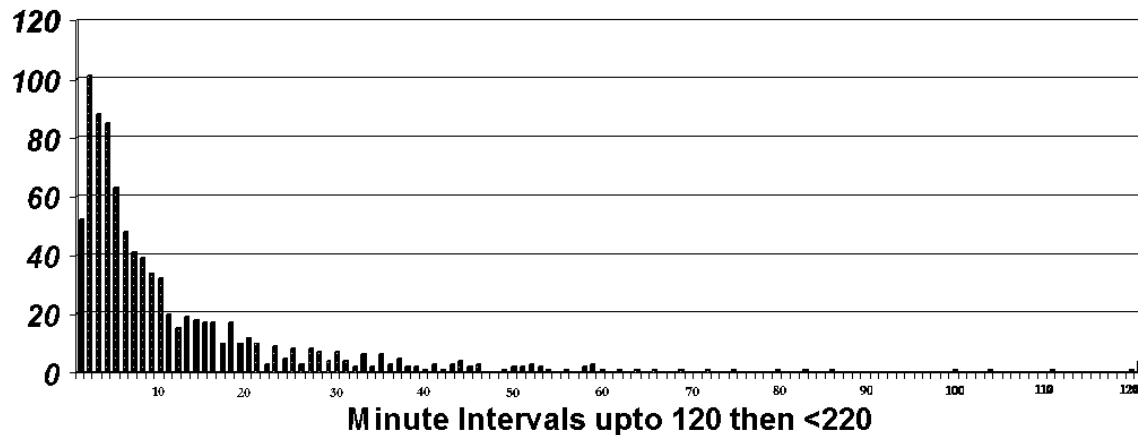
The Work Day

The management processes absorbed most of the TMs' time. They participated in strategic planning and budgeting sessions, organized ad hoc groups to perform tasks, participated in hiring and terminating employees, directed subordinates, and allocated company resources. The TMs in this study were fully empowered managers directing subordinate technologist while collaborating with peers and superiors to select, implement, manage, and support the technologies the firm required. They were not acting as technicians with only ancillary managerial activities.

Although managerial tasks dominated the TM's workday, it was apparent that technical expertise was an absolute prerequisite; each TM in this study demonstrated that they were also skilled technicians. When a pressing technical problem arose and no subordinate was available or a subordinate presented a problem they could not resolve, the TMs took a hands on approach and did whatever was needed to solve the problem. It was apparent that they were capable of performing the duties of most of their subordinates. Without hesitation the apparel TM adjusted shop floor machines, the automotive TM disassembled and reassembled computer server, the textile TM wrote program source code, and the electronics TM tested circuit boards in the quality lab to locate defects.

Brevity, variety, and fragmentation characterize the TMs' activities and this is in keeping with previous studies of managerial work. Most activities were brief with 62% lasting less than 9 minutes and only 2% lasting more than an hour; however, the range of duration was large (see Figure 8). The average duration was 14 minutes with a standard deviation of 20, the shortest activities recorded lasted 1 minute, and the longest was a strategy session that lasted 2 hours and 18 minutes. The fragmentation caused by unscheduled meetings and phone calls combined with the unpredictability of the duration of activities left the TMs with little ability to predict or control their daily agenda. Input from others, often via email, drove most of the TMs' activities. The initiation codes in the contact record are somewhat misleading. Following the framework,

many activities coded as initiated by the TM were in fact the TM's response to a meeting, call, or email initiated by another party.

Figure 8: Histogram of Activity Duration

The following scenario provides a realistic picture of the workday of the TMs in this context. They started the workday with a mental or written list of things-to-do for the day and the rest of the week. The first task of the day was to logon to their computer and check email. The emails caused the TMs to reply, forward emails to others, write new emails, and initiate telephone calls or unscheduled meetings. If the emails and related calls and meetings failed to uncover some production-stopping crisis, the TMs then proceeded to address their list of things-to-do. The interruptions began, usually within minutes, as people called or came to the TMs' office. From that first interruption forward, the TMs wedged the activities they initially intended to accomplish in between the interruptions and scheduled meetings as the day progressed.

Occasionally the frequently demand for translation frustrated the TMs because it took time away from focusing on core responsibilities and key projects. Most translated conversations did not involve difficult technical issues or complex problem solving. The parties just were not able to speak the same language fluently enough to effectively transmit the intended message and verify that the other party or parties understood. Internal peers from non-technical departments also sought out the TM to relay non-technical messages in the other language that were unrelated to the TMs area of responsibility. Moderately bilingual subordinates and internal peers also called on the TMs frequently to clarify confusion caused by homonyms, colloquialisms, or regional accents. This is a good example of the *cultural filters* that that complicates communication in cross-national teams (Persaud, Kumar, & Kumar, 2001) and provides support for the point made by Barner-Rasmussen and Aarnio (2011) that language fluency varies greatly across and functions and organizational levels in an MNC.

The TMs' communicated across the interorganizational network (Ghoshal & Bartlett, 1990) and did not routinely follow a chain of command. In fact, only about 7% of the time spent on the phone and in meetings, 5% of the net observation time, was with their superior. Therefore, they operated rather autonomously. There also did not appear to be a preference in the automotive, apparel, or textile sectors to communicate through the headquarters to get information from other subsidiaries. The communications appeared informal, as discussed by Macdonald (1996), within an integrated network of active and flexible links with both the headquarters and other subsidiaries as described in Gassmann and von Zedwitz (1999). The

electronics firm seemed to communicate through the headquarters and being more of a technology driven firm this concurs with von Zedtwitz and Gassmann (2002). However, it is noteworthy that the electronics firm had significantly fewer subsidiaries to communicate with than the other firms in the study did.

Language barriers intensified the "dilemma of delegation" described by Mintzberg (1973). The TMs were one of the few fluently bilingual people in the factory and usually the only one with technical expertise. This caused them to be highly sought out as communication facilitators because they could receive, evaluate, translate, and then disseminate information—from the most general to the highly technical, codified or tacit—on the fly. The dilemma is that the solution or needed action existed as a collage in the TM's mind and not codified into an easily transferable form; or if codified information existed, as were the instructions to program a new wireless multiunit phone system, it was in the wrong language. This created barriers to delegation and dissemination because delegating without insuring the subordinate had full comprehension presented an unacceptable risk of failure or miscommunication; however, codifying the knowledge into an appropriate knowledge transfer instrument in the correct language required time and resources the TM did not have. The situation overloaded the TM with communication tasks instead of technical tasks; however, it also appeared to endow them with a noticeable amount of respect throughout the global organization.

The analysis of the data collected in this study indicates that language expertise and technical expertise combine to make the job of the TMs in this context fundamentally one of communication, which they leveraged to be effective managers. Their felicitous skill set enabled them to facilitate communication flows competently regardless of the degree of complexity or technical subject matter and this resulted in them being a boundary spanner or gatekeeper as discussed in Cranefield and Yoong (2007). By being an agent to pass information across boundaries these TMs were a key individual in the organization's memory (Walsh & Ungson, 1991) and became a repository of knowledge in what Wegner (1995) labeled as an organization's *transactive memory system*. Superiors, peers, subordinates, and individuals throughout the TMs global supply chain embedded the TMs in their meta-memories and sought them out. Although the TMs position afforded them little legitimate power (Raven & French, 1958) at the level of the global organization, they had noticeable informal influence (see Cobb, 1980). Their combined technical knowledge and language abilities resulted in expert and referent power (Raven & French, 1958) that "allowed them to find themselves in more powerful positions than would normally be the case" (Marschan-Piekkari, Welch, & Welch, 1999). These TMs participated in important strategic decision making at the corporate level, initiated change, allocated resources, spearheaded some limited entrepreneurial projects, negotiated with people inside and outside the organization, and played an important role as a disturbance handler to resolve issues that affected both operational effectiveness and organizational harmony.

Industry and Gender Effects

Although the goal of the study was to capture the daily work activities of TMs across different manufacturing industries and not to focus on individual industry differences, readers may find a cursory review of a few minor differences beneficial. During the observations there were no obvious differences in the workday of the TMs between the different industries. A fragmented day was the norm in all four industries and the needs and inquiries of others drove the schedule more than the TM's own predetermined schedule. There were also no obvious

differences that one could attribute to gender. The daily activities of the female apparel TM were very much like those of the three male TMs. The textile TM spent less than 1% of his time on observational tours while his counterparts spent 10% to 19% of their time on observational tours. This coincides with only 27 minutes spent on the shop floor for the textile TM compared to 316 to 872 for the other TMs. This difference most likely relates to textile manufacturing having significantly fewer manual labor processes on the shop floor and this reduces the need for observational tours and shop floor meetings. The automotive and textile TMs also spent more of their time in scheduled meetings, 21% and 25% respectively, as opposed to 12% and 13% for the apparel and electronics TMs, respectively. The automotive and electronics TMs spent a larger percentage of time, 37% and 38% respectively, on desk work than the apparel and textile TMs did at 23% and 27% respectively. These differences were apparent only after compiling and examining the data and there was no effort taken to explain these differences. A full breakdown of the data collected is available on request.

CONCLUSION

This study provided empirical support for five of the six daily activities/capabilities suggested by Cetindamar et al. (2016). The fact that there were not any *protection* activities observed does not discount it as a relevant activity of TMs in general. These TMs simply were not involved in obtaining patents and intellectual property protection and employee retention to protect trade secrets was not a frequent issue in the context where they worked.

The maquilas in this study utilized world-class technology and the TMs observed facilitated the successful implementation and managed the ongoing support. They spent most of their time on tasks that are ostensibly managerial in nature. While they were also practicing technologist with the required precursory technology knowledge (Harris, 1989), they played this role through planning, researching, collaborating, advising, and consulting on technical aspects of the firms daily activities and strategic initiatives; they spent little time performing technical tasks themselves. However, these TMs rose to their current position because of their technical expertise in their respective areas. Foreign language fluency and experience in the technology portion of the title occurred before adding the authoritative title of manager.

The TMs accomplished their jobs essentially through communication. They worked quiet autonomously as they used their linguistic and technical expertise to transfer tacit, explicit and codified knowledge—often through translation—in and out of the subsidiary via the interorganizational network. Through their communications, they gain access to information and become a repository of special information in the organization's transactive memory system and that caused them to have more power and influence than the position in the organizational hierarchy would suggest. They participated in the organization's strategic decision-making process and often acted as technology gatekeepers to control the technology obsession that can lead to inappropriate technology investments. They did this through careful evaluation of the particular technology, by analyzing competing technologies, and through calculating the total cost of acquisition and the potential return on investment.

During this study, information flowed in multiple directions (up, down, horizontal and diagonal) and via a variety of means including phone calls, meetings, video conferences, email, electronic databases, and written documents. This supports the view of technology transfer being an ongoing and continuous interactive process where many activities, functions, and networks operate simultaneously to overcome barriers to the transfer process. The TMs were essential

network components that received, evaluated, stored, and disseminated that information with the highly sought-after ability to recode into another language if needed. This makes the TMs contribution instrumental when it comes to turning a dynamic capability into a sustainable competitive advantage in the multinational context.

Practitioner Relevance

There are significant managerial implications associated with operations in developing countries because of "the distinctive nature of the business environment, which varies considerably from that of the more developed nations" (Austin, 1990, p. 1). In addition, foreign direct investment (FDI) in manufacturing facilities plays an important role in transferring the knowledge and technology needed for economic development (Contractor & Sagafi-Nejad, 1981; Kosteas, 2004; Saggi, 2002; Stiglitz, 2003). One can assume that TMs in these factories are the primary facilitators of this needed transfer of knowledge and technology.

The lack of technology in developing nations is apparent. Stiglitz (2003) asserted that development requires more than just capital and resources; advancement requires the elimination of technology and knowledge gaps. However, technology and knowledge do not simply flow from the high to the low as if they were fluids (Patel, 1974); it requires education and management to facilitate its transfer. Unfortunately, the education systems in most developing and transitional economies are inadequate (Salmi, 2003). Therefore, issues related to absorptive capacity (Cohen & Levinthal, 1990) arise and management in these MNC subsidiaries must address this through human resource development activities combined with individuals possessing the required precursory technology knowledge that can identify technology and knowledge gaps and facilitate processes to address the deficiencies. Arguably, this is the role of the TM and the job would require interaction with other subsidiaries, suppliers, customers, industry organizations, and other stakeholders around the world to identify new knowledge and technology and facilitate its transfer into the local subsidiary. Therefore, the technology manager not only plays an important role as a boundary spanner or gatekeeper (Cranefield & Yoong, 2007; Johnson & Duxbury, 2010) but also as a facilitator of human resource development activities.

In discussions and interviews with US executives in the months preceding these observations, while the difficulty associated with transferring and maintaining technology was at the forefront of discussions, the executives did not accentuate the importance of the role and work tasks of the TM in the local subsidiary. The emphasis was toward the importance of US support staff providing assistance to the offshore manufacturing subsidiaries and going down to help the out on projects. During these observations, there were US support people in the factories; however, these were also the busiest days for the TMs as they spent time learning from the US team and then translating that knowledge and training the local staff who did not speak English. Each TM, in their own unique way, indicated that they did not feel that upper management truly understood what they did or appreciated the contribution it made to subsidiary success. Given the scarcity of fully bilingual, with emphasis on *fully*, individuals who also possess technical competence, executives should take steps to understand the daily work of the subsidiary TMs and assure that they receive the organizational-wide support they need and that they are aware that upper-management appreciates their contribution.

Limitations and further research

This study used the structured observation methodology; therefore, the associated major limitations: sample size, reliability checks, coding methodology, conceptual problems, and assumption of generalizable relationships apply to this study. Martinko (1988) and Stephens (1991) discuss these limitations in detail. Nevertheless, structured observation was an effective methodology to gain insight into that which we knew little about.

One area for future research is a better understanding of exactly whom, both inside and outside the organization, the TM communicates with. This study only recorded generalities such as internal or external peer. A more detailed understanding of the relationship and exact nature of the exchange and the technology and processes discussed would provide useful insight. A detailed mapping of email communications would likely provide valuable understanding and support the use of email history when conducting the *Experience Scans* investigated by Routley, Phaal, Athanassopoulou, and Probert (2013). Today email is "critical to the ongoing success of an enterprise" and contains up to 60% of the vital business data in the average company (Gray, 2001, p. 54). While this study demonstrated the difficulty of recording those communication flows for analysis, it also demonstrated the need. The challenge lies in accurately collecting the data without excessively disrupting the natural flow of activity we seek to understand. A properly configured study mapping the TMs contacts through all mediums, including email, and categorizing them by topic, contact position, location, and language would provide interesting insight into intricate web of informal information flow that facilitates technology transfer and strategic decision-making in MNCs.

REFERENCES

Amundson, S. D. (1998). Relationships between theory-driven empirical research in operations management and other disciplines. *Journal of Operations Management*, 16(4), 341-359. doi:10.1016/S0272-6963(98)00018-7

Austin, J. E. (1990). *Managing in developing countries: Strategic analysis and operating techniques*. New York; London: Free Press; Collier Macmillan.

Barner-Rasmussen, W., & Aarnio, C. (2011). Shifting the faultlines of language: A quantitative functional-level exploration of language use in MNC subsidiaries. *Journal of World Business*, 46(3), 288-295. doi:10.1016/j.jwb.2010.07.006

Barney, J. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), 99. doi:10.1177/014920639101700108

Bommer, M. R. W., Janaro, R. E., & Luper, D. C. (1991). A manufacturing strategy model for international technology transfer. *Technological Forecasting and Social Change*, 39(4), 377-390. doi:10.1016/0040-1625(91)90076-R

Brannen, M. Y. (2004). When Mickey loses face: Recontextualization, semantic fit, and the semiotics of foreignness. *Academy of Management Review*, 29(4), 593-616. doi:10.5465/amr.2004.14497613

Brannen, M. Y., & Doz, Y. L. (2012). Corporate languages and strategic agility: Trapped in your jargon or lost in translation? *California Management Review*, 54(3), 77-97. doi:10.1525/cmr.2012.54.3.77

Brannen, M. Y., Piekkari, R., & Tieze, S. (2012). Call for papers: Special issue of Journal of International Business Studies: The multifaceted role of language in international business: Unpacking the forms, functions, and features of a critical challenge to MNC theory and performance. Retrieved from http://www.palgrave-journals.com/jibs/cfp_language_si.html

Bursic, K. M., & Cleland, D. I. (1991). Strategic technology management. *Engineering Management Journal*, 3(2), 21-29. doi:10.1080/10429247.1991.11414619

Cetindamar, D., Phaal, R., & Probert, D. (2016). Technology management as a profession and the challenges ahead. *Journal of Engineering and Technology Management*, 41, 1-13. doi:10.1016/j.jengtecman.2013.05.001

Cetindamar, D., Phaal, R., & Probert, D. (2009). Understanding technology management as a dynamic capability: A framework for technology management activities. *Technovation*, 29(4), 237-246. doi:10.1016/j.technovation.2008.10.004

Cobb, A. T. (1980). Informal influence in the formal organization: Perceived sources of power among work unit peers. *Academy of Management Journal*, 23(1), 155-161. doi:10.2307/255503

Cohen, W., M., & Levinthal, D. A. (1990). Absorptive capacity: A new perspective on learning and innovation. *Administrative Science Quarterly*, 35(1), 128-152. http://www.jstor.org/stable/2393553

Contractor, F. J., & Sagafi-Nejad, T. (1981). International technology transfer: Major issues and policy responses. *Journal of International Business Studies*, 12(2), 113-135. doi:10.1057/palgrave.jibs.8490582

Cranefield, J., & Yoong, P. (2007). Interorganisational knowledge transfer: the role of the gatekeeper. *International Journal of Knowledge and Learning*, 3(1), 121-138. doi:10.1504/IJKL.2007.012604

Creswell, J. W. (2005). *Educational research: planning, conducting, and evaluating quantitative and qualitative research* (2nd ed.). Upper Saddle River, NJ: Pearson Education.

Dangayach, G., & Deshmukh, S. (2001). Manufacturing strategy: literature review and some issues. *International Journal of Operations & Production Management*, 21(7), 884-932. doi:10.1108/01443570110393414

Doz, Y. L., Santos, J., & Williamson, P. (2001). *From global to metanational: How companies win in the knowledge economy*. Boston, MA: Harvard Business School Press.

Drucker, P. F. (1999). *Management challenges for the 21st century* (1st ed.). New York: Harper Business.

Eisenhardt, K. M., & Martin, J. A. (2000). Dynamic capabilities: What are they? *Strategic Management Journal*, 21(10/11), 1105. http://www.jstor.org/stable/3094429

Fayol, H. (1949). *General and industrial management*. London: Pitman.

Gassmann, O., & von Zedwitz, M. (1999). New concepts and trends in international R&D organization. *Research Policy*, 28(2/3), 231. doi:10.1016/S0048-7333(98)00114-0

Ghoshal, S., & Bartlett, C. A. (1990). The multinational corporation as an interorganizational network. *Academy of Management Review*, 15(4), 603-625. doi:10.5465/amr.1990.4310825

Gibson, D. V., & Smilor, R. W. (1991). Key variables in technology transfer: A field-study based empirical analysis. *Journal of Engineering and Technology Management*, 8(3–4), 287-312. doi: 10.1016/0923-4748(91)90015-J

Gilbert, M., & Cordey-Hayes, M. (1996). Understanding the process of knowledge transfer to achieve successful technological innovation. *Technovation*, 16(6), 301-312. doi:10.1016/0166-4972(96)00012-0

Glaser, B. G., & Strauss, A. L. (1967). *The discovery of grounded theory; strategies for qualitative research*. Chicago: Aldine Publishing Co.

Gray, C. (2001). End email chaos: An introduction to email data management. *Computer Technology Review*, 21(5), 54.

Gudanowska, A. E. (2017). Modern research trends within technology management in the light of selected publications. *Procedia Engineering*, 182, 247-254. doi:10.1016/j.proeng.2017.03.185

Harris, D. E. (1989). Managing technical advancement: A prerequisite for competitive advantage, *Engineering Management Journal*, 1(1), 19-23. doi:10.1080/10429247.1989.11414515

Harzing, A.W., Köster, K., & Magner, U. (2011). Babel in business: The language barrier and its solutions in the HQ-subsidiary relationship. *Journal of World Business*, 46(3), 279-287. doi:10.1016/j.jwb.2010.07.005

Helfat, C. E. (2000). Guest editor's introduction to the special issue: the evolution of firm capabilities. *Strategic Management Journal*, 21(10-11), 955-959. doi:10.1002/1097-0266(200010/11)21:10/11<955::aid-smj136>3.0.co;2-s

Helfat, C. E., & Peteraf, M. A. (2003). The dynamic resource-based view: capability lifecycles. *Strategic Management Journal*, 24(10), 997-1010. doi:10.1002/smj.332

Henderson, J. K. (2005). Language diversity in international management teams. *International Studies of Management and Organization*, 35(1), 66-82. doi:10.1080/00208825.2005.11043722

Hill, A., & Hill, T. (2009). *Manufacturing operations strategy*. Basingstoke: Palgrave Macmillan.

Hill, J. S., & Still, R. R. (1980). Cultural effects of technology transfer by multinational corporations in lesser developed countries. *Columbia Journal of World Business*, 15(2), 40-51.

Jensen, R., & Szulanski, G. (2004). Stickiness and the adaptation of organizational practices in cross-border knowledge transfers. *Journal of International Business Studies*, 35(6), 508-523. doi:10.1057/palgrave.jibs.8400107

Jin, J., & von Zedtwitz, M. (2008). Technological capability development in China's mobile phone industry. *Technovation*, 28(6), 327-334. doi:10.1016/j.technovation.2007.06.003

Johnson, K. L., & Duxbury, L. (2010). The view from the field: A case study of the expatriate boundary-spanning role. *Journal of World Business*, 45(1), 29-40. doi:10.1016/j.jwb.2009.04.002

Johnson, W. H. A., & Medcof, J. W. (2007). Motivating proactive subsidiary innovation: Agent-based theory and socialization models in global R&D. *Journal of International Management*, 13(4), 472-487. doi:10.1016/j.intman.2007.03.006

Kim, L. (1997). *Imitation to innovation: the dynamics of Korea's technological learning*. Boston: Harvard Business School Press.

Kosteas, B. D. (2004). The impact of foreign direct investment and trade policy on productivity, wages and technology adoption in Mexican manufacturing plants. (The Ohio State University Ph.D.), The Ohio State University, United States -- Ohio. ProQuest Dissertations & Theses A&I database. (DAI A65(09) UMI No. 3146294) Retrieved from http://search.proquest.com/docview/305140629?accountid=7116

Lall, S. (1990). *Building industrial competitiveness in developing countries*. Paris: OECD Publishing.

Levin, D. Z., & Barnard, H. (2008). Technology management routines that matter to technology managers. *International Journal of Technology Management*, 41(1/2), 22-37. doi:10.1504/ijtm.2008.015982

Levin, M. (1997). Technology transfer is organizational development: An investigation into the relationship between technology transfer and organizational change. *International Journal of Technology Management*, 14(2-4), 297. doi:10.1504/IJTM.1997.001725

Macdonald, S. (1996). Informal information flow and strategy in the International Firm. *International Journal of Technology Management*, 11(1/2), 219. doi:10.1504/IJTM.1996.025429

Malik, K. (2002). Aiding the technology manager: a conceptual model for intra-firm technology transfer. *Technovation*, 22(7), 427-436. doi:10.1016/S0166-4972(01)00030-X

Malik, K., & Bergfeld, M. (2015) A conceptual framework for intra-company technology transfer: cases of leveraging production process innovations across MNEs. *Technology Analysis & Strategic Management*, 27:10, 1129-1142, doi:10.1080/09537325.2015.1060309

Marschan-Piekkari, R., Welch, D., & Welch, L. (1999). In the shadow: the impact of language on structure, power and communication in the multinational. *International Business Review*, 8(4), 421-440. doi:10.1016/S0969-5931(99)00015-3

Martinko, M. J. (1988). Observing the work. In S. Gael (Ed.), *The job analysis handbook for business, industry and government* (Vol. I, pp. 419-431). New York: John Wiley & Sons.

Marucheck, A., Pannesi, R., & Anderson, C. (1990). An exploratory study of the manufacturing strategy process in practice. *Journal of Operations Management*, 9(1), 101-123. doi: 10.1016/0272-6963(90)90148-7

Meredith, J. (1998). Building operations management theory through case and field research. *Journal of Operations Management*, 16(4), 441-454. doi: 10.1016/S0272-6963(98)00023-0

Minty, G. (2003). The future history of industrial technology. *Journal of Industrial Technology*, 20(1). https://cdn.ymaws.com/www.atmae.org/resource/resmgr/JIT/minty102903.pdf

Mintzberg, H. (1968). The manager at work: determining his activities, roles and programs by structured observation. 34 database. (UMI No. 0217686) Retrieved from http://en.scientificcommons.org/7893375 ADD 1968

Mintzberg, H. (1970). Structured observation as a method to study managerial work. *Journal of Management Studies*, 7(1), 87-104. doi:10.1111/j.1467-6486.1970.tb00484.x

Mintzberg, H. (1973). *The nature of managerial work*. New York: Addison-Wesley.

Mintzberg, H. (2005). Theory about the development of theory. In K. G. Smith, Hitt, M.A. (Ed.), *Great minds in management*, The process of theory development (pp. 355-372). New York: Oxford University Press.

Mital, A., Girdhar, A., & Mital, A. (2002). Issues in transferring technologies to maquiladoras. *International Journal of Technology Transfer and Commercialisation*, 1(4), 405-423. doi:10.1504/IJTTC.2002.001796

National Research Council. (1987). *Management of technology: The hidden competitive advantage*. Washington D.C.: National Academy Press.

Nonaka, I. (1991). The Knowledge Creating Company, *Harvard Business Review*, Nov-Dec, 96-104.

Ounjian, M. L., & Carne, E. B. (1987). A study of the factors which affect technology transfer in a multilocation multibusiness unit corporation. *IEEE Transactions on Engineering Management*, EM-34(3), 194-201. doi:10.1109/tem.1987.6498881

Paiva, E. L., Roth, A. V., & Fensterseifer, J. E. (2008). Organizational knowledge and the manufacturing strategy process: A resource-based view analysis. *Journal of Operations Management*, 26(1), 115-132. doi:10.1016/j.jom.2007.05.003

Patel, S. J. (1974). The technological dependence of developing countries. *The Journal of Modern African Studies*, 12(01), 1-18. doi:10.1017/S0022278X00008946

Patton, M. Q. (2002). *Qualitative evaluation and research methods* (3rd ed.). Thousand Oaks, CA: Sage.

Peteraf, M. A. (1993). The cornerstones of competitive advantage: A resource-based view. *Strategic Management Journal*, 14(3), 179-191. doi:10.1002/smj.4250140303

Persaud, A., Kumar, U., & Kumar, V. (2001). Harnessing scientific and knowledge for the rapid deployment of global innovations. *Engineering Management Journal*, 13(1), 12-18. doi:10.1080/10429247.2001.11415100

Phaal, R., Farrukh, C. J. P., & Probert, D. R. (2004). A framework for supporting the management of technological knowledge. *International Journal of Technology Management*, 27(1), 1-15. doi:10.1504/IJTM.2004.003878

Raven, B. H., & French, J. R. P. (1958). Legitimate power, coercive power, and observability in social influence. *Sociometry*, 21(2), 83-97. doi:10.2307/2785895

Roper, A. T., Cunningham, S. W., Porter, A. L., Mason, T. W., Rossini, G. A., & Banks, J. (2011). *Forecasting and management of technology*. Hoboken, N.J.: John Wiley & Sons.

Roth, A. V., Marucheck, A. S., Kemp, A., & Trimble, D. (1994). The knowledge factory for accelerated learning practices. *Strategy & Leadership*, 22(3), 26-46.

Routley, M., Phaal, R., Athanassopoulou, N., & Probert, D. (2013). Mapping experience in organizations: A learning process for strategic technology planning. *Engineering Management Journal*, 25(1), 35-47. doi:10.1080/10429247.2013.11431964

Saggi, K. (2002). Trade, foreign direct investment, and international technology transfer: A survey. *World Bank Research Observer*, 17(2), 191–236. doi:10.1093/wbro/17.2.191

Salmi, J. (2003). New challenges for tertiary education: The World Bank report. *International Higher Education*, 28, 7-9.

Schroeder, R. G., Bates, K. A., & Junttila, M. A. (2002). A resource-based view of manufacturing strategy and the relationship to manufacturing performance. *Strategic Management Journal*, 23(2), 105-117. doi:10.1002/smj.213

Sharif, M. N. (1997). Technology strategy in developing countries: Evolving from comparative to competitive advantage. *International Journal of Technology Management*, 14(2-4), 309-343. doi:10.1504/IJTM.1997.001729

Skinner, W. (1969). Manufacturing--missing link in corporate strategy. *Harvard Business Review*, 47(3), 136-145.

Skinner, W. (1985). *Manufacturing: the formidable competitive weapon*. New York: John Wiley and Sons.

St. John, C. H., Cannon, A. R., & Pouder, R. W. (2001). Change drivers in the new millennium: implications for manufacturing strategy research. *Journal of Operations Management*, 19(2),143-160. doi:10.1016/S0272-6963(00)00054-1

Stephens, C. S. (1991). *A structured observation of five chief information officers: The nature of information technology managerial work*. (Auburn University Ph.D.), Auburn University, United States -- Alabama. Retrieved from http://search.proquest.com/docview/304016606?accountid=7116 ProQuest Dissertations & Theses A&I database. (DAI 52 (07) 2631A UMI No. 9201275)

Stephens, C. S., Ledbetter, W. N., Mitra, A., & Ford, F. N. (1992). Executive or functional manager? The nature of the CIO's Job. *MIS Quarterly*, 16(4), 449-467. https://www.jstor.org/stable/249731

Stiglitz, J. E. (2003). Globalization, technology and Asian development. *Asian Development Review*, 20(2), 1-17.

Strauss, A. L., & Corbin, J. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage.

Synnott, W. R., & William, H. G. (1981). *Information resource management*. New York: John Wiley & Sons.

Teece, D. J. (1977). Technology Transfer by multinational firms: The resource cost of transferring technological know how. *Economic Journal*, 87(346), 242-261. doi:10.2307/2232084

Teece, D. J. (1986). Profiting from technological innovation: Implications for integration, collaboration, licensing and public policy. *Research Policy*, 15(6), 285-305. doi:10.1016/0048-7333(86)90027-2

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal*, 18(7), 509-533. doi:10.1002/(SICI)1097-0266(199708)18:7<509::AID-SMJ882>3.0.CO;2-Z

Thamhain, H. J. (2011). Critical success factors for managing technology-intensive teams in the global enterprise. *Engineering Management Journal*, 23(3), 30-36, doi:10.1080/10429247.2011.11431906

von Zedtwitz, M., & Gassmann, O. (2002). Market versus technology drive in R&D internationalization: Four different patterns of managing research and development. *Research Policy*, 31(4), 569-588. doi:10.1016/s0048-7333(01)00125-1

Walsh, J. P., & Ungson, G. R. (1991). Organizational memory. *Academy of Management Review*, 16(1) , 57-91. doi:10.5465/amr.1991.4278992

Welch, D., Welch, L., & Piekkari, R. (2005). Speaking in tongues: the importance of language in international management processes. *International Studies of Management and Organization*, 35(1), 10-27. doi:10.1080/00208825.2005.11043723

Welch, D. E., & Welch, L. S. (2008). The importance of language in international knowledge transfer. *Management International Review*, 48(3), 339-360. doi:10.1007/s11575-008-0019-7

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180. doi:10.1002/smj.4250050207

Wheelwright, S. C. (1978). Reflecting corporate strategy in manufacturing decisions. *Business Horizons*, 21(1), 57-66. doi:10.1016/0007-6813(78)90032-0

Wheelwright, S. C. (1984). Manufacturing strategy: Defining the missing link. *Strategic Management Journal*, 5(1), 77-91. doi:10.1002/smj.4250050106

Wright, L. L. (2003). The need for international qualitative research. In B. J. Betty & O. Shenkar (Eds.), *Handbook for international management research* (2nd ed., pp. 49-67). Ann Arbor: University of Michigan Press.

GOAL ORIENTATION, PERCEIVED ENABLER/BARRIERS, AND SELF-EFFICACY IN HEALTHCARE ADMINISTRATION INSTRUCTION

Phillip J Decker, University of Houston-Clear Lake
Roger Durand, University of Houston-Clear Lake
Jordan P Mitchell, University of Houston-Clear Lake
Xiao Li, University of Houston-Clear Lake

ABSTRACT

The principal aim of this paper is to enhance curricula and instruction in business and healthcare administration. In pursuance of this aim the results of a study of relationships among goal orientations, self-efficacy, perceived instructional enablers, and course satisfaction among students enrolled in a university business school healthcare administration program are reported. Findings are based upon a total of 353 surveys completed both by graduate and undergraduate students. A central conclusion is the importance of understanding the interplay of students' goal orientations, learning enablers or barriers, course assessment, and self-efficacy in educating healthcare leaders. Implications are discussed for instructional improvement and future research.

Keywords: goal orientation, self-efficacy, business education, healthcare administration, course enablers/barriers, curriculum development, life-long learning, student motivation

INTRODUCTION

There have been extensive and on-going efforts in business schools and, in particular, healthcare administration (hereafter "HCA") education to develop competencies for improved leadership effectiveness (NACE, 2019; AUPHA, 2017). Such efforts have identified *content areas* expected to be covered in university programs to promote such effectiveness (Radwan, Ghavifekr, & Razak, 2020). But at present little is known about ensuring that business students become adaptable, life-long learners in an ever-changing, competency-based world. In particular, there has been only limited research on what best motivates the learning of leadership competencies, what restricts such learning, and what background characteristics are critical to curricula development and, especially, to more on-line, individualized instruction. These are significant omissions in understanding since healthcare leadership increasingly will necessitate continual competency reassessment and alteration in continually-evolving complex environments (Fick, Dishman, Adler, & Williams, 2018; Murdock, Delgado, Gammon, Raole, & Neha, 2019).

This study seeks to at least partially correct these omissions and limitations with the principal aim of enhancing curricula and instruction. As business school instructors, we believe that the pressures and frustrations student learners typically face are quite likely related to the interplay of their goal orientations, to the feelings of self-effectiveness they bring to an

instructional setting, to their prior work experiences, and to the barriers or the enablers they perceive in HCA coursework (Payne, Youngcourt, & Beaubien, 2007). The professional literature on organizational training emphasizes that learning motivation and goal orientations have a direct effect on educational outcomes (Klein, Noe, & Wang, 2006). Yet, studies in HCA course contexts are comparatively rare posing a specific limitation to leadership development in healthcare (Klein et al., 2006; Ilgen, Hollenbeck, Johnson, & Jundt, 2005; Weiss, 1990). In preparing our students to master the complex challenges they will face as healthcare professionals, we may, therefore, be missing an opportunity by ignoring their learning motivations and goal orientations in designing our curricula.

In order to better prepare students, the study reported here specifically examined relationships among learning goal orientations, perceived coursework barriers and enablers, instructional level (graduate versus undergraduate) and satisfaction with students' immediate instructional experiences while taking into account the background characteristics of prior work and leadership experiences; generalized feelings of self-efficacy; and gender differences that students brought to the classroom (on the importance of these relationships and characteristics see Klein et al., 2006; Colquitt, LePine, & Noe, 2000). We hope to initiate a robust effort by researchers to gain even more insight into the effects of GO in HCA program instruction.

LITERATURE REVIEW

Goal Orientation

Previous investigations have shown the importance of specific goal orientations (hereafter "GO") in learning, especially for the design of effective classroom interventions. These investigations have generally found that such orientations fall into two major categories: (a) mastery goals, in which individuals seek to increase their competence, and (b) performance goals, in which individuals seek to gain favorable judgments of their competence. Individuals with mastery goal orientations view challenges as opportunities and persist in the face of difficulties encountered because they view their abilities as malleable. They seek competence. Moreover, mastery learners are less likely to view class features as barriers than performance learners. Performance GO individuals, on the other hand, are more concerned with how they are perceived by others and tend to expend more energy in impression management and grade-seeking (Dweck & Elliott, 1983; Nicholls & Dweck, 1979).

Several investigations have found that the mastery goal orientation emphasizes competence and knowledge learning (Elliot & McGregor, 2001; Hansen, 2020). Individuals highly orientated to mastery may seek achievement through experiential learning (Ames, 1992; Meyer, Turner, & Spencer, 1997). Additionally, such individuals have been shown to have higher self-efficacy and to not employ avoidance strategies in learning (Hsieh, Sullivan, & Guerra, 2007). Mastery has been found to be strongly associated with self-evaluation and to be a likely facilitator of future life-long learning (Cellar et al., 2011; Belenky & Nokes-Malach, 2012).

In comparison, performance orientation has been shown to emphasize the demonstration of competence. Individuals with high levels of this orientation have been found to desire to demonstrate their competence and to avoid appearing incompetent. Some researchers have

indicated that a performance orientation has a strong, positive relationship with learning (Payne et al., 2007), whereas others identified it as detrimental to achievement, skill acquisition, and test anxiety (Chen, Gully, Whiteman, & Kilcullen, 2000; Fisher & Ford, 1998; Linnenbrink, 2005; Yeo & Neal, 2004).

A performance goal orientation was originally considered to be maladaptive when compared with a mastery orientation (Ames & Archer, 1988; Dweck & Leggett, 1988; Elliot, 2005). However, evidence was also found to suggest that performance goals are beneficial in some situations (Harackiewicz, Barron, & Elliot, 1998; Pintrich & Garcia, 1991). This evidence ultimately led researchers and theorists to suggest replacing the simple mastery-performance comparison with a 2 X 2 framework in which the performance and mastery goals are both dichotomized into approach and avoidance dimensions (Elliot & Church, 1997; Elliot & Harackiewicz, 1996; Elliot & McGregor, 2001). This dichotomization resulted in a GO framework consisting of mastery-approach (we call this M) which is defined as having the goal of learning and mastering the task relative to self-set standards (King & Mendoza, 2020); mastery-avoidance (MA) which refers to having the goal of striving to avoid a loss or perception of loss of mastery (Madjar, Kaplan, & Weinstock, 2011); performance-approach (P) which is defined as having the goal of outperforming their classmates (King & Mendoza, 2020); and performance-avoidance (PA) which refers to having the goal of avoiding demonstration or perception of being incompetence (Elliot & Murayama, 2008).

Avoidance orientations (PA and MA) refer to avoiding a demonstration of incompetence (PA) or not appearing to be avoiding competence (MA) (Elliot & McGregor, 2001; Pajares, Britner, & Valiante, 2000). Individuals with an avoidance orientation have been shown to possess strong preferences for avoid completing a complex task or a task needing considerable effort (Brophy, 2010, p.428). Previous studies also have found that avoidance is negatively associated with motivation and academic training outcomes (Darnon, Butera, Mugny, Quiamzade, & Hulleman, 2009; Middleton & Midgley, 1997).

Individuals with an MA goal orientation focus mainly on avoiding a failure to develop competence, avoiding misunderstanding, and avoiding an inability to learn or master a task (Elliot & Harackiewicz, 1996; Payne et al., 2007; Vandewalle, 1997). They likely do not focus on life-long learning. Van Yperen (2003) states that an MA orientation is deleterious for improving performance, compared to the other three orientations (Van Yperen, Elliot, & Anseel, 2009). Interestingly, Senko & Freund (2015) found that older adults associated more with MA. On the other hand, individuals with a high PA goal orientation are more likely to avoid mistakes and engage in defensive behaviors, such as seeking less performance-related feedback and demonstrating lower levels of learning and academic satisfaction (Button, Mathieu, & Zajac, 1996; Porath & Bateman, 2006; Shim & Ryan, 2005; Soyer & Kirikkanat, 2019). They also may be less likely to focus on continuous learning.

Still other researchers have introduced an important caution about MA, PA and the other orientations. According to the findings of these researchers, a goal orientation is not an inherent trait and one person is unlikely to have just one goal orientation. Rather, the development of a goal orientation in learning appears to be situational and dependent on different instructional

circumstances (Bong, 2001; Harackiewicz, Barron, Tauer, & Elliot, 2002; Wolters, 2004). This issue alone can have a major impact on the design of instruction.

But how prevalent are each of these orientations? And. In what situations? To date there has been little research on the prevalence of each goal orientation. But Dekker and associates (2013) produced evidence indicating that the mastery approach (M) was the most common goal orientation among girls and boys in the age 10-19 category. Conversely, the performance approach orientation was generally found least prevalent with the exception of boys in the 14 to 19 categories. Additionally, Perrot and others (2001) reported a stronger preference for mastery over performance among health professions' students in medicine, nursing, and pharmacy. But the goal orientations of HCA students were not included in the work of Perrot and associates leaving unknown the orientation prevalence among this important group of learners.

In summary, students take on different orientations to learning and there are numerous positive and negative outcomes from doing so. Little is known about the proportion of goal orientations in healthcare students. Our hypotheses are shown below in italics:

> *HCA students will prefer an M orientation preference more than MA, P, or PA.*
> *M and P orientations will perceive more items as barriers than PA and MA oriented students.*

Self-Efficacy

Self-efficacy is the self-belief about one's capability in performing tasks or learning (Bandura, 1982). Self-efficacy has been shown to have a significant effect on an individual's choice and effort, as well as task outcome (Bandura, Adams, & Beyer, 1977; Bandura Barbaranelli, Caprara, & Pastorelli, 1996; Linnenbrink & Pintrich, 2003; Soyer & Kirikkanat, 2019; Zimmerman, Bandura, & Martinez-Pons, 1992). Some studies have failed to verify the positive influence of self-efficacy (see, for example, Maddux, Norton, & Stoltenberg, 1986) as a contributor to motivation. But other researchers, notably Schunk (1991), argued its importance to learning in academic settings.

Still other research supports relationships between self-efficacy and goal orientation in learning and in training strategies (Janke & Dickhäuser, 2019; Liem, Lau, & Nie, 2008; Schunk & Meece, 2012). Moreover, of particular importance to the present study, others have reached the conclusion that a mastery orientation is positively and strongly associated with self-efficacy beliefs (Anderman & Young, 1994; Middleton & Midgley, 1997; Sakiz, 2011; Zhang, Cao, Shen, & Qian, 2019; Feyzioğlu, 2019).

On the other hand, differing conclusions have been reached about the relationship between the performance approach orientation and academic self-efficacy beliefs (compare and contrast the findings of Elliot & Church, 1997; Fan, Meng, Billings, Litchfield, & Kaplan, 2008; Linnenbrink, 2005; Middleton & Midgley, 1997 with those of Anderman & Young, 1994; Bell & Kozlowski, 2002). Similarly, there are inconsistent results concerning the relationship between academic performance avoidance and self-efficacy (contrast the findings of Dierdorff, Surface & Brown, 2010 with those of Hsieh et al., 2007, and Suprayogi, Ratriana, & Wulandari, 2019).

In clinical education, self-efficacy has been shown to provide an impetus to students for learning new subjects (Harper, Eales-Reynolds, & Markham, 2013). High self-efficacy has been found positively linked to health promotion skills in relevant educational practices (Ramezani,

Sharifirad, Rajati, Rajati, & Mohebi, 2019); high expectations for success and high value for science during students' bioscience course learning (Andrew, McVicar, Zanganeh, & Henderson, 2015), and better placement exam scores (Mavis, 2001). In addition, self-efficacy was found to be an influential mediator between social support, perceived barriers, and the level of physical activity in nursing students (Mo, Blake, & Batt, 2011) as well as between transformational leadership and team efficacy among healthcare professionals (Nielsen, Yarker, Randall, & Munir, 2009). Perrot et al. (2001) indicated that students who majored in the health professions should have self-directed life-long learning motivation for keeping pace with the ever-changing environment. As argued by others, healthcare leader education should, therefore, value the importance of students' self-efficacy and its improvement in curricula development (Townsend & Scanlan, 2011; Williams, Beovich, Ross, Wright, & Ilic, 2017).

The literature shows that there are relationships among self-efficacy and the achievement goal orientation and the learning strategy of students. SE seems to be highly related to an M orientation; however, differing conclusions have been reached about these relationships. SE seems to be an important mediator in clinical education. Our hypotheses are:

> *SE will be positively related to the P and M goal orientations with the strongest relationship found with M.*
> *SE will be negatively related to avoidance orientations.*

Perceived Educational Enablers and Barriers

Several studies have shown that one of the important determinants of motivation for learning are perceived enablers and disablers (Chowdhury & Halder, 2019; Klein et al., 2006; Pilgrim, Hornby, & Macfarlane, 2018). Perceived enablers and disablers are environmental events or conditions that facilitate or hamper learning motivation or processes (Lent, Brown, & Hackett, 2000). Learners who perceived external factors more as enablers instead of barriers have been reported as having a higher motivation to learn (Klein et al., 2006; Mathieu, Tannenbaum, & Salas, 1992).

Other researchers have shown that certain perceived barriers, especially physical ones, including classroom context (Celuch, Milewicz, & Saxby, 2020), class structure (Self-brown & Mathews, 2003), information examination (VandeWalle & Cummings, 1997), time (Mathieu et al., 1992), and technology availability (Christensen, Anakwe, & Kessler, 2001; Martins & Kellermanns, 2004; Shubina & Kulakli, 2019), have a slightly negative impact on the motivation for learning. Bambara, Nonnemacher, & Kern (2009) reported the intangible aspects of perceived enablers and barriers, such as school culture, administrative leadership and support were also relevant. Furthermore, we know a teacher can be an enabler/barrier to learning (Shin, Kim, & Hur, 2019). Also, it has been found that test anxiety and perfectionism, which can also be regarded as perceived enablers or barriers, are related to the development of a goal orientation (Elliot & Church, 1997; Yusefzadeh, Amirzadeh, & Nabilou, 2019). Of particular importance, Eum and Rice (2011) reported that students with high test anxiety were more likely to be more perfectionistic and more likely to adopt a performance avoidance orientation.

In other healthcare-related work, Loftin, Newman, Dumas, Gilden, & Bond (2012) concluded that minority students in nursing education faced several barriers, including a lack of

academic advice, mentors, and technical support as well as professional socialization. Additionally, minority nursing students were found as well to have had different special, personal needs (Amaro, Abriam-Yago, & Yoder, 2006; Yoder, 1996). In accordance with Tinto's theories (1988, 1990), Shelton (2003, 2012) found that perceived faculty support is linked to nursing students' retention and persistence in study.

In brief, perceived barriers have been shown to promote insufficient psychological and physical support and, thereby, exacerbate negative impacts on learning. There is some research showing that the perception of conditions as enablers promotes learning. The is little research, but it seems likely that HCA students will perceive many of these same barriers to their education as well as judge some conditions as enablers which promote learning. Finally, it also seems likely that the goal orientations of HCA students and their feelings of self-efficacy will be similarly related to perceived educational barriers. Our hypotheses are:

> *HCA students will view more items as barriers than enablers.*
> *Perception of barriers/enablers will be different by GO preference.*
> *Students with an avoidance orientation will more likely perceive items as barriers.*

Course Satisfaction

A number of researchers have studied goal orientation and course satisfaction (for example, Zimmerman & Kitsantas, 1999). Students have been found to be more satisfied with the academic experience and more proactively engaged in academic activities when they pursued a mastery orientation (Jagacinski & Nicholls, 1984; Pohl, 2020). Some studies have indicated that a performance orientation was positively associated with learners'/trainees' satisfaction (Baena-Extremera, Gómez-López, Granero-Gallegos, & del Mar Ortiz-Camacho, 2015; Medina, 2017) but the satisfaction level was lower than those who pursue mastery orientation (Kim, Lim, & Noh, 2016). Some have argued that a performance orientation was negatively related to academic satisfaction (Alhadabi & Karpinski, 2020).

Students were found more likely to achieve better grades when pursuing mastery alone (Filippello, Buzzai, Costa, Orecchio, & Sorrenti, 2018) or adopting a performance avoidance orientation (Roebken, 2007). Zaitseva, Milsom, & Stewart (2013) found students in their final year of undergraduate had higher course satisfaction as the improvement of skills and knowledge and the shift from mastery orientation to performance orientation occurred.

Several factors, such as collaborations, interactions, and autonomy can positively affect students' satisfaction that impact academic achievement (Abuhassna et al., 2020). Inan, Yukselturk, Kurucay, & Flores (2017) pinpoint that self-regulation played an important role on student satisfaction in the e-learning course. Abdulhay, Ahmadian, Yazdani, & Amerian (2020) observed that performance goals and mastery goal structure had significantly positive correction with self-regulation in a foreign language writing course. Additionally, females' learning satisfaction was more impacted by their computer self-efficacy, instructor characteristics and facilitating conditions (Dang, Zhang, Ravindran, & Osmonbekov, 2016).

The literature on the relationship between goal orientation and course satisfaction is contradictory; however, mastery orientation seems to be related to higher course satisfaction and

performance in the classroom. Furthermore, course structure may be a mediating factor. Our hypotheses are:

> *The relationship of overall course satisfaction and satisfaction with course structure will differ by GO.*
> *M will be associated with higher satisfaction with one's choice on what to study.*

Gender, Degree Level, and Work Experience

The literature on the relationship of GO and gender are very mixed. D'Lima, Winsler, & Kitsantas (2014) found that gender differences played significant effects on pursuing goal orientation among first-year college students: female students were more mastery oriented and motivated extrinsically while male students were more performance oriented. However, Kassaw & Astatke (2017) argue that there were no statistically significant correlations between goal orientation and gender difference, although they found that there were a positive association between gender and academic performance. Boyd (2017) reveals that females endorsed higher goal orientation than males among millennial college students.

Likewise, there is little literature examining the relationship of GO and work experience or age. Kunst, van Woerkom, & Poell (2018) demonstrated that previous work experience was positively related to mastery orientation while negatively associated with performance avoidance orientation in professional development activities. DeGeest & Brown (2011) argue that when skill improvement becomes part of the performance criteria for a developmental assignment, or if success in the assignment is considered essential for continued promotion in the organization, then the effects of performance approach orientations on learning should be strengthened. Klein et al. (2006) showed both age and hours worked were important variables in leadership training; therefore, because most of our students are working, we included work experience and managerial duties as variables in our analyses. In addition, Gong & Freund (2020) suggested that learning orientation decreases while avoidance orientation increases with the increase of age. Finally, Adcroft (2010) showed that there are significant differences in motivation between students in different degree programs and that, as students progress from first to final-year, there are changes to motivation. He also suggested that work experience can have a significant effect on motivation to study. Our hypotheses are:

> *GO will not differ by gender in healthcare administration students.*
> *Greater work experience will be positively related to GO and perception of barriers.*
> *Graduate students will show an M preference more than undergraduates.*

METHODS
Survey Instrument, Questions, and IRB Approval

To investigate the interplay of learning goal orientations, feelings of self-effectiveness, perceived learning barriers and enablers, and satisfaction with coursework, we designed a survey instrument for administration to healthcare administration students enrolled at a major public university. Out of abundant caution for the possible influences of differing backgrounds (discussed in the section immediately preceding), we also examined work experiences and gender in affecting this interplay.

The survey instrument itself was based upon the complete literature review discussed above and especially the work done by Baranik, Barron, & Finney, 2007; Chen, Gully, &Eden, 2001; Klein et al., 2006; and Pilgrim et al., 2018). Questions included on the instrument were largely five-item, Likert-type queries consisting of multiple measures of each individual construct of interest in this study (goal orientations, barriers and enablers, self-efficacy, etc.) (*The questions included on the survey and their source will be found in Appendix A to this paper.*) All of the questions, the survey instrument, and the methods of administering the instrument, including subject selection, were reviewed and approved by the university's Institutional Review Board (IRB).

Subjects and Administration

Subjects were recruited from five (5) graduate-level courses and two (2) undergraduate business school healthcare administration courses. The survey instrument itself was administered during the fall of 2019 and the spring of 2020 semesters by means of Qualtrics, a widely-used online software adopted by the university to engage respondents in data-gathering. A total of 353 students provided completed surveys.

Initial Analysis: Missing and Incomplete Survey Responses

The survey results were initially analyzed for missing or incomplete student responses. Such missing responses were found to be few in number, five (5) or fewer per survey question. However, to avoid a cumulative impact of "case-wise deletion" in analysis and the resulting possibility of subject selection biases, procedures recommended by McKnight, McKnight, Sidani, & Figueredo (2007) for handling missing survey responses were followed. Such procedures included diagnostics, determination of nonrandom biases, and mean substitutions (see especially p. 173-174).

Constructing a Summated Measurement Scale for Each Construct

The *validity* of the survey items *hypothesized* to measure the constructs for this study – again with the exception of the course satisfaction – was determined utilizing principal components analysis (Carmines & Zeller, 1979, p. 62-70; Kerlinger, 1986, p.427; Rummel, 1970; p. 19-20). Frequencies and factor loading tables for GO and SE are provided in Table 1. Central to the determination of construct validity is an analytic solution in which responses to a set of survey items hypothesized to measure a single, underlying construct (e.g., Mastery Approach, self-efficacy, etc.) load on a single factor with an eigenvalue greater than unity (see especially Carmines & Zeller and Rummel, p. 144-145 as just cited). A set of survey items that load on a single factor with an eigenvalue exceeding unity (1.) indicates "unidimensionality," the property that the survey questions are, indeed, measuring the same construct. Results from calculating a principal components analysis for each set of hypothesized items revealed such unidimensionality (single-factor solutions with eigenvalues exceeding unity) for all of the constructs included in this investigation, excepting course satisfaction (See Table 1).

We then constructed a *summated measurement scale* for each of the underlying constructs as discussed by Vogt (1993, p. 226), and Kerlinger (1973, p. 453) composed of several survey items measuring the same construct (i.e., Mastery, SE, etc.). See Appendix B for

these formulas and further explanation. The construction of summated measurement scales is discussed in detail by Boateng, Neilands, Frongillo, Melgar-Quiñonez, & Young (2018) and Odum (2020)[1].

Once the examination of construct reliability and validity was completed and appropriate scales were computed, reliability, univariate (means, medians, standard deviations) and bivariate (ANOVA, Kendall's Tau, Pearson r, t-tests) statistical analyses were conducted using summated scales for GO and SE and independent items for barriers and course satisfaction. All statistical analyses were conducted using the Statistical Package for the Social Sciences (SPSS) with additional insights gained through Excel and Power BI and available from the authors.

Table 1 Factor loadings by construct				
Factors	**Indicators**	**Mean**	**Std.**	**Factor Score Coefficient**
Mastery	Q2	1.71	.957	.098
	Q7	1.40	.655	.429
	Q12	1.49	.701	.290
	Q17	1.73	.955	.137
	Q26	1.89	.975	.182
Mastery Avoidance	Q3	2.46	1.189	.131
	Q13	2.13	1.081	.187
	Q18	2.50	1.140	.254
	Q21	2.51	1.101	.369
	Q24	2.61	1.158	.220
Performance	Q4	3.03	1.320	.042
	Q10	2.11	1.019	.174
	Q20	2.63	1.133	.398
	Q23	2.45	1.047	.282
	Q28	2.56	1.118	.218
Performance Avoidance	Q1	2.06	1.152	.157
	Q6	2.15	1.172	.217
	Q8	2.17	1.223	.258
	Q15	1.82	1.107	.348
	Q27	1.98	1.184	.227
Self- Efficacy	Q5	4.22	.792	.159
	Q9	4.30	.803	.187
	Q11	4.33	.762	.184

---

[1] Contact the authors for intercorrelations and detailed discussion of how summated measurement scales for each of the constructs (Mastery, Performance, Mastery Avoidance, Performance Avoidance, Self-Efficacy) were constructed.

Q14	4.44	.656	.161
Q16	4.50	.744	.182
Q19	4.16	.951	.179
Q22	3.85	.847	.152
Q25	4.09	.861	.164

FINDINGS

Analysis of the Reliability of Measures

The next step in the analysis was to examine actual survey responses for reliability. The reliability of the survey questions designed to measure the theoretical constructs of goal orientations, and self-efficacy as well as course barriers and enablers was determined using *Cronbach's alpha coefficient* (see Carmines & Zeller, p. 44-45; Martin & Douglas, 1997; Ursachi, Horodnic, & Zait, 2015). This analysis revealed that the indicator items for all of the constructs in this study (with the exception of course satisfaction) exceeded .80. The results are shown in Table 2 below.

Table 2: Reliability of Scales	
Scale items	**Cronbach's Alpha***
Self-efficacy	.863
Barriers	.935
Mastery Orientation	.832
Mastery Avoidance Orientation	.831
Performance Orientation	.833
Performance Avoidance Orientation	.820

As will be noted, the reliability of the course satisfaction measures in the survey are not included in Table 1 because they are treated as independent research questions. We expected satisfaction with one's ability to choose what is needed in a course to enhance one's career not to be closely related to satisfaction with the course structure. An examination of inter-item correlations among the measures supported our expectation. Hence, they are not a reliable construct and we chose to treat responses to each of the three measures independently in the ensuing analysis. For difference reasons, we also treated the barriers as independent items (see below).

Goal Orientation

As can be seen in in Table 3, the GO preference hypothesis suggesting that more HCA students would more likely report an M orientation was supported. The average or mean score for the mastery goal orientation was higher for study subjects than scores for the other three orientations. Indeed, mastery was the only orientation found to differ from zero at statistically significant levels. See below for GO and perception of barriers.

Table 3: Goal orientations among study subjects				
	Mastery Orientation	**Mastery Avoidance Orientation**	**Performance Orientation**	**Performance Avoidance Orientation**
Mean	.2941*	-.0067	-.0066	.0238
Standard deviation	.939	.9938	.99863	1.000
N	353	353	353	353

*Denotes statistically significant at P<=.05 using 2-tailed t-test

Of the five items in the mastery scale, we found that "working hard to learn new things" and "understanding the course content thoroughly" contributed more to scale variance than "learn as much as possible regardless of final grade," "doing the school work to get better at it" or "completely mastering the material." (Refer to Appendix A for the complete, exact wording of each survey item.)

Self-Efficacy

We next examined the relationships between goal orientations and self-efficacy – the self-belief about one's capability in performing tasks or learning. We hypothesized that SE would be related to P and especially M orientations, but as can be seen in Table 4, self-efficacy was found associated with all four orientations at statistically significant levels (p>=.01). Self-efficacy was found positively related to the M, P, and PA goal orientations with the strongest relationship found with mastery. We hypothesized that SE would be negatively related to both avoidance preferences but feelings of efficacy were only found inversely (negatively) related to subjects' MA orientation.

Table 4. Relationships (Pearson product-moment correlations) between self-efficacy and goal orientations				
	Mastery Orientation	**Mastery Avoidance Orientation**	**Performance Orientation**	**Performance Avoidance Orientation**
Self-efficacy	.397*	-.093*	.125*	.166*

* Denotes correlation is significance at the .01 level.

Barriers/Enablers

In Table 5, the relationships between learning enablers and barriers, on the one hand, and goal orientations, on the other, are shown. It was hypothesized that healthcare administration students would view more items as barriers than enablers and that these relationships would differ by GO preference – that M and P orientations will perceive more items as barriers than PA and MA oriented students. We also suggested that students with an avoidance orientation will more likely perceive items as barriers.

The "time available for school "was found (at statistically significant levels (p>= .05) to be *an enabler* with regard to a mastery orientation. No other *enablers* were found related to the four goal orientations at significant levels. But a number of different learning *barriers* were found related to mastery avoidance, performance avoid, and performance orientations at

significant levels (but none to mastery) thus partially supporting that approach orientations would perceive more items as barriers.

Particularly noteworthy – as observed by their strengths of relationship (Pearson's product-moment correlation) – were the following *learning barriers* found associated with mastery avoidance, performance avoidance, and performance goal orientations. (See those starred and italicized in Table 5).

- *Mastery avoidance*: course flexibility; managing complex discussion forums; time available; access to school representatives for advice and counsel; the quality of materials to be assimilated.
- *Performance avoidance*: quality of materials to be assimilated; course flexibility; ability to predict how the instructor will grade my work.
- *Performance:* the flexible nature of the course, predicting how an instructor will grade.

Table 5: Enablers and goal orientations (Pearson product-moment correlations)				
	Mastery Orientation	**Mastery Avoidance Orientation**	**Performance Avoidance Orientation**	**Performance Orientation**
Q36 time available	.115*	-.175**xx	-.072	-.097*x
Q40 internet access	.024	-.053	-.121*x	-.076
Q41 understand Blackboard	.002	-.151**	-.094*	-.044
Q42 course complexity	.070	-.178**xx	-.081	-.044
Q43 access to school reps	.047	-.172**xx	-.075	-.038
Q44 assistance from instructor	.008	-.079	-.107*	-.035
Q45 student social interaction	.011	-.140**	-.066	.035
Q46 understanding of course	.042	-.100*	-.117*	-.052
Q47 my financial situation	.039	-.115*	-.093*	-.014
Q48 access to equipment to do course	.054	-.125*	-.132**x	-.040
Q49 predicting how instructor grades	.036	-.148**xx	-.180**	-.114*x
Q50 quantity of class materials	.077	-.104*	-.097*	-.012
Q51 course flexibility	.032	-.212** x	-.194*x*	-.139**x
Q52 quality of the materials	.088	-.114*	-.204**x	-.102*x
n	353	353	353	353

** Enabler correlation is significant at the 0.01 level
* Enabler correlation is significant at the 0.05 level
Note: the relationships between enablers and goal orientations are denoted with an X. The relationships between barriers and goal orientations are denoted with a double XX

Course Satisfaction

The relationships found between goal orientations and course satisfaction are displayed in Table 6. We hypothesized that the relationship of overall course satisfaction and satisfaction with course structure will differ by GO and that M will be associated with higher satisfaction with one's choice on what to study. As is evident in the table, the stronger the mastery orientation among study subjects, the higher the satisfaction with one's ability to choose career enhancements in a course and the higher the overall or diffuse course satisfaction at significant levels. Yet, students with a stronger mastery orientation were also found to express lower levels of satisfaction with a course structure. Further, the stronger the performance avoidance orientation, the slightly higher (.11) the level of satisfaction with an ability to choose career enhancements.

Table 6: Relationships (Pearson product-moment correlations) between course satisfaction and goal orientations (n=353)				
	Mastery Orientation	**Mastery Avoidance Orientation**	**Performance Orientation**	**Performance Avoidance Orientation**
Overall course satisfaction	.270**	-.08	.07	.051
Satisfaction with course structure	-.244**	.058	-.049	-.063
Satisfaction with ability to choose career enhancements	.310**	-.10	.095	.11*

** Correlation is significant at the 0.01 level. *. Correlation is significant at the 0.05 level.

Gender, Work Experience, and Degree Level

We did not make a specific hypothesis on GO and gender because of inconsistent prior research. Analysis of the mean scores of the four orientations, revealed some gender differences among study subjects. Specifically, females on average were found to exhibit higher mastery avoidance and performance orientations compared to their male counterparts (see Table 7). Yet, no differences between females and males in mastery or performance avoidance orientations were found at statistically significant levels ($p \geq .05$).

	Mastery Orientation	**Mastery Avoidance Orientation**	**Performance Orientation**	**Performance Avoidance Orientation**
Males (n=110)*	.225	-.20**	-.14**	.08
Females (n=236)*	.329	.08**	.11**	-.05

Table 7. Gender differences in goal orientation mean scores

*some subjects (n=7) did not answer the survey question about gender. ** Denotes statistically significant at p>=.05.

We hypothesized that greater work experience will be positively related to GO. The strengths of relationships between work experience and of leadership or managerial experience and goal orientations were calculated using Kendall's Tau-b. We used this statistical model because years of work experience and of leadership or managerial experience were encoded as ordinal level measures on the survey thus necessitating an ordinal strength of association measure. As can be seen in Table 8, years of work experience and of leadership or managerial experience were found only related to mastery and not to other goal orientations at statistically significant levels. However, the relationships between mastery and years of work and leadership or managerial experience were found to be quite weak (.075 and .074, respectively.)

	Mastery Orientation	**Mastery Avoidance Orientation**	**Performance Orientation**	**Performance Avoidance Orientation**
Years of work experience	.075*	-.039	-.024	-.025
Years of leadership or managerial experience	.074*	.013	-.042	.000

Table 8: Goal orientations by length of work experience and of leadership/managerial experience (table entries are Kendall's Tau-b correlations)

* Kendall's Tau-b coefficient is significant at the 0.05 level

It was hypothesized that graduate students will show an M preference more than undergraduates research subjects. On average, graduate students were found to have a stronger mastery goal orientation compared to undergraduates at statistically significant levels (p>=.002). But rather surprisingly, there were no differences between graduate and undergraduate students at statistically significant levels with regard to the other three orientations (see Table 9 below).

Table 9 Comparison of graduate and undergraduate goal orientations (mean scores and statistical significance)				
	Mastery Orientation	**Mastery Avoidance Orientation**	**Performance Orientation**	**Performance Avoidance Orientation**
Graduate student subjects (n=161)**	.4706*	-.0730	-.0360	-.0492
Undergraduates student subjects (n=142)**	.1646*	.1004	.0953	.0732

*denotes significance of difference of means between graduate and undergraduate subjects using the t-test for equality of means (p>=.002).

** Forty (40) subjects either did not answer the survey question about undergraduate or graduate standing or responded other.

DISCUSSION

In sum, the results from this naturally occurring case study were largely supportive of the hypotheses. The principal aim of this paper is to enhance curricula and instruction in healthcare administration. To that end, the results of the interplay of learning goal orientations, barriers and enablers, instructional level (graduate versus undergraduate) and satisfaction with students' immediate instructional experiences have been reported while taking into account the background characteristics of prior work and leadership experiences; generalized feelings of self-efficacy; and gender differences that students brought to the classroom. This study reinforces past research but it also provides important findings to help HCA instructors understand their students and better design their courses to match these students' needs.

Goal Orientation

Chief among the findings of this study is that HCA students were strongly inclined toward a mastery orientation to learning rather than to mastery avoidance, performance, or performance avoidance. Moreover, a mastery orientation was found to be stronger among graduate students than undergraduates, among those with elevated levels of self-efficacy, and less strongly among those with more years of work and leadership or managerial experience. Somewhat expectedly, no gender differences were found (at statistically significant levels) in mastery orientation. This was so despite differences between males and females in mastery avoidance and performance orientations.

These findings are in keeping with those of considerable previous research in other populations. Indeed, they are consistent with those of Perrot and others (2001) on the goal orientations of health professions' students in medicine, nursing, and pharmacy. While at one with important previous research, our findings also extend others from previous studies. As noted, Perrot and associates (2001) investigated the goal orientations of health professions' students; but their research did not include either HCA students, an important group of learners, or "avoidance" goal orientations – mastery avoidance and performance avoidance. As our results show, these were important omissions that our research was able to address.

Most importantly, this research amplifies the need for HCA instructors to understand that most of their students may take on an M learning goal orientation in their classes and that this has significant implications for the design of their classes. M students want to master content and become more competent. They should be allowed as much content as each of them can absorb individually. It is likely a strong argument for competency-based education which is based upon students demonstrating their mastery of a subject by showing what they know and applying the concepts at all levels of learning. Put simply, students should be able to show what they know, when they know it, and keep going. Courses for M students should likely be broken down into key competencies or subject areas. To earn credit for these competencies, students would be typically tasked with projects that apply what they've learned and keep them engaged. See Cellucci, Molinari, & Young, (2018) and others.

Constraining order of content or amount of information in a course, intentionally or not, may be inappropriate for M students. It may be best to have open-ended courses with guided choice and active ability to demonstrate competency for these students. They should be assessed and rewarded for increasing their competencies and demonstrating the use of the competency rather than achievement on an instructor-designed testing tool. In other words, tests for recognizing or even recreating knowledge for grades may not be the best learning tool in HCA.

Self Efficacy

This research follows closely the work of Bandura (1997) and of Dierdorff & Ellington (2012) on the importance of self-efficacy in learning and in varying learning orientations. In their research on self-efficacy and goal orientations, Dierdorff & Ellington (2012) found that learners with a high mastery orientation displayed higher feelings of self-efficacy while those with a performance avoidance orientation showed lower self-efficacy levels. We found the same to be true, but by investigating more fully the "avoidance categories" (mastery and performance avoidance) our findings showed self-efficacy to be *inversely* related to feelings of mastery avoidance. This is a significant finding which carries with it important teaching and future research implications. Individuals with lower SE have feelings of inadequacy when faced with challenge. Those with avoidance orientations wish to avoid completing a complex task or a task needing considerable effort and they may have less motivation to learn. These students mostly want to avoid failure and thus they avoid complex, difficult tasks or competencies. Making courses more structured, with less content, and less choice may appeal to students with lower SE and higher avoidance orientation, but it may be the opposite approach we should be taking in HCA courses – especially at the graduate level – if we find more of our students have high SE and take on an M goal orientation.

By focusing on increasing an M orientation and a more positive SE identity, every student can become an active achiever and possibly a life-long learner. This becomes even more critical in the coronavirus pandemic where our educational institutions are now carrying out their respective missions by providing more on-line learning. With this format, our students who do feel inadequate may not attend well to their assigned subjects (Kleinet al., 2006). They have been used to their instructors explaining the material to them in more informal ways. M orientation and higher SE will should increase the ability of students to perform in online

environments. Instructors understanding the effects of GO, SE, and perceived barriers is a start, but adding competency-based instruction, choice of where to begin (but rubrics to guide them), and gathering information about student's SE and GO, and job level will help instructors tailor their instruction.

Barriers/Enablers

Other noteworthy findings here include variations in perceived learning enablers and barriers among those differing in learning goal orientations. Additionally, those differing in goal orientations evaluated their courses and elements of them variously, particularly with regard to structure and to an ability to choose career enhancements. In their previous research on the subject, Pilgrim and associates (2018) reportedly found that enablers and barriers to competency learning were related to five over-arching themes: course content; relevance; structure; support networks; time and stress; pre-requisite knowledge, skills and experiences; and, access to technology. In our study we found quite similar if not identical results. But our investigation was able to extend the work of Pilgrim et al. (2018) through our finding that learning enablers and barriers were distinguishable by the student's goal orientation.

Course developers need to be aware of the links we found between learning goal orientations, on the one hand, and learning enablers and barriers, on the other. While we cannot be certain of the way cause and effect runs, any intervention intended to change instruction should consider the perception of these barriers and their effect on the goal orientations of students. Furthermore, instructors should consider such links in anticipation of any attempt at modifying the perceptions of students about the altered learning environment they are about to face. Changing classroom delivery methods or course expectations could strengthen or weaken students' existing perceived barriers and enablers, an important matter for future causal research.

Past research has been inconsistent on the perception of barriers/enablers in instruction and which perceived situational factors are likely to help or hinder achievement. However, this study sheds some light on how HCA students perceive the small number used here and how that differs by goal orientation. It may useful for future researchers to present more specific, finely grained items to HCA learners in future studies rather than the general factors used here.

Course Satisfaction

Our findings on course satisfaction, especially on variations in course evaluation elements according to goal orientations, seem at one with Festinger's (1957) research on cognitive dissonance. For example, students in our investigation with a mastery orientation were found likely to report working hard to learn new things, to doing work to get better at it, and a desire to completely master materials (see the questions in Appendix A). Students who invest considerable time and work in their courses are likely to value it and feel satisfied with it as part of a process of dissonance reduction in self-justifying their efforts. Finally, Klein and others (2006) found as we did that learners' perceptions of barriers were related to their motivation and orientations to learn.

While other studies have shown GO to be related to general satisfaction and performance (Roebken, 2007), we also examined satisfaction with course structure and ability to choose

course elements in relation to study variables. HCA students pursue degrees generally to further their career and pursue a mission. The stronger their mastery orientation, the higher the satisfaction with one's ability to choose career enhancements in a course. Yet, students with a stronger mastery orientation were also found to express lower levels of satisfaction with course structure. We did not compare course structure, but these findings are likely consistent with our expectations. Students with an M orientation would want to choose what competencies they work on – especially graduates – but are unhappy in classes where they cannot. This deserves further study.

Implications for Curricula and Instruction

The findings of our research suggest important implications for curricula and instruction. Given the differences shown above concerning variations in goal orientations, our findings suggest the importance of designing instructional interventions to facilitate changes in such orientations among students where needed (see Wang, Wu, Parker, & Griffin, 2018). Such interventions should especially highlight the value of mastery over other orientations, not only what mastery entails for graduate study and competency learning (see the measurement components in the mastery scale in Appendix A), but also for what it likely means for life-long learning. One practical implication of the study of goal orientation is that student applicants could be screened on the basis of both a high mastery as well as a high-performance orientation to determine how they might react to course elements. Another is that M preference students may react positively to more choice of learning elements and pace because M goal orientation is associated with both setting higher goals and maintaining higher performance over time. Keep in mind that most, if not all, of our students will not know their own goal orientation preferences.

More research is needed to determine the proportion of goal orientations, how to encourage M orientation, and what the best practices for teaching M students are. Furthermore, it may be that older, more experienced adults associate more with M preference. On the other hand, females at all levels may exhibit higher mastery avoidance and performance orientations compared to their male counterparts. This makes determining goal orientation important and designing instruction more difficult. It may call for very individualized training around a wide range of competencies and competency level. Geitz, Brinke, & Kirschner (2015) claim that business school undergraduate students can shift from performance oriented to be mastery oriented if they receive sustainable feedback.

Interventions to promote changes in orientation seemingly need to be designed particularly for women students. Recently, AUPHA (2020) reported that only 26% of hospital CEOs are women. Females in our study were found to be more oriented than men toward mastery avoidance and performance, but not toward mastery. More gender-diverse top leadership in hospitals might be encouraged through classroom exercises that help those with MA or PA preferences shift toward a mastery orientation and be comfortable with it. Instruction may need to reduce grading elements that promote these orientations and more to reduced instructor assessment and more towards self-assessment – at least for those with an M preference (which may be the larger group in HCA classes). Yet, besides altering some classroom structures being

perceived as barriers, there is little known about interventions to change future goal orientations of students. This calls for considerable future research.

Instructional interventions designed to change learning goal orientations should be accompanied by exercises and activities that promote self-efficacy. Our findings showed the importance of self-efficacy in relation to all four goal orientations, but especially to mastery where the relationship with efficacy was direct and strongest. In our experience as instructors in HCA, self-efficacy attains particular consequence through its additive effect on teamwork. The courses from which our research subjects were drawn emphasize instruction through teams often with students staying in the same learning groups across classes and over time. Individual team members' perceptions of their own capabilities often influence perceptions of the efficacy of others in team contexts (Kozlowski, Gully, Salas, & Cannon-Bowers, 1996). Such perceptions, in turn, can create efficacy beliefs about the team as a whole (Gully, Incalcaterra, Joshi, & Beaubien, 2002). Successful team performance requires coordination of learning among team members which we believe to be affected by the extent to which individuals feel confident in their own capabilities to accomplish the tasks presented during team training. Yet, we cannot minimize the difficulties associated with trying to enhance self-efficacy. Such enhancement among individual students probably entails the need for a sense of security in the instructional setting to encourage an environment of self-exploration.

Finally, we found evidence of variations in what subjects with a strong mastery orientation found satisfactory in their courses as well as differences in satisfaction across the four goal orientations. This evidence suggests that student-based evaluations of instruction should include considerations of these goal orientations. This seems particularly the case since student evaluations have come to be prominent in course revision, program accreditation, and decisions about faculty hiring and retention. Such consideration of students' goal orientations could also take place at baseline in course introductions to assist in guiding instruction as well as in course assessments at the end of an academic term to enhance the interpretation of results.

CONCLUSIONS

This research attempts to illustrate the importance of student goal orientation and other personal characteristics in healthcare administration programs for instructors interested in providing avenues to promote lifelong learning. With the information provided in this study and future ones, suitable and appropriate instructional methods can be designed to facilitate individual students gaining competencies and showing their level of attainment based on student learning motivation and identity in the classroom or online. Understanding the learning goal orientation of our individual students – which is not typically done – seems to be a starting point. Intervening with students with avoidance orientations will help these students. Designing classes to promote M orientation for learning over P is the next desired direction. Providing competency-based education with active assessment is important. In addition, this and future research will help healthcare administration programs to raise the quality of existing lifelong learning approaches in a way that it is more realistic, innovative, self-paced and interactive. As

such, healthcare leaders will become more independent, creative, diverse and dynamic in the near future.

STUDY LIMITATIONS AND FUTURE RESEARCH

Implications of findings for curricula and instruction aside, our study is not without its limitations. One such limitation is that our survey data were gathered from "convenience" samples of students within a college of business HCA program located near a major medical center. The results are likely not to be representative of students in the college or of other health professions students or colleges. Future research on more representative samples drawn from other healthcare populations seems needed.

Furthermore, approximately 29 percent of the respondents completed the survey Jan.1 to March 30, 2020, as they were just beginning to face the threat of the COVID pandemic. Study data collection ceased in early April, 2020. While the majority of the sample was collected before anyone understood the pandemic, the results might still be viewed as many did as they mostly work in a very large, internationally-focused medical center.

An accompanying limitation is that our results are based on cross-sectional evidence. As Coleman (1964;1968), Blalock (1968) and Markus (1979) long-ago observed, cross-sectional data frequently offer useful descriptions, but the theoretical merit of findings based on such data requires the assumption that a set of variables are in equilibrium over time. Given our focus on changing, or "enhancing" curricula and instruction as we expressed it earlier, data gathered on observations collected over time appear considerably more preferable for shedding additional light. The collection of panel data on the same subjects analyzed by means of appropriate models of change (Coleman, 1964; Markus, 1979, Durand & Durand, 1992) seems a quite promising avenue for the future.

Moreover, although goal orientation has been well-studied in education, most research has investigated goal orientation as a relatively stable variable, rather like a personality trait. Little is known about the extent to which an individuals' goal orientation can be changed and about whether some individuals are more likely than others to be amenable to such change. Future researchers should investigate the potential to alter goal orientations by means of different kinds of interventions.

Finally, the measurement of perceived learning barriers or enablers is another limitation of our study in need of future research attention. We asked our study subjects to rate from low to high the extent to which each of a number of learning delivery factors was a barrier. For each such delivery factor there could be several simultaneous issues that could be perceived as either a barrier or enabler. For example, in "access to the Internet" the location of the computer lab could be perceived a barrier, yet the number of computers, their processing speeds, and software applications could be viewed as enablers. Accordingly, we recommend that in future research respondents assess the extent to which each factor is perceived to be barrier separately from the extent to which that same factor is perceived to be an enabler. We also recommend the use of focus groups of students to assist in interpreting results about learning facilitation.

REFERENCES

Abdulhay, H., Ahmadian, M., Yazdani, H., & Amerian, M. (2020). Examining the Relationship between EFL University Students' Goal Orientations and Self-Regulation in Writing. *Journal of Asia TEFL*, *17*(2), 395-413.

Abuhassna, H., Al-Rahmi, W. M., Yahya, N., Zakaria, M. A. Z. M., Kosnin, A. B. M., & Darwish, M. (2020). Development of a new model on utilizing online learning platforms to improve students' academic achievements and satisfaction. *International Journal of Educational Technology in Higher Education*, *17*(1), 1-23.

Adcroft, A. (2010). The motivations to study of undergraduate students in management: The impact of degree programme and level of study. *International Journal of Management Education* (Oxford Brookes University), *9*(1), 11–20.

Alhadabi, A., & Karpinski, A. C. (2020). Grit, self-efficacy, achievement orientation goals, and academic performance in University students. *International Journal of Adolescence and Youth*, *25*(1), 519-535.

Amaro, D. J., Abriam-Yago, K., & Yoder, M. (2006). Perceived barriers for ethnically diverse students in nursing programs. *Journal of Nursing Education*, *45*(7), 247-254.

Ames, C. (1992). Classrooms: Goals, structures, and student motivation. *Journal of educational psychology*, *84*(3), 261-271.

Ames, C., & Archer, J. (1988). Achievement goals in the classroom: Students' learning strategies and motivation processes. *Journal of Educational Psychology*, 80(3), 260-267.

Anderman, E. M., & Young, A. J. (1994). Motivation and strategy use in science: Individual differences and classroom effects. *Journal of research in science teaching*, *31*(8), 811-831.

Andrew, S., McVicar, A., Zanganeh, M., & Henderson, N. (2015). Self-efficacy and relevance of bioscience for nursing, midwifery and healthcare students. *Journal of clinical nursing*, *24*(19-20), 2965-2972.

AUPHA (2020) A Comparison of the Career Attainments of Men and Women Healthcare Executives. https://www.ache.org/learning-center/research/about-the-workplace/gender-studies, downloaded 7/8/2020.

Baena-Extremera, A., Gómez-López, M., Granero-Gallegos, A., & del Mar Ortiz-Camacho, M. (2015). Predicting satisfaction in physical education from motivational climate and self-determined motivation. *Journal of Teaching in Physical Education*, *34*(2), 210-224.

Bambara, L. M., Nonnemacher, S., & Kern, L. (2009). Sustaining School-Based Individualized Positive Behavior Support: Perceived Barriers and Enablers. *Journal of Positive Behavior Interventions*, *11*(3), 161–176.

Bandura, A. (1982). Self-efficacy mechanism in human agency. *American psychologist*, *37*(2), 122-147.

Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Multifaceted impact of self-efficacy beliefs on academic functioning. *Child development*, *67*(3), 1206-1222.

Bandura, A., Adams, N. E., & Beyer, J. (1977). Cognitive processes mediating behavioral change. *Journal of personality and social psychology*, *35*(3), 125-139.

Bandura A. (1997). Self-efficacy: The exercise of control. New York, NY: Freeman.

Baranik, L. E., Barron, K. E., & Finney, S. J. (2007). Measuring goal orientation in a work domain: construct validity evidence for the 2× 2 framework. *Educational and Psychological Measurement*, *67*(4), 697-718.

Belenky, D. M., & Nokes-Malach, T. J. (2012). Motivation and Transfer: The Role of Mastery-Approach Goals in Preparation for Future Learning. *Journal of the Learning Sciences*, *21*(3), 399–432.

Bell, B. S., & Kozlowski, W. J. (2002). Goal orientation and ability: Interactive effects on self-efficacy, performance, and knowledge. *Journal of Applied Psychology*, *87*(3), 497-505.

Blalock, H.S. (1968). Theory building and causal inferences. In Blalock, H.M. and Blalock A.B. (eds). *Methodology in Social Research*. McGraw-Hill.

Boateng, G. O., Neilands, T. B., Frongillo, E. A., Melgar-Quiñonez, H. R., & Young, S. L. (2018). Best practices for developing and validating scales for health, social, and behavioral research: a primer. *Frontiers in public health*, *6*, 149.

Bong, M. (2001). Between-and within-domain relations of academic motivation among middle and high school students: self-efficacy, task value, and achievement goals. *Journal of educational psychology*, *93*(1), 23-34.

Boyd, A. M. (2017). An Examination of Goal Orientation between Genders–An Exploratory Study. University Honors Program Theses. 276.

Brophy, J. E. (2013). *Motivating students to learn*. Routledge, 428.

Button, S. B., Mathieu, J. E., & Zajac, D. M. (1996). Goal orientation in organizational research: A conceptual and empirical foundation. *Organizational behavior and human decision processes*, *67*(1), 26-48.

Carmines, E. G., & Zeller, R. A. (1979). *Reliability and validity assessment* (Vol. 17). Sage publications.

Cellar, D. F., Stuhlmacher, A. F., Young, S. K., Fisher, D. M., Adair, C. K., Haynes, S., Twichell, E., Arnold, K. A., Royer, K., Denning, B. L., & Riester, D. (2011). Trait Goal Orientation, Self-Regulation, and Performance: A Meta-Analysis. *Journal of Business and Psychology*, *26*(4), 467–483.

Cellucci, LW; Molinari, C; & Young, J (2018). Competency-Based Education in Undergraduate Programs Certified by the Association of University Programs in Health Administration, *Journal of Health Administration Education*, *35*(2), Spring, pp. 175-185.

Celuch, K., Milewicz, C., & Saxby, C. (2020). The impact of class delivery mode on student-faculty interaction and mastery goal orientation. Presentation. 3rd Celebration of Teaching & Learning Symposium, February 6, 2019, the University of Southern Indiana. Retrieved from https://soar.usi.edu/handle/20.500.12419/486

Chen, G., Gully, S. M., & Eden, D. (2001). Validation of a new general self-efficacy scale. *Organizational research methods*, *4*(1), 62-83.

Chen, G., Gully, S. M., Whiteman, J. A., & Kilcullen, R. N. (2000). Examination of relationships among trait-like individual differences, state-like individual differences, and learning performance. *Journal of applied psychology*, *85*(6), 835.

Chowdhury, S., & Halder, S. (2019). Motivational facilitators and barriers of adaptive academic help-seeking: A systematic review. *Indian Journal of Health and Well-being*, *10*(10-12), 324-333.

Christensen, E. W., Anakwe, U. P., & Kessler, E. H. (2001). Receptivity to Distance Learnings The Effect of Technology, Reputation, Constraints, and Learning Preferences. *Journal of Research on Computing in Education*, *33*(3), 263–279.

Coleman, J.S., (1964). *Models of change and response uncertainty*. Prentice-hall.

Coleman, J.S. (1968). The mathematical study of change. In Blalock, H.M. and Blalock A.B. (eds). *Methodology in Social Research*. McGraw-Hill.

Colquitt, J. A., LePine, J. A., & Noe, R. A. (2000). Toward an integrative theory of training motivation: a meta-analytic path analysis of 20 years of research. *Journal of applied psychology*, *85*(5), 678-707.

Dang, Y. M., Zhang, Y. G., Ravindran, S., & Osmonbekov, T. (2016). Examining student satisfaction and gender differences in technology-supported, blended learning. *Journal of Information Systems Education*, *27*(2), 119-130.

Darnon, C., Butera, F., Mugny, G., Quiamzade, A., & Hulleman, C. S. (2009). "Too complex for me!" Why do performance-approach and performance-avoidance goals predict exam performance? *European Journal of Psychology of Education*, *24*(4), 423–434.

DeGeest D. &Brown, KG. (2011). The role of goal orientation in leadership development. *Human Resource Development Quarterly*, 22(2),157-175.

Dekker, S., Krabbendam, L., Lee, N. C., Boschloo, A., De Groot, R., & Jolles, J. (2013). Sex differences in goal orientation in adolescents aged 10–19: The older boys adopt work-avoidant goals twice as often as girls. *Learning and Individual Differences*, *26*, 196-200.

Dierdorff, E. C., Surface, E. A., & Brown, K. G. (2010). Frame-of-reference training effectiveness: Effects of goal orientation and self-efficacy on affective, cognitive, skill-based, and transfer outcomes. *Journal of Applied Psychology*, *95*(6), 1181–1191.

Dierdorff, E. C., & Ellington, J. K. (2012). Members matter in team training: Multilevel and longitudinal relationships between goal orientation, self-regulation, and team outcomes. *Personnel Psychology*, *65*(3), 661-703.

D'Lima, G. M., Winsler, A., & Kitsantas, A. (2014). Ethnic and gender differences in first-year college students' goal orientation, self-efficacy, and extrinsic and intrinsic motivation. *The Journal of Educational Research*, *107*(5), 341-356.

Durand, J. & Durand R. (1992). Fitting and testing a predator-prey model. *Journal of Mathematical Sociology. 12*(1), 51–62.

Dweck, C. S., & Elliott, E. S. (1983). Achievement motivation. In E. M. Hetherington (Ed.), Socialization, personality, and social development. New York: Wiley.

Dweck, C. S., & Leggett, E. L. (1988). A social-cognitive approach to motivation and personality. *Psychological Review*, 95(2), 256-273.

Elliot, A. J., & McGregor, H. A. (2001). A 2× 2 achievement goal framework. *Journal of personality and social psychology*, *80*(3), 501-509.

Elliot, A. J., & Murayama, K. (2008). On the measurement of achievement goals: Critique, illustration, and application. *Journal of educational psychology*, *100*(3), 613-628.

Elliot, A. J., & Church, M. A. (1997). A hierarchical model of approach and avoidance achievement motivation. *Journal of personality and social psychology*, *72*(1), 218-232.

Elliot, A. J., & Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*, *70*(3), 461–475.

Elliot, A. J. (2005). A conceptual history of the achievement goal construct. In A. J. Elliot & C. S. Dweck (Eds.), Handbook of competence and motivation. New York, NY: Guilford Press, 52-72.

Eum, K., & Rice, K. G. (2011). Test anxiety, perfectionism, goal orientation, and academic performance. *Anxiety, Stress & Coping*, *24*(2), 167–178.

Fan, J., Meng, H., Billings, R. S., Litchfield, R. C., & Kaplan, I. (2008). On the Role of Goal Orientation Traits and Self-Efficacy in the Goal-Setting Process: Distinctions That Make a Difference. *Human Performance*, *21*(4), 354–382.

Festinger, L. (1957, renewed 1985 by author). A theory of cognitive dissonance. Redwood City, CA: Stanford University Press.

Feyzioğlu, B. (2019). The role of inquiry-based self-efficacy, achievement goal orientation, and learning strategies on secondary-school students' inquiry skills. *Research in Science & Technological Education*, *37*(3), 366-392.

Fick, J. W., Dishman, L., Adler, K., & Williams, L. (2018). Exploring Hospital CEOs' Perceptions of Health Administration Graduates' Leadership Competencies. *Journal of Health Administration Education*, *35*(2), 229-267

Filippello, P., Buzzai, C., Costa, S., Orecchio, S., & Sorrenti, L. (2018). Teaching style and academic achievement: The mediating role of learned helplessness and mastery orientation. *Psychology in the Schools*, *57*(1), 5-16.

Fisher, S. L., & Ford, J. K. (1998). Differential effects of learner effort and goal orientation on two learning outcomes. *Personnel Psychology*, *51*(2), 397-420.

Geitz, G., Brinke, D. J. T., & Kirschner, P. A. (2015). Goal orientation, deep learning, and sustainable feedback in higher business education. *Journal of Teaching in International Business*, *26*(4), 273-292.

Gong, X., & Freund, A. M. (2020). It Is What You Have, Not What You Lose: Effects of Perceived Gains and Losses on Goal Orientation Across Adulthood. *The Journals of Gerontology: Series B ,75*(10). 2106-2111.

Gully, S. M., Incalcaterra, K. A., Joshi, A., & Beaubien, J. M. (2002). A meta-analysis of team-efficacy, potency, and performance: interdependence and level of analysis as moderators of observed relationships. *Journal of applied psychology*, *87*(5), 819.

Hansen, R. (2020). The use of learning goals in mathematics education. *Scandinavian Journal of Educational Research*, 1-13.

Harackiewicz, J. M., Barron, K. E., & Elliot, A. J. (1998). Rethinking achievement goals: When are they adaptive for college students and why? *Educational Psychologist*, 33(1), 1–21.

Harackiewicz, J. M., Barron, K. E., Tauer, J. M., & Elliot, A. J. (2002). Predicting success in college: A longitudinal study of achievement goals and ability measures as predictors of interest and performance from freshman year through graduation. *Journal of Educational Psychology*, *94*(3), 562–575.

Harackiewicz, J. M., Barron, K. E., Pintrich, P. R., Elliot, A. J., & Thrash, T. M. (2002). Revision of achievement goal theory: Necessary and illuminating. *Journal of Educational Psychology*, *94*(3), 638–645.

Harper, M., Eales-Reynolds, L. J., & Markham, C. (2013). Transforming simulation in clinical education: is pre-placement hybrid learning valuable to healthcare students? *Journal of Contemporary Medical Education*, *1*(1), 15-24.

Hsieh, P. Pei-H., Sullivan, J. R., & Guerra, N. S. (2007). A Closer Look at College Students: Self-Efficacy and Goal Orientation. *Journal of Advanced Academics*, *18*(3), 454–476.

Inan, F., Yukselturk, E., Kurucay, M., & Flores, R. (2017). The impact of self-regulation strategies on student success and satisfaction in an online course. *International Journal on E-learning*, *16*(1), 23-32

Ilgen, D. R., Hollenbeck, J. R., Johnson, M., & Jundt, D. (2005). Teams in Organizations from Input-Process-Output Models to IMOI Models. Annual Review of Psychology, 56, 517-543.

Jagacinski, C. M., & Nicholls, J. G. (1984). Conceptions of ability and related affects in task involvement and ego involvement. *Journal of Educational Psychology*, *76*(5), 909-919.

Janke, S., & Dickhäuser, O. (2019). Different major, different goals: University students studying economics differ in life aspirations and achievement goal orientations from social science students. *Learning and Individual Differences*, *73*, 138–146.

Kassaw, K., & Astatke, M. (2017). Gender, academic self-efficacy, and goal orientation as predictors of academic achievement. *Global Journal of Human Social Science: Arts and Humanities–Psychology*, *17*(6), 55-65.

Kerlinger, F.N. (1973). *Foundations of Behavioural Research*, Second Edition. New York: Holt, Rinehart and Winston.

Kerlinger F. (1986). *Foundations of Behavioral Research*. 3rd Ed. New York: CBS College Publishing

Kim, E. Y., Lim, E. J., & Noh, J. H. (2016). Academic Stress, Major Satisfaction, and Academic Achievement according to Type of Achievement Goal Orientation in Nursing Students. *International Information Institute (Tokyo). Information*, *19*(10A), 4557-4562.

King, R. B., & Mendoza, N. B. (2020). Achievement goal contagion: Mastery and performance goals spread among classmates. *Social Psychology of Education*, *23*(3), 795-814.

Klein, H. J., Noe, R. A., & Wang, C. (2006). Motivation to Learn and Course Outcomes: The Impact of Delivery Mode, Learning Goal Orientation, and Perceived Barriers and Enablers. *Personnel Psychology*, *59*(3), 665–702.

Kozlowski, S. W., Gully, S. M., Salas, E., & Cannon-Bowers, J. A. (1996). Team leadership and development: Theory, principles, and guidelines for training leaders and teams. In M. M. Beyerlein, D. A. Johnson, & S. T. Beyerlein (Eds.), *Advances in interdisciplinary studies of work teams: Team leadership, 3*, 253–291.

Kunst, E. M., van Woerkom, M., & Poell, R. F. (2018). Teachers' goal orientation profiles and participation in professional development activities. *Vocations and Learning*, *11*(1), 91-111.

Lent, R. W., Brown, S. D., & Hackett, G. (2000). Contextual supports and barriers to career choice: A social cognitive analysis. *Journal of Counseling Psychology*, *47*(1), 36–49.

Liem, A. D., Lau, S., & Nie, Y. (2008). The role of self-efficacy, task value, and achievement goals in predicting learning strategies, task disengagement, peer relationship, and achievement outcome. *Contemporary Educational Psychology*, *33*(4), 486–512.

Linnenbrink, E. A. (2005). The Dilemma of Performance-Approach Goals: The Use of Multiple Goal Contexts to Promote Students' Motivation and Learning. *Journal of Educational Psychology*, *97*(2), 197–213.

Linnenbrink, E. A., & Pintrich, P. R. (2003). The role of self-efficacy beliefs in student engagement and learning in the classroom. *Reading &Writing Quarterly*, *19*(2), 119-137.

Loftin, C., Newman, S. D., Dumas, B. P., Gilden, G., & Bond, M. L. (2012). Perceived barriers to success for minority nursing students: An integrative review. ISRN nursing. doi:10.5402/2012/806543

Maddux, J. E., Norton, L. W., & Stoltenberg, C. D. (1986). Self-efficacy expectancy, outcome expectancy, and outcome value: Relative effects on behavioral intentions. *Journal of Personality and Social Psychology*, *51*(4), 783–789.

Madjar, N., Kaplan, A., & Weinstock, M. (2011). Clarifying mastery-avoidance goals in high school: Distinguishing between intrapersonal and task-based standards of competence. *Contemporary Educational Psychology*, *36*(4), 268-279.

Markus, G. (1979). *Analyzing Panel Data.* Sage University Paper Series.

Martins, L, & Kellermanns, F. W. (2004). A Model of Business School Students' Acceptance of a Web-Based Course Management System. *Academy of Management Learning & Education*, *3*(1), 7–26.

Martin, B. & Douglas, A. (1997). Statistical notes*. BMJ*, 314-572.

Mathieu, J., Tannenbaum, S., & Salas, E. (1992). Influences of individual and situational characteristics on measures of training effectiveness. *Academy of management journal*, *35*(4), 828-847.

Mavis, B. (2001). Self-efficacy and OSCE performance among second year medical students. *Advances in health sciences education*, *6*(2), 93-102.

McKnight, P., McKnight, K., Sidani, S., & Figueredo, A. (2007). *Missing Data*. New York: Guilford.

Medina, M. (2017). Training motivation and satisfaction: The role of goal orientation and offshoring perception. *Personality and Individual Differences*, *105*, 287–293.

Meyer, D., Turner, J., & Spencer, C. (1997). Challenge in a Mathematics Classroom: Students' Motivation and Strategies in Project-Based Learning. *The Elementary School Journal*, *97*(5), 501–521.

Middleton, M., & Midgley, C. (1997). Avoiding the demonstration of lack of ability: An underexplored aspect of goal theory. *Journal of educational psychology*, *89*(4), 710-718.

Mo, P. K., Blake, H., & Batt, M. E. (2011). Getting healthcare staff more active: The mediating role of self-efficacy. *British Journal of Health Psychology*, *16*(4), 690-706.

Murdock, S., Delgado, R., Gammon, E., Raole, Neha. (2019). Strategies to Achieve Competencies during Disruptive Change: Emerging Employer Needs and their Impact on Program Deliverables in the Healthcare Sector. *The Journal of Health Administration Education, 36*(2),131-150.

National Association of Colleges and Employers (NACE). (2019). Career readiness. Retrieved from http://www.naceweb.org/career-readiness/

Nicholls, J., & Dweck, C. (1979). A definition of achievement motivation. Unpublished manuscript, University of Illinois. Parsons.

Nielsen, K., Yarker, J., Randall, R., & Munir, F. (2009). The mediating effects of team and self-efficacy on the relationship between transformational leadership, and job satisfaction and psychological well-being in healthcare professionals: A cross-sectional questionnaire survey. *International journal of nursing studies*, *46*(9), 1236-1244.

Odom, M. (2020). Factor scores, structure and communality coefficients. Retrieved August 20, 2020, from https://files.eric.ed.gov/fulltext/ED516588.pdf

Pajares, F., Britner, S. L., & Valiante, G. (2000). Relation between achievement goals and self-beliefs of middle school students in writing and science. *Contemporary educational psychology*, *25*(4), 406-422.

Payne, S. C., Youngcourt, S. S., & Beaubien, J. M. (2007). A meta-analytic examination of the goal orientation nomological net. *Journal of Applied Psychology*, *92*(1), 128–150.

Perrot, L. J., Deloney, L. A., Hastings, J. K., Savell, S., & Savidge, M. (2001). Measuring student motivation in health professions' colleges. *Advances in health sciences education*, *6*(3), 193-203.

Pintrich, P. R., & Garcia, T. (1991). Student goal orientation and self-regulation in the college classroom. *Advances in motivation and achievement: Goals and self-regulatory processes*, *7*, 371-40.

Pilgrim, M., Hornby, G., & Macfarlane, S. (2018). Enablers and barriers to developing competencies in a blended learning programme for specialist teachers in New Zealand. *Educational Review*, *70*(5), 548-564.

Pohl, A. J. (2020). Strategies and Interventions for Promoting Cognitive Engagement. In *Student Engagement* (pp. 253-280). Springer, Cham.

Porath, C. L., & Bateman, T. S. (2006). Self-Regulation: From Goal Orientation to Job Performance. *Journal of Applied Psychology*, *91*(1), 185–192.

Radwan, O., Ghavifekr, S., & Razak, A. Z. A. (2020). Can academic leadership competencies have effect on students' cognitive, skill and affective learning outcomes? Higher education perspective. *Journal of Applied Research in Higher Education*.

Ramezani, T., Sharifirad, G., Rajati, F., Rajati, M., & Mohebi, S. (2019). Effect of educational intervention on promoting self-care in hemodialysis patients: Applying the self-efficacy theory. *Journal of education and health promotion*, 8 (65), ttps://doi.org/10.4103/jehp.jehp_148_18.

Roebken, H. (2007). The Influence of Goal Orientation on Student Satisfaction, Academic Engagement and Achievement. *Electronic Journal of Research in Educational Psychology*, *5*(13), 679-704.

Rummel, R. (1970.) *Applied Factor Analysis*. Evanston, IL: Northwestern University Press.

Sakiz, G. (2011). Mastery and performance approach goal orientations in relation to academic self-efficacy beliefs and academic help seeking behaviors of college students in Turkey. *Educational Research*, *2*(1), 771-778.

Schunk, D. H. (1991). Self-efficacy and academic motivation. *Educational psychologist*, *26*(3-4), 207-231.

Schunk, D. H., & Meece, J. L. (2012). *Student perceptions in the classroom*. Routledge.

Self-brown, S. R., & Mathews, S. (2003). Effects of Classroom Structure on Student Achievement Goal Orientation. *The Journal of Educational Research*, *97*(2), 106–112.

Senko, C., & Freund, A. M. (2015). Are mastery-avoidance achievement goals always detrimental? An adult development perspective. *Motivation and Emotion*, *39*(4), 477–488.

Shelton, E. N. (2003). Faculty support and student retention. *Journal of nursing education*, *42*(2), 68-76.

Shelton, E. N. (2012). A model of nursing student retention. *International Journal of Nursing Education Scholarship*, *9*(1), 1-16.

Shim, S., & Ryan, A. (2005). Changes in Self-Efficacy, Challenge Avoidance, and Intrinsic Value in Response to Grades: The Role of Achievement Goals. *The Journal of Experimental Education*, *73*(4), 333–349.

Shin, Y., Kim, M., & Hur, W. M. (2019). Interteam Cooperation and Competition and Boundary Activities: The Cross-Level Mediation of Team Goal Orientations. *International Journal of Environmental Research and Public Health*, *16*(15), 2738.

Shubina, I., & Kulakli, A. (2019). Pervasive learning and technology usage for creativity development in education. *International Journal of Emerging Technologies in Learning (iJET)*, *14*(01), 95-109.

Soyer, M. K., & Kirikkanat, B. (2019). Undergraduates' achievement goal orientations, academic self-efficacy and hope as the predictors of their learning approaches. *European Journal of Educational Research*, *8*(1), 99-106.

Suprayogi, M. N., Ratriana, L., & Wulandari, A. P. J. (2019). The interplay of academic efficacy and goal orientation toward academic achievement. *Journal of Physics: Conference Series*, *1175*, 012132

Tinto, V. (1988). Stages of student departure: Reflections on the longitudinal character of student leaving. *The journal of higher education*, *59*(4), 438-455.

Tinto, V. (1990). Principles of effective retention. *Journal of The First-Year Experience & Students in Transition*, *2*(1), 35-48.

Townsend, L., & Scanlan, J. M. (2011). Self-efficacy related to student nurses in the clinical setting: a concept analysis. *International journal of nursing education scholarship*, *8*(1), 1-15.

Ursachi, G., Horodnic, I. A., & Zait, A. (2015). How reliable are measurement scales? External factors with indirect influence on reliability estimators. *Procedia Economics and Finance*, *20*, 679-686.

Van Yperen, N. W. (2003). Task Interest and Actual Performance: The Moderating Effects of Assigned and Adopted Purpose Goals. *Journal of Personality and Social Psychology*, *85*(6), 1006–1015.

Van Yperen, N. W., Elliot, A. J., & Anseel, F. (2009). The influence of mastery-avoidance goals on performance improvement. *European Journal of Social Psychology*, *39*(6), 932–943.

Vandewalle, D. (1997). Development and Validation of a Work Domain Goal Orientation Instrument. *Educational and Psychological Measurement*, *57*(6), 995–1015.

VandeWalle, D., & Cummings, L. L. (1997). A test of the influence of goal orientation on the feedback-seeking process. *Journal of Applied Psychology*, *82*(3), 390–400.

Vogt, W. P. (1993). Dictionary of statistics and methodology: A nontechnical guide for the social sciences. Sage Publications, Inc.

Wang, Y.,Wu, C-H., Parker, SK., & Griffin. MA (2018). Developing goal orientations conducive to learning and performance: An intervention study, *Journal of Occupational and Organizational Psychology*, (2018), 91, 875–895.

Weiss HM. (1990). Learning theory and industrial and organizational psychology. In Dunnette MD, Hough LM (Eds.), *Handbook of industrial and organizational psychology* (Vol. 1, 2nd ed., pp. 171–221). Palo Alto, CA: Consulting Psychologists Press.

Williams, B., Beovich, B., Ross, L., Wright, C., & Ilic, D. (2017). Self-efficacy perceptions of interprofessional education and practice in undergraduate healthcare students. *Journal of interprofessional care*, *31*(3), 335-341.

Wolters, C. A. (2004). Advancing Achievement Goal Theory: Using Goal Structures and Goal Orientations to Predict Students' Motivation, Cognition, and Achievement. *Journal of educational psychology*, *96*(2), 236-250.

Yeo, G. B., & Neal, A. (2004). A Multilevel Analysis of Effort, Practice, and Performance: Effects; of Ability, Conscientiousness, and Goal Orientation. *Journal of Applied Psychology*, *89*(2), 231–247.

Yoder, M. K. (1996). Instructional responses to ethnically diverse nursing students. *Journal of Nursing Education*, *35*(7), 315-321.

Yusefzadeh, H., Amirzadeh Iranagh, J., & Nabilou, B. (2019). The effect of study preparation on test anxiety and performance: A quasi-experimental study. *Advances in Medical Education and Practice*, *10*, 245–251.

Zaitseva, E., Milsom, C., & Stewart, M. (2013). Connecting the dots: using concept maps for interpreting student satisfaction. *Quality in Higher Education*, *19*(2), 225-247.

Zhang, J., Cao, C., Shen, S., & Qian, M. (2019). Examining effects of self-efficacy on research motivation among Chinese university teachers: moderation of leader support and mediation of goal orientations. *The Journal of psychology*, *153*(4), 414-435.

Zimmerman, B. J., Bandura, A., & Martinez-Pons, M. (1992). Self-motivation for academic attainment: The role of self-efficacy beliefs and personal goal setting. *American educational research journal*, *29*(3), 663-676.

Zimmerman, B. J., & Kitsantas, A. (1999). Acquiring writing revision skill: Shifting from process to outcome self-regulatory goals. *Journal of educational Psychology*, *91*(2), 241.

APPENDIX A: Survey Questions and Summated Measurement Scale Formulas

Items	Survey questions	Adapted from	Reliability
Perceived Barriers	<u>14 items</u> Q36. "The time I have available for school." Q40. My access to Internet connectivity." Q41. "My understanding of Blackboard." Q42. "Navigating a complex website/content domain or discussion forums." Q43. "Access to school representatives for advice and counsel." Q44. "The ability to get assistance from the instructor. Q45. "Social interaction with other students. Q46. "My understanding of the course requirements." Q47. "My financial situation." Q48. "My access to adequate equipment to complete the course." Q49. "My ability to predict how the instructor will score my work." Q50. "The quantity of materials to be assimilated. Q51. "The flexible nature of the course." Q52. "The quality of the materials to be assimilated."	Klein et al (2006) and Pilgrim, Hornby & Macfarlane (2018)	In Klein, a single composite was formed of 15 items and the internal consistency reliability estimate for this scale was .88.

GO Questionnaire	20 items **Mastery Orientation (M)** Q2. "I want to learn as much as possible from this class – regardless of my final grade." Q7. "I will work hard to learn new things in this class." Q12. "It is important for me to understand the content of this course as thoroughly as possible." Q17. "I do my school work to get better at it." Q26. "I desire to completely master the material presented in this class." **Mastery Avoidance Orientation (MA)** Q3. "I am often concerned that I may not learn all that there is to learn in this class." Q13. "Sometimes I'm afraid that I may not understand the content of this class as thoroughly as I'd like." Q18. "I am anxious that I may not master all that I should learn in this class." Q21. "I worry that I may not learn all that I possibly could in this class." Q24. "I feel uneasy that I may not understand what I need to learn in this class." **Performance Orientation (P)** Q4. "I would feel really good if I were the only one who could answer the teacher's question in front of my peers." Q10. "I want to do better than the other students in this class." Q20. "It is important for me to do better than other students." Q23. "It is important for me to do well compared to others in this class." Q28. "My goal in this class is to get a better grade than most of the other students." **Performance Avoidance Orientation (PA)** Q1. "My fear of performing poorly in this class is often what motivates me." Q6. "Most importantly, I don't want to look stupid in this class." Q8. "One of my main goals is to avoid looking like I can't do my work."	Baranik et al (2007) and Elliott & McGregor (2001).	Baranik et al's (2007) Cronbach's a values were .89 for mastery-approach, .74 for mastery-avoidance, .88 for performance-approach, and .77 for performance-avoidance.

	Q15. "My main goal in this class is to avoid performing poorly." Q27. "I just want to avoid doing poorly in this class."		
Self-Efficacy	8 items Q5. "I will be able to achieve most of the goals that I set for myself in this class." Q9. "When facing difficult tasks, I am certain that I will accomplish them." Q11. "I will be able to successfully overcome any challenges in this class." Q14. "In general, I think that I can obtain outcomes that are important to me." Q16. "I believe I can succeed at most any endeavor to which I set my mind." Q19. "I am confident that I can perform effectively on any tasks in this course." Q22. "Compared to other people, I can do most tasks very well." Q25. "Even when things are tough, I can perform quite well."	New General Self-Efficacy Scale (NGSES) developed by Chen, Gully, and Eden (2001).	NGSES instrument has been shown to be both reliable (α = .87, .88, and .85) and valid (Chen et al., 2001).
Course Satisfaction	3 items Q32. "How satisfied are you with this class overall?" Q34. "How satisfied are you with the structure of this class?" Q35. "In this class, how satisfied were you with your ability to choose what you needed do to enhance your career?"	Developed by the authors of this study	-

APPENDIX B: Summated Measurement Scale Formulas

Below, the reader will find summated measurement scales for each of the constructs (Mastery, Performance, Mastery Avoidance, Performance Avoidance, Self-Efficacy) of interest in this study. This summation is based on "Item Response Theory" and the practices recommended by it. A reader interested in more discussion should consult Boateng & others, 2018, and Odum, 2020. Contact the authors for more details.

This widely-used, recommended procedure to construct summated scales is done by initially standardizing each of the validated component survey items. In effect, this procedure ensures that individual variables comprising a summated scale all are measured with the same zero mean score (0) and the same standard deviation of unity (1). Thus, variable means and standard deviations of the component items of a summated scale cannot result in measurement artifacts.

A uni-dimensional, summated measurement scale for each construct was devised utilizing multiple survey questions for each, based on the results of tests for reliability and validity. We weighted each survey question by its respective factor score coefficient after standardizing each by subtracting its mean and dividing by its standard deviation. Then we summated across the weighted, standardized survey questions measuring what were found to be valid, reliable survey items for a construct.

Mastery = .098*((Q2-1.71/.957) + .429*((Q7-1.40)/ .655) + .290*((Q12-1.49)/ .701) + .137*((Q17-1.73)/ .955) +. .182*((Q26-1.89)/.975)

Masteravoid = .131*((Q3 - 2.46)/ 1.189) + .187*((Q13-2.13)/ 1.081) $^+$ .254*((Q18-2.50)/ 1.140) + .369*((Q21-2.51)/ 1.101) + .220*((Q24-2.61)/ 1.158)

Perform = .042*((Q4-3.03)/1.320) + .174*((Q10-2.11)/ 1.019) + .398*((Q20-2.63)/ 1.133) + .282*((Q23-2.45)/ 1.047) + .218*((Q28-2.56)/1.118)

Perfavoid = .157*((Q1-2.06)/ 1.152) + .217*((Q6-2.15)/ 1.172) + .258*((Q8-2.17)/ 1.223) + .348*((Q15-1.82)/ 1.107) + .227*((Q27-1.98)/ 1.184)

SelfEff = .159*((Q1-4.22)/.792)+.187*((Q2-4.3)/.803) + .184*((Q3-4.33)/.762) + .161*((Q4-4.44)/.656) + .182*((Q5-4.6)/.744) + .179*((Q6-4.13)/.95) +.152*((Q7-3.85)/.847) + .164*((Q8-4.09)/.86)