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AI CHALLENGES IN THE WORKPLACE: ARE ARTIFICIAL INTELLIGENCE POLICIES MEETING DIVERSITY, EQUITY, AND INCLUSION THRESHOLDS?

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** Keynote Speech to be delivered by Professor Baum at the 31st Annual Conference of the ASBBS on March 9, 2024.*

ABSTRACT

The subject of Artificial Intelligence (AI) has dominated workplace conversations over the past year. While progress in artificial intelligence has been making huge strides for decades, what was once a consideration for the future has now become an item for immediate attention. In all major industries, from law and academia to service industries and product suppliers, top executives are researching the impact that AI will have on the workplace. Ranging from Traditional AI to Generative AI, the fascinating scientific accomplishments of artificial intelligence have caused organizational leaders to rethink workplace productivity, output potential, and the workforce itself. AI technology is already being utilized in many workplaces and will continue to shape the labor market. Human Resource professionals will need to successfully manage generative AI and other AI systems to comport with current updates in privacy regulations impacting the implementation and usage of the new technology. This paper will examine legal and ethical challenges of incorporating AI in the workplace. The discussion will explore emerging regulations concerning AI in employment settings, with a specific focus on challenges rooted in AI tools regarding diversity, equity, and inclusion (DE&I) in an effort to anticipate potential pitfalls and move forward on solid footing with all the positive contributions that AI has to offer.

Key words: AI, Artificial Intelligence, Generative AI, DE&I, diversity, equity, inclusion

INTRODUCTION

Remarkable strides in technology concerning artificial intelligence (AI) have reached the workplace, thus becoming a topic of interest not only for scientists and engineers, but for all people who are impacted by its usage. A 2023 McKinsey report stated that activities accounting for up to 30 percent of hours worked across the U.S. could become automated by 2030. Twelve million workers in professions with shrinking demand may need to change jobs within the next seven years (Gonzalez, 2023).

With any organizational change, planning is paramount. Change management spearheaded by organizational development consultants goes a long way toward guiding organizational leaders and their employees to achieving the organization's mission and vision. With AI exploding onto the scene in late 2022 after the launch of ChatGPT, however, many organizations were not ready for the impact AI was to have on various aspects of the workplace. As a result, HR professionals and company legal teams were left scrambling to keep up with the barrage of change management issues that were unfolding, not least of which were issues surrounding AI's impact on diversity, equity, and inclusion in the workplace.

Even before the 2023 AI surge, organizations were still attempting to meet commitments made to incorporating diversity, equity, and inclusion (DE&I) measures in the workplace. Following the social unrest of 2020, many large, high-profile corporations documented promises to improve diversity, equity, and inclusion in a meaningful way; not just paying lip service to the cause but, rather, attempting to manifest a true culture shift in the organization. The obstacles encountered by HR professionals while trying to accomplish this paradigm shift were formidable. Because many of the challenges were rooted in unconscious bias that exists at all levels in the hierarchy of an organization, it soon became apparent that such a change in workplace culture would not happen in short course.

Due to HR professionals being early adopters of AI, they became privy to the potential problems associated with AI tools in the workplace as they relate to DE&I. The first and most common usage of AI tools by HR professionals were talent acquisition programs to source, recruit, evaluate, and communicate with candidates. According to a 2022 survey by the Society for Human Resource Management (SHRM), nearly one in four organizations reported using

automation or AI to support HR-related activities. The report found that 85 percent of employers using automation or AI said it saves time or increases efficiency (SHRM, 2022). Despite the positive impact on day-to-day activities as a result of AI usage in employment, the potential risks surrounding fairness and equity are evident and cannot be ignored.

It is important to understand the working definition of Artificial Intelligence (AI) in order to analyze its benefits and shortcomings. According to the globally recognized AI expert, Dr. Chris Mattmann, artificial intelligence is the science of making machines that can think like humans. The core scientific definition of AI is "machines that perceive from (receive information and reason about) and actuate with (interact with) the environment" (Mattmann, 2023). Generative AI refers to machines that replace human tasks, such as ChatGPT. The primary difference between Traditional AI and Generative AI is that while Traditional AI performs tasks based on predefined rules and patterns, Generative AI goes beyond this limitation to create new data that resembles human-created content (Mattmann, 2023). Generative AI is being used to create content in almost all areas of HR (shrm.org., 2023). Work simulations are utilized for training, and chatbots are deployed to support employees in learning, performance evaluation, benefits enrollment and more.

It is equally important to understand the expanding definitions of terms from former diversity policies to current diversity, equity, and inclusion policies in workplace settings, both from a legal and sociopsychological view. When looking at diversity from a legal policy perspective, considerations of disparate treatment, disparate impact, and stereotyping, among others, are reflected in policymaking. Disparate impact refers to a deleterious effect of a facially neutral policy on a group of individuals falling under a protected classification in employment statutes (Bennett-Alexander, 2022). This is particularly relevant when determining the impact of AI on various groups of employees. The machine may not set out to discriminate against people of color or women, for example, however, the inherent biases of the training model make it prone to disparate impact of certain classifications.

DE&I CONSIDERATIONS IN AI

For decades, HR professionals and behavioral scientists have researched the impact of implicit bias in the workplace. Often these theories were abstract and difficult to understand, resulting in leaders discounting the consequences of such

biases and prejudices on the workforce. With generative AI, however, the behavioral science behind theories of unconscious bias is unfolding. Now, through AI systems, the results of implicit bias and non-diverse methods of design, training models, and implementation can be clearly seen and, in some areas, proven.

With the release of ChatGPT in November 2022, an entire host of issues surrounding ethics and governance emerged, not the least of which is bias in training data (content used to train algorithms). In addition, confidence in predictions and upskilling are also primary concerns (Mattmann, 2023). Consequently, AI accelerated the urgency of confronting issues of diversity, equity, and inclusion in employment. Because generative AI outputs are revealing the negative effects of an absence of diversity, equity, and inclusion in training models, more attention can be given to the importance of addressing AI challenges through a DE&I lens.

AI technology can process large amounts of data, recognize patterns, and make decisions by combining computer science and structured data sets to create programs that perform tasks which typically require human intelligence. AI-systems, however, deliver biased results by virtue of their training data and trained models. Since search-engine technology is not neutral as it processes big data and prioritizes results with the most clicks relying both on user preferences and location, a search engine can become an echo chamber that upholds biases of the real world and further entrenches the prejudices and stereotypes (Belous, 2023).

An unintended consequence of AI adoption is the potential for negative impact on certain demographics. Because training and testing of the software are not as diverse as should be required, massive AI data sets - the information AI is trained on - can bias the output (Biak, 2023). As more decisions are made based on AI computation as opposed to human review, bias opens the possibility for massive structural discrimination. It is important to determine whether there is diverse representation at all job levels. This starts by having good metrics on the demographic makeup of the organization. Key ethical considerations for HR relate to ensuring that AI does not introduce bias into the hiring process, and other processes ranging from promoting and compensating, to training, evaluating, and developing.

A recent report by Pew Research Center revealed that Asian American employees are more exposed than other racial groups to artificial intelligence. The survey of about 11,000 employees found that 24 percent of Asian American workers are in fields categorized as "most exposed" to AI, followed by white (20 percent), Black (15 percent), and Hispanic (13 percent) employees (Gonzalez, 2023). Another vulnerable group to AI in the workplace is women. A May 2023 study by Revelio Labs examined jobs most likely to be replaced by AI based on a report by the National Bureau of Economic Research. The abilities of generative AI overlapped more with support occupations. Thus, due to gender-related trends in the job market which indicate an under-representation of women in technical occupations, and an over-representation of women in supporting occupations, such as administrative assistants, the implementation of AI for those positions predominately held by women exacerbates the existing bias.

AI employment tools may not intentionally set out to discriminate, however, the statistical data gathered, which may already be biased, could have a disparate impact on protected classifications. To prove discrimination on the theory of disparate impact, plaintiffs must show that while a workplace policy or procedure appears neutral on its face, it in fact has an adverse impact on a protected group. For example, a police department policy requiring applicants for a police officer position to meet a height and weight requirement of 5’4” and 130 pounds, respectively, was found to be discriminatory (Bennett-Alexander, 2022). While the policy appeared to be facially neutral, as it applied to all applicants regardless of gender or ethnicity, the impact of the policy screened out many more females as well as Hispanic and Asian males, thus having a disparate impact on a protected group based on gender and race/national origin. Similarly, AI procedures may be found to be discriminatory based on the theory of disparate impact. An employer cannot escape liability for discrimination claiming ignorance of the employment tools provided by an outside vendor. Employers will need to be vigilant in screening outside vendors and auditing the systems regularly.

One perspective is that a fortuitous outcome of AI systems in the workplace is the data being revealed that indicates the system’s limitations and tendency toward bias is now bringing the issue of implicit bias to the forefront. It now becomes abundantly clear to all users of the need for regulations of AI in employment. Even Geoffrey Hinton, the cognitive psychologist and computer scientist most noted for his work in artificial neural networks and setting today’s AI advancements in motion, admits that while AI’s contributions to health care,

for example, are groundbreakingly positive, its limitations and potential for harm are in areas such as employment (Pelley, 2023).

LEGAL AND ETHICAL CONSIDERATIONS

The European Union was among the first to propose rules for AI usage. Such federal laws are in the early stages in the United States, however, U.S. Senators have introduced a bipartisan framework for artificial intelligence legislation (Smith, 2023). The bipartisan framework is the first comprehensive legislative blueprint for real, enforceable protections in the area of AI. Among other things, the framework would impose liability for companies for privacy and civil rights violations, and requirements for data transparency and safety standards.

State legislatures have been very busy this past year, introducing 191 bills concerning AI regulation in 2023, a 440% increase compared to the previous year (DigWatch, 2023). All bills express concern of discrimination in areas such as hiring (Zhu, 2023). New York City's AEDT law adopted in 2023 has attracted national attention as a model for AI regulation particularly related to workplace issues such as hiring (Maurer, 2023). Several states have included AI legislation as part of their consumer privacy laws, many of which mirror laws that California has already passed. Other states have proposed task forces to investigate AI's impact on employment and other areas. California is the only state to date with an agency - the California Privacy Protection Agency (CPPA) - designated to enforce privacy laws.

On October 30, 2023, President Biden signed a sweeping Executive Order establishing new standards for AI safety and security, protections of Americans' privacy, and advancement of equity and civil rights. Until 2023, there were no codified regulations governing the implementation, use, or risk assessment of AI. Now, with the onset of current regulations, employers have some guidance as well as an obligation to comply with rules designed to utilize AI technology in fair and ethical ways. The following laws and regulations related to AI are attracting the most attention to date.

Executive Order on Safe, Secure, and Trustworthy Artificial Intelligence. On October 30, 2023, President Biden issued a landmark Executive Order establishing new standards for AI safety and security, privacy protections, and advancing of equity and civil rights (WH.gov).

EU AI Act. The European Union was among the first to propose rules for AI usage in 2021. On June 16, 2023, the EU passed the AI Act. The intent of the EU AI Act is to regulate AI to ensure better conditions for the development and use

of the technology and to make sure that AI systems are safe, transparent, traceable, non-discriminatory, and environmentally friendly. The AI Act provides that AI systems be overseen by people, rather than by automation, to prevent harmful outcomes.

AEDT Law (NYC Local Law 144). On January 1, 2023, the New York City AEDT Law went into effect. The Automated Employment Decision Tools (AEDT) law was the first of its kind in the United States. The New York City Department of Consumer and Worker Protection (DCWP) adopted final rules implementing the law which took effect July 5, 2023. The law defines AEDT as "any computational process, derived from machine learning, statistical modeling, data analytics, or artificial intelligence, that issues simplified output, including a score, classification, or recommendation" that is used to "substantially assist or replace discretionary decision making for making employment decisions that impact natural persons" (Francis & Zagger, 2023). The AEDT regulates the use of AI in hiring. Among other things, the AEDT requires an annual audit to evaluate the tool for bias.

California Consumer Privacy Act (CCPA). As with many areas of law there may be overlapping protections. Privacy laws impact some AI usage. With regard to AI, the CCPA defines automated decision-making as "any system, software, or process - including one derived from machine-learning, statistics, or other data processing or artificial intelligence techniques - that processes personal information and uses computation as whole or part of a system to make or execute a decision or facilitate human decision making" (Porath Rockwell, 2023).

California Privacy Protection Agency (CPPA). The CPPA is the agency that enforces the California Consumer Privacy Act and proposes compliance regulations and guidance for employers.

California Privacy Rights Act (CPRA). The California Privacy Rights Act expands the CCPA by providing additional protections for employees. The CPRA eliminates the employer exception, thus providing employees the same rights as other consumers. As such, employers must be vigilant in adjusting privacy policies to comply with the January 1, 2023, compliance date of the new law. Among other things, employees must be provided notice of their rights under the CPRA and be able to advise the employer of their exercise of these rights (Nalty, 2023).

EEOC Artificial Intelligence and Algorithmic Fairness Initiative. The EEOC initiative ensures that AI software used in hiring and other employment decisions complies with federal civil rights laws enforced by the Commission, such as the federal employment laws listed below (Title VII of the CRA; ADEA; ADA).

Title VII of the Civil Rights Act of 1964. According to Title VII of the Civil Rights Act of 1964, it shall be unlawful employment practice for an employer –

(1) to fail or refuse to hire or to discharge any individual, or otherwise to discriminate against any individual with respect to his compensation, terms, conditions, or privileges of employment, because of such individual's race, color, national origin, sex, or religion. [Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e-2(a).]

Age Discrimination in Employment Act (ADEA) of 1967. The ADEA prohibits discrimination in employment on the basis of age. The statute applies to individuals 40 years of age or older. [Age Discrimination in Employment Act, 20 U.S.C. § 623.]

Americans with Disabilities Act (ADA) of 1990. The ADA prohibits discrimination in employment on the basis of a disability of an individual as long as the individual with a disability can perform the essential functions of the job with or without a reasonable accommodation. [Americans with Disabilities Act of 1990, ¶ 602, § 102.]

Most software privacy and bias issues are due to mistakes that resulted in data being collected in unintended ways associated with implicit bias. As a result, such systems have a disparate impact on certain protected classifications of employees. Best practices concerning AI tools in the workplace may include a collaboration between an organization's legal team and tech team to determine how the organization may be using AI to make decisions that impact its employees (Beeke, 2023). Such collaboration would provide a better understanding of when personal data is being used to train AI models, as well as when personal or other sensitive data is being used by service providers to train their own AI models.

Strong commitments of diversity, equity, and inclusion by leadership at the top levels of organizations must extend to AI policies. Viewing AI policies through a DE&I lens goes a long way toward ensuring compliance with the core federal workplace discrimination statutes: Title VII of the Civil Rights Act, the Age Discrimination in Employment Act (ADEA), and the Americans with Disabilities

Act (ADA), as well as state privacy statutes and emerging state regulations on artificial intelligence usage in the workplace. Most importantly, rolling out AI workplace policies in this manner sends a message from leadership that the company is committed to achieving and maintaining a workplace culture of diversity, equity, and inclusion even amid a changing landscape.

BEST PRACTICES FOR ADDRESSING AI IN THE WORKPLACE

While AI is being used in the workplace to manage the full employee life cycle, from sourcing and recruitment to performance management and employee development, it does not replace the need for human involvement in most instances. To date, there has been little guidance for employers specifically designed to assist in addressing diversity, equity, inclusion, and accessibility issues that may arise from the use of AI tools in the workplace. While the new Local Law 144 in New York City covers only one jurisdiction, legal experts and HR technology experts predict that other states will follow suit with similar and possibly more comprehensive coverage, e.g., requiring audits for age and disability bias, in addition to gender and race bias (Zielinski, 2023). As new laws, rules, and regulations emerge, employers can incorporate the following best practices measures.

Take a human approach. In order to mitigate bias, there should be a human review of all decision making resulting from data sourced from AI tools. Additionally, ensure vendor designers and programmers come from diverse backgrounds and value an inclusive approach to designing employment related AI tools.

Collaborate with tech and engineering teams. Organizations should form cross-functional teams comprised of legal teams, tech teams, and engineering teams who regularly communicate and are apprised of how the organization may be using AI to make decisions that impact employees. There should be transparency on how and when personal data is being used to train AI models, as well as when personal or other sensitive data is being used by service providers to train their own AI models.

Conduct ongoing bias audits. Audits on what is being measured should be conducted before implementation of a program and regularly thereafter.

Develop policies to guide the usage of AI. Policies will need to be continually updated as new laws emerge governing AI in the workplace. Such policies should be mindful of privacy issues and include disclosures to employees and informed consent forms where needed. Transparency is paramount.

Provide training and development. All levels of an organization should be educated on the ethical considerations associated with AI adoption. Open dialogue and channels for reporting ethical concerns should be encouraged Grensing-Pophal (2023). Included in the training should be the importance of tight controls on data access, specifically data privacy rules and usage. Provide upskilling opportunities to employees by comparing their current skills with the tasks needed to be accomplished in the future. Adopt a growth mindset, engaging employees by motivating and supporting them during this time of change.

CONCLUSION

AI in the workplace is here. Artificial intelligence models have permeated the workplace and will continue to shape the labor market. The remarkable contributions offered by AI are overwhelmingly positive and should be embraced with optimism. Organizations across the globe can benefit from the amazing technology designed to make workplaces safer and more efficient. But in order to fully realize the scientific advances of AI, a humanistic approach must be taken in the design and implementation of generative AI systems. The humanistic approach must extend to operating and monitoring such systems with a view toward diversity, equity, and inclusion. Only through a DE&I lens will we fully realize the extraordinary contributions of AI in the workplace.

According to Bryan Stevenson, world renowned attorney and executive director of the Equal Justice Initiative, who had the foresight to anticipate challenges in AI over 10 years ago as they relate to diversity, equity, and inclusion, “AI must be married with compassion, humanity, and justice” (Stevenson, 2012).

AUTHOR’S NOTE

The author provides no legal advice in this paper and, as such, nothing written herein is intended to be construed as legal advice. At this writing, new laws in the area of AI in the workplace are being proposed, with many bills set for passage in upcoming months. In order to be in compliance and be kept apprised of the

emerging laws and regulations governing the area of AI in the workplace, the author strongly encourages employers to seek guidance from legal counsel.

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PURSUING GENDER DIVERSITY IN UNDERGRADUATE BUSINESS PROGRAMS: UNDERSTANDING THE MAJOR SELECTION PROCESS

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ABSTRACT

Undergraduate programs in business hope to develop the next generation of business leaders. To do so, we must attract and retain students in programs of study. This study explores the decisions of students to choose one of the fields of business during the major selection process. Data was collected from current undergraduate students to explore the timeline of undergraduate students' decision to major in business. Motivation for major selection and educational outcomes were analyzed. The data revealed gender-based discrepancies within businesses disciplines, suggesting female students gained an interest in careers and higher education in business earlier than their male classmates. It also suggests that they chose their major earlier, and plan to continue further in graduate programs than their male classmates. This survey also revealed disparity in gender-based enrollment among business disciplines. Though accounting student respondents were 50% female, males outnumbered female students in every other discipline except marketing. This exploration may lead not only to insights in recruiting, but also retention and matriculation of female business students.

KEY WORDS
major selection, gender diversity, business programs, AACSB accredited, faith-based institutions.

INTRODUCTION

Colleges across the United States focus on diversity and its importance among students, faculty and staff daily. Studies show numerous benefits of classrooms consisting of students from varied (race, religion, national origin, and gender) populations (IMF, 2018). Similarly, examples in the literature illustrate students' educational experiences are more robust and meaningful as faculty and staff diversity increases (Bauer & Dahlquist, 1999; Bier, 2016; Tinto, 1993). However, in spite of the positive evidence and effects of diversity, and attempts to diversity institutions and their cultures, some academic areas still struggle to recruit and retain those who would ensure diversity.

Women students have outnumbered men students in US higher education institutions since late 1970s, and in 2018, "56 percent of undergraduate students in the U.S. were women, according to the National Center for Education Statistics (2022). Even so, women make up only 40 percent of students in the field of business and management education" (Fraser & Watson, 2020). When considering the percentage of bachelor's degrees conferred by gender, 54 percent of business degrees were conferred to males, and 46 percent to females (U.S. Department of Education, 2021).

The effects of lesser numbers of female undergraduate business students become even more magnified at higher degree levels. According to data from AACSB International, 40 percent of doctoral graduates in business are women. Of business and management faculty, 38 percent of assistant professors, 33 percent of associate professors, and only 20 percent of full professors are female. Shockingly, women make up only 20 percent of business school deans (Fraser & Watson, 2020). This trend is one of the motivations for this study.

LITERATURE REVIEW
FACTORS IMPACTING MAJOR SELECTION

The literature shows that males and females enroll and graduate at different rates, choose different majors, and have different experiences on college campuses (Avolio, Chávez, and Vilchez-Román, 2020). The literature also highlights two significant factors affecting college major selection: academic aptitude and personal expectations (Ismail, Zulkifli, & Hamzah, 2017). Further research uncovered gender differences in these variables. Female students choose majors based on academic ability, while male students choose majors based on potential career options (Malgwi, Howe & Burnaby, 2005).

Granitz, Chen and Kohli (2014) showed that female students were more likely to choose a major because it leads to a "career that was fulfilling" where male students tended to choose a major that leads to the extensive use of technology. Concerned about potential family responsibilities, female students prefer majors

where skills are unlikely to become obsolete (Turner & Bowen, 1999). For example, studying English may provide more life-long career opportunities than learning a specific computer language that may become obsolete in a few years. On the other hand, male students may be attracted to majors that incorporate technology, because of the higher income associated with technical skills (Boudarbat & Montmarquette, 2009). More generally, students may be driven by gender roles and cultural stereotypes in their choice of a major that is fulfilling versus one that uses technology (Eccles, 2005).

Kumar and Kumar (2012) applied the Theory of Reasoned Action (TRA) consumer decision-making model to examine factors that influence college students' intentions to choose a business major. The study surveyed undergraduate students and found social image, job availability, and aptitude were found to be significant factors that impact students' decisions to select a business major. The results also reveal that family, high-school counselors, and professors have a major influence on students' decisions.

Kumar and Kumar (2012) found that the influence of reference groups was greater for females than for males in shaping their decision to select a business major. Similar to previous research (Kuechler, McLeod, & Simkin, 2009; Zhang, 2007), the study also found that for females, "family" was the most weighty influence in their decisions to select a business major. In addition to family, high-school advisors were also instrumental in their intentions in this regard. In contrast, for males, "friends," "advisors," and "professors" had a stronger influence than "family." Studies have attributed these gender differences to the differences in which families communicate expectations to girls versus boys. For example, Medved, Brogan, McClanhan, Morris, and Shephard (2006) pointed out that "women received significantly different messages than men about choosing particular careers and exiting the paid labor force in relation to anticipated family obligations (pp. 161–162)."

Ceci, Williams and Barnett (2009) found that men tend to pursue object-oriented fields, while females are more apt to pursue people-oriented or organic fields. This lends support to the idea that gender differences in occupational preferences reflect women's deeply rooted preferences for caring or nurturing. Morgan, Gelbgiser, and Weeden (2013) studied gender differences in major selection and found no differences between genders in work–family goals nor in academic preparation. However, they highlighted the importance of occupational plans formed in adolescence for understanding the gender differences in college major.

CHANGING MAJORS

Malgwi, Howe, and Burnaby (2005) assessed initial major selection and subsequent major change and found that primarily, student interest determined major selection of freshmen, both male and female. A secondary determinant for

females was aptitude in the subject, while males considered the potential for job opportunities, career advancement, and level of expected compensation in the field. Further, when changing majors, both genders focused on the positive factors of the new major, rather than negative factors of the old major.

Another interesting conclusion related to gender was the finding that men and women appear to become more similar in the factors that influence their major choice over time (Malgwi, Howe, and Burnaby, 2005). Although there were several significant differences noted in the factors that influenced the initial selection of a major, there were no significant gender differences related to positive factors in later changes of major. The authors found that if the positive factors influencing major change were ranked, the top five factors were the same for both genders.

WHEN MAJOR IS DETERINED

Granitz, Chen and Kohli (2014) surveyed high school students to learn how and when students choose a college major and university. The authors found that students start thinking about their college majors as early as their junior year in high school and finalize their decisions by the end of their senior year. Family is a primary influencer in students' major selection process. Additionally, they found students use perceived monetary outcomes to as an important factor in the decision. The findings show that 94% of students thought about their major by their senior year in high school, and 37% of students thought about their major as early as their junior year.

Methodology

DESIGN OF THE STUDY

When designing the research survey, four previous studies and their associated surveys were consulted: Kuechler, McLeod & Simkin, (2009); Arcidiacono, Hotz & Kang (2012); Culpepper (2006); and Malgwi, Howe & Burnaby (2005). The current study targets undergraduate students to determine

:

(1) Do male and female students choose to major in business at similar times in their academic career?
(2) Did the same factors contribute to choosing Business as a major for both female and male students?

DESCRIPTION OF THE SAMPLE

In Fall 2021 and Fall 2022 semesters, data was collected for this study. The consortial IRB from the authors' institutions approved the 52-question instrument and disclosure materials. Authors used Qualtrics to administer the survey, and the solicitation material had a link to access the instrument.

Three separate institutions distributed the survey to conduct the study. The first is classified as a faith-based liberal arts Accreditation Council for Business Schools and Programs (ACBSP) accredited Master's Large University (enrollment 1800 residential undergraduates, 52% women and 48% men) located in a metropolitan city. The second is a large metropolitan Master's Large University (enrollment 12500, with 62% women and 38% men) whose College of Business is AACSB accredited. The third is an AACSB-accredited Doctoral/Professional University faith-based liberal arts institution located in a mid-sized city with approximately 3500 undergraduates (62% women, 38 % men).

DATA ANALYSIS

A combination of Qualtrics and Microsoft Excel were utilized to analyze data from the survey. Responses were collected as ordinal, nominal or categorical data due to the nature of the questions in the instrument. Results are illustrated primarily through frequency distributions in visual representations as is common for ordinal and categorical analyses. Whenever applicable, similar illustrative presentation techniques were used with nominal variables.

Minors were not allowed to participate as per IRB approval. An initial question and another within the instrument removed participants under the age of 18 and deleted their responses. Incomplete surveys were captured, as they still provided valuable information for this study.

RESULTS AND DISCUSSION

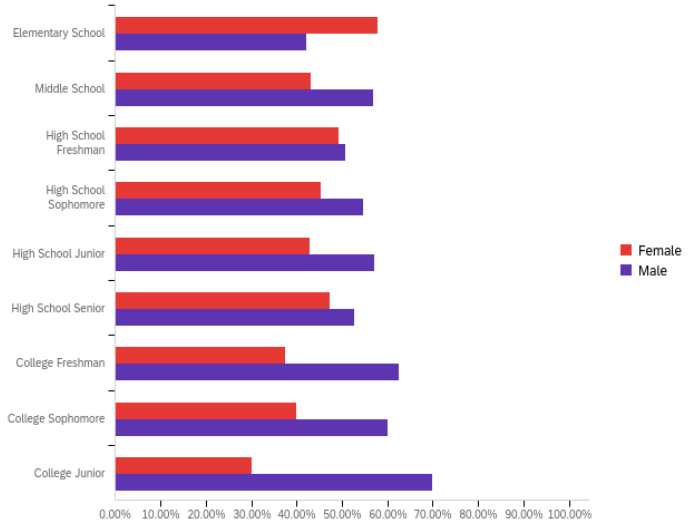
FINDINGS

In total, 962 students accessed the instrument and 926 completed the survey. Of those completing the survey, 766 are majoring in a discipline categorized as business. Those disciplines include: accounting, business administration, economics, finance, information systems, management, or marketing. Five students selected 'other,' but were in areas of study that might be classified as business. One was reclassified to the appropriate discipline, while the other four were excluded, as the small number and nature of their responses would violate the guidelines set forth in IRB approval.

This paper primarily analyzes the enrollment trends of business students based on gender. Some analyses and reference to other disciplines is included as it helps frame study. Of the respondents who reported gender, 340 were female, and 410 were male. No participants majoring in a business discipline identified as gender non-binary nor "prefer not to answer". Students who did not report gender were also excluded from this study as gender is the independent variable. Reporting is displayed as percentages rather than counts as to maintain consistency in both analysis and presentation.

To understand the timeline and process for selecting a major, students were asked a series of questions. The responses to the question, "When were you first interested in your current major, career, or field of study?" are summarized in Figure 1 below.

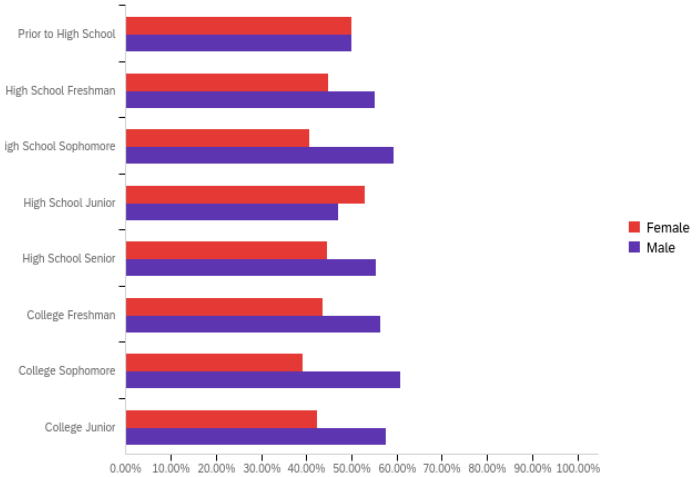
Figure 1: When students became interested in current major, career, or field of study



Data from this survey suggests that female students started to develop interest in business as early as elementary school, which is earlier than their male classmates.

In addition to initial interest, students were also asked when they actually chose to major in business. Those results are presented in Figure 2.

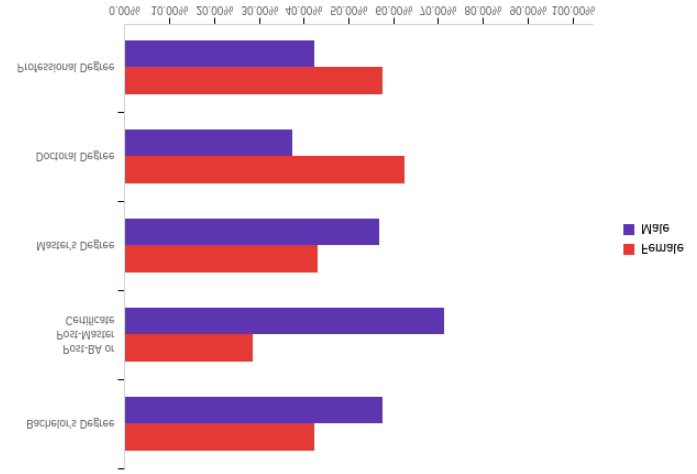
Figure 2: When did you chose to major in business?



Following with early interest, this survey shows that female students not only became interested in business before their male classmates, but also decided to major in business earlier than their male classmates. These finding contradict a previous study focused on engineering students in which female students chose their majors later than their male classmates (Houghtalen, et al, 2022).

Though all respondents were undergraduate students, it is also important to note the differences in expected educational outcomes. Based on the responses in this survey, female students expected to attend graduate school and earn graduate degrees at a slightly higher rate than their male classmates. However, they intended to pursue graduate degrees beyond the master's level at a rate almost 50% more than men.

Figure 3: What is the highest degree you expect to complete?

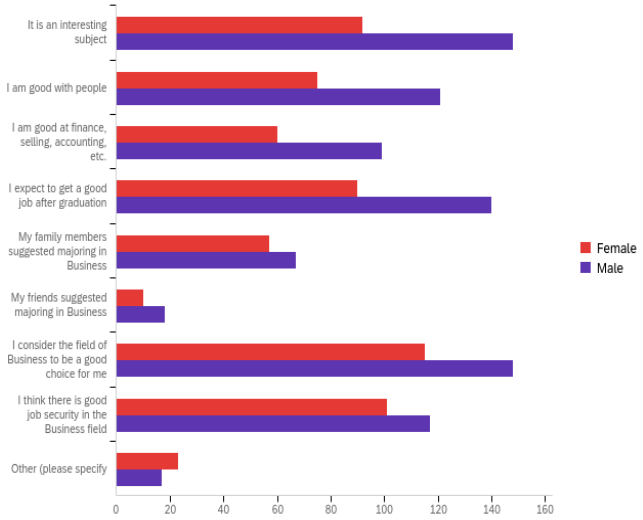


The difference in expected educational achievement suggests that the gender

differences present during the major selection process may continue through as students matriculate into graduate programs. While not a phenomenon captured in this study, similar analysis of graduate students may be an area for further research.

In addition to the timeline for major selection, students were also asked about their motivation for selecting their major. Figure 4 presents this data a selection count rather than percentage. For this question, students were able to select multiple factors that influenced their choice in major. One interesting trend is male students selected 2.1 factors on average while female students only selected 1.75.

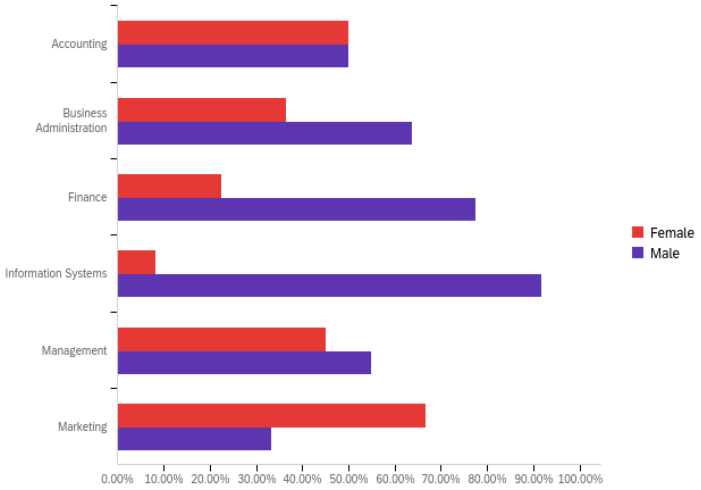
Figure 4: Why did you choose to major in business?



It is important to note that family member influence is the factor closest to parity; however, it was also one of the least selected choices. Likewise, there appears to be a positive correlation in selection of educational aspirations and job security. The ordinal and categorical natures of those variables make statistical analysis difficult, but may serve as the basis for future research.

While responses were aggregated across business disciplines, it is important to note that in all majors studied except accounting, gender biases exist within the student population. These disparities in enrollment based on gender are presented in Figure 5.

Figure 5: What is your current major?



These finding suggest that a more granular study at the discipline-specific level may yield more clarity.

CONCLUSION

This paper examined the timeline of undergraduate students' decision to major in business. Likewise, it explored the motivations for those decisions, as well as the educational outcome. The data revealed gender-based discrepancies within businesses disciplines which may be explored in future research.

Data from this survey suggests that female students gained an interest in careers and higher education in business prior to their male classmates. It also suggests that they chose their major earlier, and plan to continue further in graduate programs than their male classmates. While educational aspirations mirror those of previous research focused on engineering students, the trend for female students to choose business as a major prior to male students was dissimilar (Houghtalen, et al, 2022).

This survey also revealed disparity in gender-based enrollment among business disciplines. Though accounting student respondents were 50% female, males outnumbered female students in every other discipline except marketing. This is especially insightful as the known universities in the study all have female majority undergraduate student bodies. This also suggests the necessity for further discipline-specific research

.

While this study has explored the differences in major selection of male and female students, it also has raised other questions. When coupled with prior engineering research, trends begin to emerge on student migration into business from STEM fields across campus. This exploration may lead not only to insights

in recruiting, but also retention and matriculation. Likewise, the possible correlation between educational aspiration and motivation for major selection suggests that female students may have not only differing expectations at graduation, but also academic achievement as a means to career stability and growth.

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THE AUDITOR'S PERCEPTION OF EFFECTIVE RED FLAG FRAUD DETECTION ATTRIBUTES DURING THE EARLY, MIDDLE, AND LATE YEARS OF PROFESSIONAL DEVELOPMENT

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ABSTRACT

This study investigates attributes that influence the effectiveness of red flags used by internal and external auditors to detect financial statement fraud during three different 15-year stages of auditor professional development. These findings categorized auditor professional development into three distinct stages (early, middle, and late). In the early stage, such attributes as those holding certified public accountant (CPA) and certified internal auditor (CIA) certifications, and Master of Business Administration (MBA) degrees influence red flag fraud-detecting effectiveness by auditors. In the middle stage, attributes such as MBA and Master of Accounting (MACC) degrees, prior red flag usage, conferences, in-house training, and prior fraud detection influence auditors' fraud-detecting effectiveness. In the last stage, gender, CPA and CIA certifications, and income influence auditor fraud-detecting effectiveness.

Key Words: Red Flag Fraud Detection, Auditor Attributes, Internal Auditors, and External Auditors

INTRODUCTION

Although intentional misstatements or omissions is the least common in financial statement fraud, it is the costliest, "averaging $800,000 per incident" (Errington and Alvero, 2020, p.14). Determined to increase auditing

accountability, the U.S. Securities and Exchange Commission (SEC) enforces accounting and auditing standards and defines an external auditor as an "independent certified public accountant" (SEC, 2021).

The collapse of Enron, WorldCom, and Arthur Andersen (Unerman and O'Dwyer, 2004) triggered the birth of numerous accounting and auditing policies and regulations. First, the U.S. Congress enacted the Sarbanes-Oxley Act of 2002 (U.S. House of Representatives, 2002). This Act established the Public Company Accounting Oversight Board (PCAOB, 2018) with the responsibility to establish auditing standards for CPA firms that audit the financial statements of public corporations. The Securities and Exchange Commission delegated oversight authority to the PCAOB (2018) in the areas of funding, functions, powers, and duties. Second, the Auditing Standards Board (AICPA, 2002b) published and adopted the Statement of Auditing Standard (SAS) No. 99 - *Consideration of Fraud in a Financial Statement Audit*. This standard requires external auditors (CPAs) to provide reasonable assurance that financial statements are free of material misstatements caused by fraud or errors. To enhance reasonable assurance in publicly traded companies, auditors (CPAs) are to use 42 red flags to detect fraudulent financial reporting activities (AICPA, 2002b). The 42 fraud detection red flags that are required during financial statement audits include 16 pressure or incentive flags, 14 opportunity flags, and 12 rationalization or attitude flags (AICPA, 2002b; National Commission on Fraudulent Financial Reporting, 1987).

This study expands the authors' previous study of the influential attributes that internal and external auditors have on the effectiveness of red flag fraud detection of their organizational employer (CPA firms and organizations). This study focuses specifically on auditor attributes that are influential in the fraud detection effectiveness of each internal and external auditors.

LITERATURE REVIEW

Based on asset misappropriations and fraudulent reporting, Gullkvist and Jokipii (2013) found that red flags were essential in detecting asset misappropriations. While studying the effectiveness of red flags for fraud detection, Pincus (1989) disclosed that in "fraud-related risk assessments" red flag queries measured possible fraud indicators much more accurately than non-red flag queries. Mustika et. al (2016) presents a contrary conclusion that no connection exists between fraud detection and red flags. Adding to the discussion, Narayana and Ariyanto (2020) determined that without the proper red flag training, red flag fraud detection may appear to have no relationship to fraud detection.

The effectiveness of using red flags to detect fraud and the influence of accounting certifications has a growing interest. Public reputation, career development, high demand, job satisfaction and competitive salaries makes the CPA license the most valuable certification for auditing and accounting professionals (Elkins, 2021). While evaluating several professional certifications, Boyd (2002) found that the CFA was most valuable for Chief Financial Officers, the CMA for corporate accounting, and the CPA for all accounting positions.

CPAs are required to conduct financial statement audits that maintain a "professional skeptical attitude" that critically assess and question audit evidence (PCAOB, 2018). This attitude is vital and enhances the CPAs' ability to conduct effective financial statement audits and give accurate opinions. "The rationale behind [accounting] standards is that high levels of professional skepticism (i.e., assuming a more questioning attitude) enhances the ability to detect fraud." CPAs will be more effective auditors in detecting fraud than non-CPA auditors if a professional skeptical attitude exists (Charron and Lowe, 2008, p.9).

Graduate accounting degrees may influence the effectiveness of auditors utilizing red flags. The rising student interest in accounting likely has a dual implication. As accounting student interest increases, so does the opportunity for future auditor preference. The AICPA (2019) reports that 11,405 Master of Accounting 2018 graduates were hired by CPA firms. Forty-seven percent (5,360 graduates) were hired to fill external auditor positions and four percent (456 graduates) were hired as internal auditors. Tables 1 and 2 summarize the supply and demand of accounting professionals.

When comparing the year 1993 to the year 2018, Table 1 shows an approximate 272 percent increase in enrollments in Master of Accounting (MACC) programs over the prior 25 years. The opposite trend occurred with the three following enrollments: an approximate 56 percent decrease in Master of Taxation, a 6 percent decrease in MBA with an accounting concentration, and a 27 percent decrease in Doctor of Philosophy in Accounting (PhD).

Table 1 Number of students enrolled in different graduate accounting programs

GRADUATE ACCOUNTING PROGRAM ENROLLMENTS				
Year	**Master of Accounting**	**Master of Taxation**	**Master of Business Administration with an Accounting Concentration**	**Doctor of Philosophy In Accounting**
2018	27,482	2,645	3,208	732
1993	10,114	5,942	3,398	1,002

In Table 2, when comparing the year 1971 to the year 2018, Table 2 (AICPA, 2019) indicates a high 982 percent increment in the number of students graduating from MACC programs. In comparison, and over the same 47-year period, Table 2 shows a moderate 570 percent increase in the number of graduates from all Accounting Master programs hired by CPA firms in the United States.

Table 2 Number of students graduating from graduate accounting programs and number of the graduates hired by CPA firms

GRADUATE ACCOUNTING GRADUATES	
Year	**Master (all programs) Graduates from Universities**
2018	21,595
1971	2,200
ACCOUNTING GRADUATES HIRED BY CPA FIRMS	
Year	**Master (all programs) Hired by CPA Firms**
2018	11,405
1971	2,000

Tables 1 and 2 indicate three substantial increases involving all graduate accounting degrees: the number of students enrolled, the number of students graduated, and the number of graduates hired by CPA firms. These increases infer that all graduate accounting degrees, as an auditor attribute, may enhance the effectiveness of auditors in using red flags to detect fraud while conducting financial statement audits.

External and internal auditing experience may be directly related to the effectiveness of fraud detection using red flags. Auditing experience increases auditing knowledge (Wright and Wright, 1997), improves effectiveness (Bonner and Lewis, 1990), and adds memory from previous experiences (Widyastuti, 2009). Shamki and Alhajri (2017) found that the internal auditor's experience and effectiveness was found to have a positive relationship. Choo and Trotman (1991) add that the greater the experience, the greater the ability to apply the knowledge from that experience.

Studies indicate that crucial auditing decisions are made differently by male and female auditors. Female auditors expressed going-concern opinions at a higher likelihood than male auditors and found females auditors labored at a higher level of excellence than male auditors (Hardies et al., 2016). Lai et al. (2017) observed that a female audit committee director is more likely to encourage highly specialized auditors charging higher fees than the male audit committee director who is more likely to encourage inferior auditing services at reduced fees.

In contrast, Gold et al. (2009) concluded that auditing judgements are determined with greater accuracy by male auditors than female auditors. Alleyne et al. (2018) found male auditors are more effective in conducting auditing procedures than female auditors. In addition, Osei Adu et al. (2016) revealed a notably positive relationship between successful fraud detection when male internal auditors are utilized.

DESIGN AND METHODOLOGY

The questionnaire received university approval. All respondents were professional non-students and names were anonymous. As previously noted, this study is an extension of a previous study. Therefore, the design and methodology is reiterated here.

The design was to collect data from the perspective of internal and external auditors. Measuring the results of internal and external auditor responses, the survey instrument implemented a six-point Likert scale to determine fraud-detecting effectiveness of the 42 red flags.

This study includes one dependent variable: auditors have detected fraud by using red flags or not. The independent variables or attributes include the following: auditor exposure to red flags, frequency of auditor prior use of red flags, red flag conferences, in-house red flag training, number of red flag CPE hours accumulated, job title or position, types of accounting certifications, number of years of auditing experience, master's degrees and college majors, gender, race, and income. The variables were analyzed and organized to determine which auditor attributes may influence red flag fraud-detecting effectiveness of internal and external auditors.

The queries were created to determine which attributes may influence the level of fraud-detecting effectiveness of auditors in using red flags. This study discovered specific attributes that may influence the fraud-detecting effectiveness of the 42 red flags during the three stages of the auditors' professional development. These three stages are: (1) early professional development with auditor ages ranging from 21 to 35 years old, (2) middle professional development with auditor ages ranging from 36 to 50 years old, and (3) late professional development with auditor ages ranging from 51 to 65 years old.

Completed by 128 external auditors and 100 internal auditors from across the U.S., SPSS software was utilized to analyze the responses. Data analysis resulted in logistic regression equations for each stage of professional development. Table 3 explains the organization of the regression equations.

Table 3 Organization of regression equation results

Organization of Regression Equation Results by Table Number in Terms of Auditor Type and Number of Auditor Attributes	
Early Stage of Professional Development	
Table 5 Model 1	Six Attributes of Internal and External Auditors That May Influence the Fraud-Detecting Effectiveness of SAS No. 99 Red Flags for Each Auditor
Middle Stage of Professional Development	
Table 6 Model 2	Ten Attributes of Internal and External Auditors That May Influence the Fraud-Detecting Effectiveness of SAS No. 99 Red Flags for Each Auditor
Late Stage of Professional Development	
Table 7 Model 3	Ten Attributes of Internal and External Auditors That May Influence the Fraud-Detecting Effectiveness of SAS No. 99 Red Flags for Each Auditor

AUDITOR DEMOGRAPHICS AND DEFINITIONS

The responses from the 128 external auditors and 100 internal auditors provided the demographics displayed in Table 4.

Table 4 Demographics for internal and external auditor attributes

Auditor Attributes	100 Internal Auditors	128 External Auditors
Occasional use of red flags	84/84%	101/80%
Prior fraud detection using red flags	65/65%	91/71%
CPE hours in red flags	15	11
In-house training	20/20%	36/28%
Job title/management position	88/88%	93/73%
Certifications (Auditors may hold more than one certification)	CPA – 63 CIA – 35 CMA – 2 Other – 60 (1.6 per auditor)	CPA – 127 CIA – 5 CMA – 4 Other – 5 (1.1 per auditor)
Auditing experience in years	13-Internal 4-External	2-Internal 16-External
Degrees/Majors	100/100% - Bachelor 66/66% - Acct. major 28/28% - MBA	128/100% - Bachelor 109/85% - Acct. major 22 /17% - MBA
Gender	Female - 29/29% Male - 71/71%	Female - 26/20% Male - 102/80%
Race	Caucasian - 91/91%	Caucasian - 119/93%
Average Annual Income	$111,000	$117,000
Due to rounding, totals may not equal 100%.		

The definitions of the 15 independent variables (attributes) in all regression equations follow:

1. MBA = Auditors graduated with an MBA degree or not
2. MACC = Auditors graduated with a MACC degree or not
3. EA_EXP = Number of years of external auditing experience acquired by auditors

4. IA_EXP = Number of years of internal auditing experience acquired by auditors
5. CPA = Auditors acquired the CPA certification or not
6. CIA = Auditors acquired the CIA certification or not
7. EXPOS = How frequently auditors have prior exposure to red flags
8. USE = How frequently auditors have previously used red flags
9. TRAIN = Auditors have attended employer in-house red flag training or not
10. CONFER = Auditors have previously attended red flag conferences or not
11. CPE = Number of CPE hours previously accumulated by auditors
12. GENDER = Gender of the auditors
13. RACE = Race of the auditors
14. POSITION = Position or job title of the auditors
15. INCOME = Income earned by the auditors

The factor that was both an independent and a dependent variable follows:

AUDITOR_DETECT = Auditors have previously detected fraud by using red flags or not

RESULTS

Early stage of auditor professional development *(Model 1)*

Table 5 shows the early stage of professional development of internal and external auditors with ages ranging from 21 to 35 years old. All auditors graduated with a bachelor's degree, but some held a MACC or MBA degree with an accounting concentration. Table 5 shows the results of this logistic regression equation for both internal and external auditors. The dependent variable represents whether the internal or external auditors have detected fraud using red flags or not. As independent variables, six professional attributes of auditors may influence the red flag effectiveness in detecting fraud. This regression (Model 1) equation is significant for both internal auditors ($p = .001$) and external auditors ($p = .090$).

Receiving either an MBA or MACC degree does not enhance the internal auditor's ability to detect fraud using red flags. In contrast, an MBA degree shows a marginally significant ($p = .096$) improvement in the effectiveness of external auditors to detect fraud, which is not supported by the slightly decreasing enrollment trend of the MBA programs with accounting concentrations (AICPA, 2019). The findings indicate that graduating with a MACC degree provided no improvement in the fraud-detecting effectiveness of external auditors.

Acquiring additional years of internal and external auditing experience provided no improved ability for internal and external auditors in detecting fraud. In the early stage of professional development, auditors probably have not acquired enough auditing experience to be able to detect fraud. In the early professional development stage, internal auditors with the CPA certification are more

significant (p = .011) in fraud-detecting effectiveness of red flags than non-CPA internal auditors, which agrees with Boyd (2022) that a CPA certification ranks as the best auditing certification. Also, CPA auditors that maintain higher levels of professional skepticism are more likely to detect fraud according to Charron and Lowe (2008).

In addition, internal auditors holding the CIA certification significantly (p = .019) improve the fraud-detecting effectiveness of red flags more than non-CIA internal auditors. In contrast, obtaining accounting certifications results in no change in effectiveness by external auditors to detect fraud.

Model 1 - Logistic regression equation that analyzed the data from internal and external auditors.

$$AUDITOR\_DETECT = \beta_0 + \beta_1 MBA + \beta_2 MACC + \beta_3 EA\_EXP + \beta_4 IA\_EXP + \beta_5 CPA + \beta_6 CIA + Є$$

Table 5 presents the beta coefficients and p values for the six independent variables of the logistic regression equation (Model 1) that represents the attributes of both the internal and external auditors.

Table 5 Model 1: Auditor attributes influencing the effectiveness of red flags in detecting fraud during the early stage of professional development

Independent Variable Names	**Internal Auditor**		**External Auditor**	
	Beta Coefficient	**P Value**	**Beta Coefficient**	**P Value**
Master of Business Administration (MBA)	-.506	.411	1.015	.096***
Master of Accounting (MACC)	20.321	.999	-.695	.318
External Auditor Experience (EA_EXP)	.088	.681	.050	.639
Internal Auditor Experience (IA_EXP)	.235	.192	19.686	.999
Certified Public Accountants (CPA)	1.788	.011*	20.588	1.000
Certified Internal Auditors (CIA)	1.649	.019**	-.984	.379
Constant	1.098	.272	-40.243	.999
Model Significance	.001*		.090***	
Chi-Square	21.593		8.715	
-2 Log Likelihood	88.070		161.673	
Level of Significance	* < 1%	** < 5%	*** < 10%	

Middle stage of auditor professional development *(Model 2)*

Table 6 presents the middle stage of professional development for internal and external auditors with ages ranging from 36 to 50 years old. These internal and external auditors (respondents) work in low or middle management positions. The logistic regression (Model 2) equation analyzed the data collected from internal and external auditors. This regression equation is significant for both internal auditors (p = .0005) and external auditors (p = .0005). The dependent variable represents whether the auditors have detected fraud using red flags or not. As independent variables show in Table 6, the ten specific professional attributes may influence auditors' effectiveness in using red flags to detect fraud.

Graduating with an MBA (p = .056) degree significantly improves external auditors in detecting fraud using red flags. Similarly, external auditors holding a MACC degree show a marginally (p = .104) significant increase in the effective fraud detection. In comparison, external auditors with MBA degrees are slightly more effective in using red flags to detect fraud than external auditors holding MACC degrees. Graduate degrees do not influence the effectiveness of internal auditors in red flag fraud detection.

During the middle stage, extensive prior exposure to red flags significantly (p = .063) enhances the fraud detection by internal auditors, whereas red flag exposure does not increase the effectiveness of external auditors in detecting fraud. Furthermore, more prior use of red flags significantly improves the fraud-detecting effectiveness of both internal auditors (p = .056) and external auditors (p = .019).

Attending red flag conferences significantly (p =.028) enhances the fraud-detecting effectiveness of red flags for external auditors and not internal auditors. In contrast, accumulating more CPE hours from red flag conferences or attending additional in-house red flag training programs provided by employers has no effect on the fraud-detecting effectiveness for both internal and external auditors. Red flag conference attendance improves the external auditor understanding of red flags more than in-house training. CPA firms with a previous history of red flag fraud detection significantly (p = .024) enhance the fraud-detecting effectiveness of their external auditor employees.

Model 2 - Logistic regression equation that analyzed the data from internal and external auditors.

$$\text{AUDITOR\_DETECT} = \beta_0 + \beta_1\ \text{MBA} + \beta_2\ \text{MACC} + \beta_3\ \text{EA\_EXP} + \beta_4\ \text{IA\_EXP} + \beta_5\ \text{EXPOS} + \beta_6\ \text{USE} + \beta_7\ \text{CONFER} + \beta_8\ \text{TRAIN} + \beta_9\ \text{CPE} + \beta_{10}\ \text{EMPLOYER\_DETECT} + \epsilon$$

Table 6 presents the beta coefficients and p values for the ten independent variables of the logistic regression equation (Model 2) that represents the attributes of both the internal and external auditors.

Table 6 Model 2: Auditor attributes influencing the effectiveness of red flags in detecting fraud during the middle stage of professional development

Independent Variable Names	Internal Auditors		External Auditors	
	Beta Coefficient	P Value	Beta Coefficient	P Value
Master of Business Administration (MBA)	-.845	.260	1.575	.056**
Master of Accounting (MACC)	19.776	.999	1.384	.104***
External Auditor Experience (EA_EXP)	.150	.623	-.211	.202
Internal Auditor Experience (IA_EXP)	.150	.493	18.031	.999
Auditor Extent of Exposure to Red Flags (EXPOS)	1.053	.063***	.378	.341
How Often Auditors Have Used Red Flags (USE)	.839	.056***	.828	.019**
Red Flag Conferences (CONFER)	.065	.921	1.216	.028**
In-House Red Flag Training (TRAIN)	19.864	.998	-.698	.300
CPE Hours (CPE)	-.007	.965	-.096	.569
Employers Have Detected Fraud Using Red Flags (EMPLOYER_DETECT)	.015	.961	.665	.024**
Constant	-5.269	.014*	-23.105	.999
Model Significance	.0005*		.0005*	
Chi-Square	31.424		50.955	
-2 Log Likelihood	61.823		105.359	
Level of Significance	* < 1%	** < 5%	***< 10%	

Last Stage of Auditor Professional Development *(Model 3)*

Table 7 shows the last stage of professional development for internal and external auditors with ages ranging from 51 to 65 years old. At this stage, the most highly experienced internal and external auditors serve in executive management positions with extensive responsibilities.

In Table 7, the logistic regression equation analyzed the data collected from internal and external auditors. This regression (Model 3) equation is significant for both internal auditors (p = .009) and external auditors (p = .041). The dependent variable represents whether the auditors have detected fraud using red flags or not. As independent variables, the ten professional attributes of the auditors may influence auditors' effectiveness in detecting fraud.

Both internal and external auditors holding either an MBA or MACC degree indicated no enhancement in their ability for detecting fraud, however, AICPA Trends (AICPA, 2019) indicated that enrollments, graduations, and hiring of MACC student have increased substantially.

Acquiring more internal and external auditing experience by internal and external auditors indicated no improvement in their effectiveness in red flag fraud detection, which contradicts findings from the previous literature from Bonner and Lewis (1990), Shamki and Alhajri (2017), and Choo and Trotman (1991). In the late stage, internal and external auditors are well established in executive management positions. Therefore, acquiring additional auditing experience or earning more graduate degrees will likely not enhance their fraud-detecting skills.

In the late stage, both CPA ($p = .015$) and CIA ($p = .015$) certifications significantly improved the fraud-detecting effectiveness of internal auditors, but not for external auditors. Earning the CPA or CIA certification indicated that the executive internal auditors have probably developed a higher level of auditing expertise, which may help develop their ability to detect fraud. This finding is also supported by Charron and Lowe (2008) who noted that auditors, who are CPAs and maintain higher levels of a professional skeptical attitude, are more likely to detect fraud in financial statement audits.

Female external auditors demonstrate significantly ($p = .017$) more effective use of red flag fraud detection than male external auditors, which agrees with female auditors performing with "higher audit quality" than male auditors (Hardies et al., 2016). Gender of internal auditors offers no change in fraud detection.

In Table 7, race and job position of both internal and external auditors indicate no effect on their flag fraud-detecting effectiveness. External auditors that earn higher incomes are significantly ($p = .017$) more effective in detecting fraud than lower income external auditors, although income level of internal auditors has no change in their ability to detect fraud.

Model 3 - Logistic regression equation that analyzed the data from internal and external auditors.

$$\text{AUDITORS\_DETECT} = \beta_0 + \beta_1\ \text{MBA} + \beta_2\ \text{MACC} + \beta_3\ \text{EA\_EXP} + \beta_4\ \text{IA\_EXP} + \beta_5\ \text{CPA} + \beta_{6+}\ \text{CIA} + \beta_7\ \text{GENDER} + \beta_8\ \text{RACE} + \beta_9\ \text{POSITION} + \beta_{10}\ \text{INCOME} + Є$$

Table 7 presents the beta coefficients and p values for the ten independent variables of the logistic regression equation (Model 3) that represents the attributes of the internal and external auditors.

Table 7 Model 3: Auditor attributes influencing the effectiveness of red flags in detecting fraud during the late stage of professional development

Independent Variable Names	Internal Auditor		External Auditor	
	Beta Coefficient	P Value	Beta Coefficient	P Value
Master of Business Administration (MBA)	-.432	.574	.888	.190
Master of Accounting (MACC)	19.922	.999	-1.087	.185
External Auditor Experience (EA_EXP)	.361	.211	.035	.809
Internal Auditor Experience (IA_Exp)	.274	.235	20.357	.999
Certified Public Accountants (CPA)	2.002	.015**	-	-
Certified Internal Auditors (CIA)	2.100	.015**	-.808	.479
Gender (GENDER)	.773	.321	1.487	.017**
Race (RACE)	-.033	.905	-.062	.733
Position (POSITION)	-.100	.190	.061	.376
Income (INCOME)	.386	.107	.348	.017**
Constant	-1.161	.565	-23.629	.999
Model Significance	.009*		.041**	
Chi-Square	23.651		17.515	
-2 Log Likelihood	69.100		125.272	
Level of Significance	* < 1%	** < 5%	*** < 10%	

In analyzing Table 5 through Table 7, external auditor responses perceive more attributes that significantly improve the red flag effectiveness for detecting fraud than the attributes of the internal auditor responses.

CONCLUSION

The majority of internal and external auditors have used red flags, have been exposed to red flags, and have detected fraud using red flags during financial statement audits. External auditors have slightly less red flag experience with usage, exposure, and detection than internal auditors. In contrast, internal auditors accrue more training hours through CPE hours than external auditors. External auditors obtain more training offered by their organizational employers through red flag in-house training hours than internal auditors. Internal auditors receive less in-house red flag training but attend more red flag conferences than external auditors. Internal auditors accumulate more CPE hours than external auditors.

Internal auditors have accumulated more internal auditing experience and less external auditing experience and external auditors had accumulated more external auditing experience and less internal auditing experience.

During the early stage, internal auditors holding CPA and CIA certifications are significantly more effective in red flag fraud detection than internal auditors with those certifications. External auditors holding MBA degrees significantly enhance the auditor fraud-detecting effectiveness.

During the middle stage, graduate degrees significantly improve the fraud-detecting effectiveness of individual external auditors. In comparison, internal auditors with prior red flag exposure are significantly more effective in detecting fraud. Extensive prior use of red flags significantly improves the red flag fraud detection for both internal and external auditors. External auditors with prior red flag conference attendance significantly improve auditor fraud-detecting effectiveness.

During the late stage, neither the CPA nor CIA certification significantly improves the fraud-detecting effectiveness of individual internal auditors. Male external auditors are significantly less effective in red flag fraud detection than the female external auditors. Higher-salaried external auditors may be more effective in detecting fraud than lower-salaried external auditors.

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ARTIFICIAL INTELLIGENCE: POTENTIAL TO TRANSFORM BEDSIDE NURSING PRACTICES

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ABSTRACT

The nursing practice is currently lagging in incorporating artificial intelligence technology. Nurses are also facing an abundance of issues that have only been emphasized after the recent COVID-19 pandemic. Staff shortages and dangerous nurse-patient ratios have led to increased documentation burden and putting patients' safety at risk. While nursing is unique in that it involves several nonroutine tasks making it difficult to implement certain technologies, there is plenty of opportunity to utilize various electronic health record algorithms, applications that aid in physical assessment, as well as certain robotic functions. These interventions will not only reduce the burden of documentation and simple repetitive tasks, but they can also help improve accuracy and give nurses more time at patients' bedsides. This paper discusses various AI algorithms specific to nursing practice that can serve as solutions to many issues as well as a potential implementation plan that could be used to integrate such technology into healthcare organizations.

Key words: Artificial Intelligence (AI), Technology, Machine Learning, Nursing, Staff Shortages, Electronic Health Record (EHR), COVID-19

INTRODUCTION

The currently developing artificial intelligence (AI) technology has made its way through various areas of healthcare. However, nursing is one health profession that has experienced artificial intelligence the least; despite making up the largest group of healthcare professionals (Buchanan et al., 2020). Artificial intelligence can take several forms but is classified as "a branch of computer science that uses data and algorithms to extract meaning in a way that is characteristic of intelligent beings" (Yu et al., 2021). Several modalities of AI exist, with Machine Learning and Deep Learning being the two primary formats (Abuzaid et al., 2022). Above all, AI has

the ability to provide a new approach to challenges in healthcare by not only enhancing workflows but further supporting clinical decision-making.

AI is making leaps and bounds in medicine specifically, transforming the way healthcare is delivered and advancing medical research. Predictive medicine is just one example of a huge field impacted by AI with its "computer-aided diagnosis" schemes that have been developed to detect breast cancer (Djihane et al., 2022). Various other algorithms have been created to operate in the form of a robot to diagnose and treat conditions based on patient data, labs and imaging; helping to further personalize medicine (Djihane et al., 2022 & Mintz et al., 2019). This suggests that AI has the potential to transform nursing practices as well, with just a few modifications. According to Clancy, T (2020), one of the reasons that nursing has seen a delay in AI implementation may be due to the "nonroutine and unpredictable" aspect of nursing tasks. Bedside nurse-patient relationships endure unique challenges that may not occur in an outpatient or surgical setting. In this regard, it will be crucial to not only identify nursing-specific challenges to address with AI, but incorporate seasoned nurses into the development of AI strategies and technology. Given the sheer amount of AI creativity already established, nursing practices have an opportunity to benefit from the numerous AI applications including speech recognition, data mining and even physical deterioration prediction to name a few (Abuzaid et al., 2022). The following discussion analyzes how the emerging artificial intelligence technologies can be the solution to many modern day nursing challenges such as documentation burden, patient safety, and nursing efficiency.

PROBLEM STATEMENT

Since the COVID-19 pandemic, the shortage of nurses has magnified weaknesses occurring in bedside nursing practices. With nursing staff saturated at their maximum of six patients more often than not, tending to patients' needs is becoming quite the challenge. Although, the pandemic has paved the way for technology like AI to close the gap between healthcare workers and patient needs, especially during national emergencies. During the COVID-19 pandemic, only a few of the developed AI models were able to be deployed due to the extent of challenges that the newly emerging disease created (Yu et al., 2021). Thus, the time after the height of tragedies, such as the recent pandemic, is deemed the most critical in terms of generating a stronger response and developing proposed technologies should the situation reoccur. The following issues discussed provide a significant opportunity for AI technology to advance the way healthcare is delivered.

One of the most prevalent issues in nursing that has been intensified with the high nurse-patient ratios is documentation. According to Yen et al. (2018), nurses spend

up to 41% of their 12-hour shift solely on charting. The transition to an electronic medical record has significantly increased nurses' efficiency and data accuracy; however, it may not be enough to meet the demands of the healthcare culture today. For example, nursing documentation has only become more detailed and regulated with mandatory documentation being required in specific time frames and so on, conflicting with face-to-face time with patients (Yen et al., 2018). Even more concerning is the fact that documentation was shown to increase between the hours of 3pm-7pm, representing a "cram" period where nurses are struggling to finish charting before the end of the shift (Yen et al., 2018). During this time, patients are at a higher risk for falls and unrecognized status changes given the reduced attention given by the healthcare team. Additionally, documentation accuracy may actually be decreasing given the fact that nurses were found charting at the nurses station more often than in patient rooms; eliminating the benefits of "real-time documentation" (Yen et al., 2018). While the volume of patient charting is becoming more important, it is also excessive putting the number one priority of patient safety at risk. The extent of documentation required does not leave enough time for nurses to round on patients as often as necessary and delays the reaction time to declining patients.

Beyond the sheer volume of documentation required for each patient, technostress is another result of documentation burden that is not recognized enough. Shang, Z (2021), describes technostress as "computer-related stress and the fear of using technology". Technostress may differ as a result of generational differences among healthcare teams and the experience levels of individuals with computer technology in general. Additionally, in one study, nurses expressed the challenge of splitting their attention between patients and the electronic health record in patient rooms (Yen et al., 2018). Thus, detailed documentation in patient rooms can often take away from nurses' ability to provide undivided attention to patient concerns, etc. Inpatient nursing is an already mentally and physically challenging job that should not be enduring additional stress caused by technology. Oftentimes, nurses find themselves working well past shift hours just to complete charting requirements, which does not even include the time it takes to receive and pass on shift report. Therefore, burnout and worker dissatisfaction are becoming even more critical problems due to the fatigue that excessive charting has caused.

LITERATURE REVIEW

Out of all of the latest technological advancements in healthcare, artificial intelligence is bound to have one of the most profound impacts. The "AI revolution" is especially evident among literature with a 45% increase in the number of peer-reviewed healthcare AI publications within the last five years

(Shang, 2021). However, AI is still considered to be in its "infancy" when it comes to application to various areas of healthcare, particularly in nursing (Clancy, 2020). Currently, research on the application of AI in nursing practice is scarce, despite the vast opportunity for AI to directly enhance patient outcomes in the field (Abuzaid et al., 2022 & Seibert et al., 20210). In contrast, there are a multitude of academic journals specifically covering artificial intelligence in medicine (Shang, 2021). Some of the more established AI applications seen in medicine involve robot-assisted procedures, medical imaging interpretation and diagnosis algorithms (Shang 2021 & Mintz et al. 2019). It is important to note that machine learning has not been created to replace human physicians but to supplement and improve the efficiency of medical tasks. When dealing with large amounts of data, the "main limitation of the human mind" is time constraints given the amount of time required for not just learning but gaining experience as well (Mintz et al., 2019). Thus, AI has the ability to close this gap and introduce a quicker way of accomplishing the same goals.

The nursing field has faced hesitation when it comes to integrating AI in the field despite the immense opportunity for AI to improve nursing workflows. Shang (2021), argues that the slow adoption of AI in nursing may be due to a general lack of understanding and negative attitude towards technology. A part of this may stem from an inability to imagine how AI can be applied, as well as a fear that AI will start to "replace" healthcare workers. A survey of 675 US nurses reported that only 30% of respondents knew how AI could be used in clinical nursing practice and 70% had little to no knowledge of AI technology (Abuzaid et al., 2022). This knowledge gap represents a general lack of understanding, which may even be true in other fields, further delaying the implementation of new and improved interventions. Furthermore, Petersson et al. (2022), asserted that the ongoing digitalization of the healthcare sector is crucial to address in higher education programs. In this way, the healthcare dynamic and environment will become increasingly more adaptive when it comes to new technologies like AI.

Nursing practice may involve a different set of roles from medicine but can still greatly benefit from AI in a variety of unique ways. The breadth of nursing tasks involve patient charting, administering medications, taking vital signs, assisting with physical exams, ensuring the success of treatment plans and communication between patients and associated healthcare professionals (Abuzaid et al., 2022). The extent of time nurses spend with a set of patients makes nursing an especially great target to improve hands-on care and efficiency in healthcare. Additionally, Shang (2021), suggests that the varied data including qualitative measures of nursing performance, nursing notes, medication administration records and nursing flow sheets are all promising resources that can be used to train and develop nursing-specific AI algorithms.

Integrating AI in the field of nursing can even involve simple administrative tasks that are often done by charge nurses. This may include aiding in patient admissions, discharges, and determining the census for the unit based on the progress of current patients.

The organizational efficiency that can result from utilizing AI technology is predicted to have an advantageous economic impact as well. According to Shang (2021), reduced patient mortality and increased staff efficiency due to reduced documentation time is shown to result in significant cost savings. For example, "high expenditures of nurses' working hours", are shown to be used solely for documentation (Seibert et al., 2021). A more efficient organizational model eliminates the number of staff needed to carry out the same tasks. Additionally, the sheer availability of electronic health record data is especially helpful in the research setting. Not only are there great benefits in secondary data, but a considerable amount of money is saved by not having to collect new data using recruited patients as seen in traditional clinical research (Lin et al., 2020). The decrease in medical errors from using AI algorithms can also greatly contribute to healthcare savings (Mintz et al., 2019). AI's use in various monitoring tasks are more likely to be accurate; therefore decreasing hospital length of stays or determining more suitable treatment options. One study predicted that AI could potentially save as much as $150 billion in healthcare costs in the US annually by 2026 (Wahl et al., 2018). The economic benefits of AI are more than attainable however, the challenge lies in the implementation process of such a novel technology.

SOLUTIONS

The current issues in nursing are challenging to tackle due to their uniqueness and inconsistencies. However, artificial intelligence technology is extremely broad and adaptive making it the perfect solution to overcoming many daily obstacles seen in nursing practice. While multiple AI algorithms may be required to address each nursing issue specifically, all algorithms are the same in that they "involve the use of complex data and analysis of trends", which can easily be applied in a variety of ways (Shang, 2021). Seibert et al., (2021), asserts that tasks taking place away from direct patient interactions such as electronic health record (EHR) documentation, may be one of the starting points to gear AI solutions toward. The EHR is one of the easiest resources to advance due to the availability of information held in the record and its interoperable potential. One of the first things to note about AI are the main methods used, which are Machine Learning , Deep Learning and Natural Language Processing (NLP). Machine learning involves the ability of a computer to learn from experience or "modify its processing on the basis of newly acquired information" (Mintz et al., 2019). Deep learning is a subset of machine learning, which functions in multitasking by taking into account

several data sets simultaneously and reprocessing several times before producing an output (Mintz et al., 2019). Oftentimes, the outputs are based on previous outputs and so on, which then contributes to "learning" based on how the information is utilized. Additionally, Natural Language Processing works by extracting information from text-based data and then helping to "process it into a format suitable for machine learning" (Mintz et al., 2019). This particular process may be useful in creating daily patient summaries for nurse report or even helping to predict adverse events.

When it comes to applying these processes, the availability of data in the EHR is crucial in many instances, especially in simplifying documentation. Typically, "redundant entry of patient data" is required for the use of such ontologies (Greenbaum et al., 2019). Moreover, many autocomplete processes have been able to be incorporated into the EHR just as it is seen on many smartphones today. One study modeled different autocomplete algorithms to search SNOMED (clinical) terms within the EHR as a way to save time with nurse documentation in the emergency department (Greenbaum et al., 2019). Currently, chief complaints are documented in a triage note for example, in "free-text", which often results in uncommon clinical terms being used or increased instances of misspelling errors. Deep learning incorporation however, is found to decrease the human error rate by 85% (Miller et al., 2018). The use of an automated algorithm providing options for potential chief complaints also allows for greater standardization among documentation. As a result of the techniques used, a 7-18% reduction in keystrokes was found (Greenbaum et al., 2019). This may appear as a small detail however, the reduction multiplied throughout a 12-hour shift can be a significant time-saver. Furthermore, after the implementation of several combined "machine learning-driven user interfaces", the study estimated the reduction in man hours required to manually type chief complaints to be from 92.5 hours to only 4.8 hours (Greenbaum et al., 2019). Not only is there significant time saved from the algorithms but the quality of documentation is enhanced. These processes were created as a result of a problem seen in the ED specifically. Although, this is not to say that the same models cannot be replicated in other contexts. Similar algorithms have significant potential in being used for more general documentation, such as nursing progress notes that are typically free-text.

EHR algorithms can do a lot more than eliminating unnecessary keystrokes. More developed AI strategies can provide early detection of deteriorating patients. In fact, applying predictive mechanisms to the EHR has already shown several promising results. For example, one study found that AI techniques provided early detection of heart failure after being coupled with patient EHR data, in addition to improving risk assessments in patients with suspected coronary artery disease (Lin et al., 2020). This same technology can be trained to identify trends found in a variety of other chronic diseases and conditions. It will even be more accurate in

the inpatient setting when patients are monitored continuously. Additionally, ICU nurse, Sarah Rossetti, identified a trend that she had found to be prevalent in the ICU setting. She states that when "[she] was more worried about a patient [she] would document more" (Greanias, 2023). In collaboration with another colleague, Rosetti developed a predictive tool called CONCERN (Communicating Narrative Concerns Entered by RNs) to analyze nurses notes as well as the frequency of the documentation to then provide an early prediction of patient deterioration (Greanias, 2023). This intervention is unique in that it does not rely on patient characteristics and vital signs like many other AI strategies. Instead, it is based on nurses' observations and their frequency of documentation. This technology ultimately provides more efficient communication to relevant healthcare professionals on a patient's care team when a particular threshold of documentation frequency is met. The CONCERN strategy has shown prediction of patient deterioration up to 42 hours earlier allowing for quicker and more extensive interventions to be administered in order to prevent the decline of patients (Greanias 2023). This tool can also be utilized in census prediction by identifying patients that may need to be upgraded to a higher acuity of care.

AI might also have the ability to restructure the role of charge nurses. The computational methods that have been developed to predict census data have been named ALex (Automated Learning by Example) (Griner et al., 2020). In 2018, 75% of days began in hospital volume overflow status (Griner et al., 2020). Also at this time, the units that were working towards advancing the hospital flow were essentially "working in silos" (Griner et al., 2020). ALex technology combats this issue with increased cohesiveness among the hospital in terms of census information. The ALex strategy functions by utilizing "historical forecasts over points in history" to predict up to 5 days ahead in terms of bed availability, admissions and potential discharges (Griner et al., 2020). In this way, hospital administration and associated unit charge nurses can evaluate whether overflow units need to be prepped or if extra staff needs to be scheduled to cover the predicted number of patients. As a result, nurses are tasked with a safer workload and the previously manual census prediction is automated. This also allows charge nurses to focus on increased supervision of the unit and helping floor nurses with hands-on tasks.

The nursing practice has seen a slow integration of robots and similar technology in comparison to medicine and other fields. This is thought to be because nursing tasks are "non routine" and more patient-specific (Clancy 2020). Although, the COVID-19 pandemic has only accelerated AI-incorporated robotic mechanisms. For example, voice assistants and robotics were used in some hospital organizations during the recent pandemic to reduce the need for personal protective equipment and recurrent viral exposure (Abuzaid et al., 2022). These are resources that can be applied beyond pandemic-specific challenges. Patient language

translation is a daily issue experienced among nurses that can be addressed with more intelligent and human-like robot technology. Additionally, reduction in exposure to many other air-borne illnesses is something that should be more highly prioritized outside of Coronavirus in order to maintain staff health. These interventions can be advanced with the use of robotics to aid in other routine nursing tasks such as medication administration; particularly for patients with contagious illnesses (Abuzaid et al., 2022). These technologies have essentially found a way to "redefine a nurse's capacity" to care for patients and will hopefully help build a stronger barrier should another situation similar to the COVID-19 pandemic reoccur (Abuzaid et al., 2022).

Mobile Health applications and sensor technologies are becoming increasingly common in healthcare allowing for more timely and accurate recording of various issues. Wound assessments are particularly important since wounds can be quick to "diminish patients' quality of life" (Mohammed et al., 2022). Wound assessments are typically conducted manually taking note of the physical and visual characteristics. However, according to Mohammed et al., (2022), such methods are found to be "invasive, inaccurate and time-consuming". A recently developed technology has been created as a way to digitize the way wound assessments are done. This technology involves an app called Swift that captures "color calibrated images and uses intelligent features to automatically identify wound boundaries, record measurements and accurately calculate surface area" (Mohammed et al., 2022). Since this information is recorded in an app, the data is automatically transferred to connected EHR systems into the associated patients chart. Not only is this a more time-efficient way to conduct wound assessments, but the app captures accurate images regardless of different lighting or body position of the patient (Mohammed et al., 2022). Additionally, the ease of the app allows for nurses to conduct more in depth wound assessments in a timely manner instead of waiting for specialized wound care professionals to evaluate the wound more comprehensively. A study implementing this Swift app showed very successful results. The ability to obtain clear and accurate wound images was more likely to be achieved the first time using Swift in comparison to traditional methods by 92.2% (Mohammed et al., 2022). Also, the average time to complete a wound assessment with Swift was significantly faster by 79%, saving more than 54% of the clinician's time (Mohammad et al., 2022). In the fast-paced healthcare environment, time is precious and this significant amount of time saved with Swift can be carried over to addressing patient needs and fulfilling timely medication passes. Appropriate treatments can also be administered sooner preventing further advancement of the wound.

Considering the already developed technologies, it is no question that AI can have a tremendous impact on nursing practice and patient outcomes. In fact, Miller et al., (2018) asserts that while diagnostic performance may never reach 100%,

"combining machines plus physicians reliably enhances system performance". Excessive documentation is extremely burdensome and eventually rubs off on patients. The improved documentation practices and other time-saving interventions are sure to improve attention given to patients, thus significantly decreasing the risk for patient falls. Typically, falls occur when the nurse is occupied and unable to answer a patient's call light in a timely manner and patients attempt unsafe mobility on their own. Overall, automating routine tasks preserves patient-centered, compassionate care and increases the likelihood of successful patient outcomes. One of the many tasks that cannot be automated, is recognizing cultural cues, which is something that is addressed with compassionate and face-to-face care (Buchanan et al. 2020). On the other hand, the fact that machines are often learning directly from medical data eliminates cognitive biases that would otherwise be incorporated subconsciously by humans (Miller et al., 2018). Overall, increased face-to-face time with patients enriches the nurse-patient relationship and can even improve the mental status of patients as well.

IMPLEMENTATION PLAN

As it appears, several promising AI solutions are well-developed but the success of these interventions is dependent on sustainable implementation strategies. The process of implementing such extensive technologies should consist of multiple phases. Phase one would be approximately 2-months and involve the gathering of a team dedicated to facilitating the implementation of AI technologies. The team would comprise a variety of healthcare staff in order to incorporate different perspectives. Shang (2021) highlights that it is imperative to include a strong "nursing voice throughout all phases of development and evaluation" to ensure that all interventions are geared toward nursing-specific issues. Additionally, Shang (2021), explains that in order for AI to advance, underlying issues in the nursing context should be identified first. Examining problems within a specific healthcare organization provides goals for the new strategies to address. Oftentimes, new technologies fail to be embedded in practice because healthcare leaders do not consider "how they fit with or impact existing healthcare work practices" (Petersson et al., 2022). Another important thing to note during this first phase of implementation is the current healthcare environment and perspectives of the impacted healthcare workers. A "shared understanding" is key in order to close the gap between "how work is imagined and what is actually taking place" (Svedberg et al., 2022). This is especially important regarding artificial intelligence since it has received an abundance of uncertainty and speculation. Conducting surveys and obtaining input from staff will be imperative to determine the level of AI education required as well as the weak points that will need to be addressed in the process. Ultimately, explaining the benefits of automating specific workflows and the positive impact that this will have on patient outcomes will build a stronger confidence in the nursing staff from the start.

In phase two, resource acquisition and education are emphasized. One of the major resources required for the AI algorithms to take effect is an electronic health record system. Another major tool that may need to be introduced are iMobiles or tablets that can be used to download associated apps that can then transfer information into the EHR. The length of this phase will depend on the technology that is needed. A majority of US hospitals have already transitioned to electronic record systems. However, most are still lacking smartphones or tablets as the primary source of communication. The acquisition of various resources will depend on the goals for the specific healthcare organization and the AI technologies that each team hopes to utilize to accomplish such goals. In terms of education, the AI team will host weekly workshops each focusing on different AI algorithms or tools being implemented. The first workshop may solely be an informational session discussing what AI is and the results that should be expected after using the technology. In contrast, the second workshop may start with one of the EHR algorithms, such as the autocomplete functionality. Future workshops will incorporate apps like the Swift wound assessment app and others that may take more time to implement and continue to become progressively more advanced. One study evaluating the implementation of AI in healthcare organizations found financial resources and time to be critical components in the implementation process (Petersson et al., 2022). In this case, it is important to recognize that the training period may be long and drawn-out in order to involve as many nurses for each workshop and obtain adequate finances. Taking the necessary time to train staff is one of the most important steps to ensuring that a strong foundation is built for the success of the technology. The training process is also a critical time to gain acceptance from staff and to address any concerns before bringing the AI technology to life in the healthcare organization.

The final phase will involve kickstarting the new technology in just one or two hospital units at a time. This allows the AI team to have a high level of control of the technology should there be any technical difficulties or learning obstacles from staff. Svedberg et al., (2022), highlights that the challenge in implementation does not always lie in the organization's decision to adopt an intervention but the professional's willingness to use it in their work. Nurse leaders must be "engaged, competent and persistent", so that the strategies function as they are intended to and result in higher efficiency (Griner et al., 2020). Therefore, it is crucial to make the transition to a new healthcare model as seamless and easy to handle as possible so that it is more sustainable and able to be used long-term. The technology will continue to be slowly implemented in the hospital until it has reached every unit. This phase is projected to take anywhere from 3-6 months based on how large the organization is. Between implementation periods, leaders should also problem-solve any issues that come up to increase the success of the following phases. After the new interventions become widespread throughout the organization, periodic

surveys will be conducted as a way to measure the resulting success and challenges. The feedback will be helpful in making sure that there are continuous improvements being made using the new technology as well as increased satisfaction among the staff.

CONCLUSION

Nursing staff shortages and documentation burden are still growing issues partially as a result of the COVID-19 pandemic. AI has shown to be of significance in other healthcare practices and has plenty of opportunity to solve issues facing the nursing practice as well. AI is predicted to transform the nature of the nurse-patient relationship for the better and enhance nursing workflows immensely. Using a well developed framework is crucial to applying these interventions to such a large profession. However, making sure the technology falls within the ethical boundaries and policies in place will be important to consider as well. Further research is necessary to address such issues dealing with policy and patient privacy. Overall, augmenting nursing skills with technology may be the answer to improving nurse satisfaction, optimizing workflows and improving patient outcomes.

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RELIGIOUS DISCRIMINATION IN THE WORKPLACE: UNDERSTANDING AND VALUING RELIGIOUS PRACTICES, RITUALS, CUSTOMS AND OBSERVANCES

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ABSTRACT

With over 2,500 religions worldwide, cultural pluralism takes on an ever-increasing role in the diversity cacophony: Social class, family and marital status, age, race, color, gender, sexual orientation and identification, ethnicity, language, etc., and veteran status. As such, this case study is systematically unveiled as Sandra Parks, a professor of human resource management, comes to grips with her own somewhat sheltered background and cultural experiences—some of which she now understands to be prejudicial and discriminatory in nature. As she puts HRM into practice, she concentrates on how the Civil Rights Act of 1964 (CRA, 1964), other laws, and sundry supreme court decisions impact such factors as religious observances, protections, prayer in schools and public places, etc., including what religious accommodations are in order in the workplace. In addition to researching key court decisions, such as Brown v. Polk County Iowa, she itemizes the 25 major religions found in the United States and chronicles them on seven major dimensions of religiosity: Rituals, rites of passage, dress, clothing, and grooming practices, and observance practices. The case concludes with a set of Questions and Instructions designed to foster a better understanding and identification of religious based discrimination in the contemporary workplace—whether public, plural, or private.

Key Words: Religions, discrimination, rituals, customs

INTRODUCTION

Professor Sandra Park collected a reasonably uneventful set of life experiences as she went through the basic stages of being a teenager, adolescent, to mature adulthood. Living in a somewhat cosmopolitan environment most of her life in the upscale suburb of Oak Hill, her personal relations and interactions were largely with a homogeneous population in terms of race, ethnicity, religion, social class background; her contact with people of color, ethnic diversity, language differences, and even social class was, to say the least, minimal or as she often said to others, "…limited, if not parochial." Of course, she knew about some cultural

differences that existed in her "closed" community, but for the most part, her understanding of pluralism or multiculturalism was scant and much of what she had learned came from family "kitchen" talks as she was growing up, and as she later learned, most were mostly based on stereotypical characteristics.

Park's family was a typical one for her suburban residence of Oak Hill: Mostly white, middle-class, Lutheran, Roman Catholic and Methodist—which she called prestigious religions—and professionally upward-mobile, dual income families. Her mother was a degreed nurse (BS/RN) with ten years of logged pediatric experiences tucked under her belt and her father was a certified public accountant (CPA) who fresh out of college successfully landed a plum job at a "Big Six" accounting firm—equivalent to getting hired in a "Big Four" firm today. Her parents were frequent church attendees, and they enjoyed the social and religious community which they had joined shortly after they were married some forty years ago—a church in which Sandra, their only daughter, was baptized as an infant, later confirmed, and then received her first communion. Not unlike her circle of other mostly Christian friends, religion and religious customs, traditions, and rituals were rarely discussed, except for the celebratory periods of Christmas, Epiphany, and Easter, and sometimes on the occasions of weddings, baptisms, marriages, or funerals. Although committed to her own religious traditions and faith, she never fully developed orthodoxy of church teachings on matters as varied as same-gender marriage, divorce, the use of contraceptives, and some of the major social issues of the day, such as abortion, racial prejudice, human injustice, immigration and self-determination.

Sandra Parks life experiences during her formative years were similar to that of her peers—cosmopolitan, but homogeneous; upwardly mobile, but not "uppity;" empathetic, but not actively inclined toward civic engagement; assertive, but not aggressive; and largely extrinsically, rather than self and intrinsically motivated and directed. In brief, she would often describe herself as being the "…quintessential, all American, blue-eyed, suburban girl."

Sandra Park Transitions to College and Becomes A Professor of Human Resource Management

When Sandra decided on her college of choice, she applied for and was admitted to a little-known, but respectable, regional state college. She was delighted about her college acceptance, and proud to have received the President's Scholarship Award of $1,800 dollars—only applicable toward tuition. Her first years at "State U.," as it was affectionately called by locals, went by quickly and her major in Human Resource Management (HRM) took her on an interesting educational journey of awareness and understanding. While in her senior year, Sandra studied many of the legal, regulatory, and constitutional issues embedded in her degree field. She learned about the Equal Pay Act, 1963; Age Discrimination in Employment Act, 1967 (later amended), and especially she loved learning about

the Civil Rights Act, 1964 and the history of demonstration, protestation, and later litigation, that brought this far-reaching piece of social legislation to fruition. She could recite the basic components of the law as if she was reading from a well-rehearsed script; she knew how the CRA, 1964 prohibited employment discrimination in five areas: Race, color, religion, sex (gender) and national origin (place). Further, she was conversant on topics such as "white privilege," Affirmative Action, national origin (place) as it related to language; and of course, race. Her studies and interaction with people of different religious traditions, cultures and faiths, had never been of protracted concern, primarily since she nearly always was surrounded by those who were self-identified as Christians, whether Methodist, Catholic, Lutheran or Baptist.

Putting HRM into Practice

Fast forward, Sandra had become a professor of human resource management and during her tenure taught mostly students with backgrounds quite analogous to her own, but others who were of different nationalities, races, ethnicities, languages, mental and physical abilities, sexual orientation, and social-economic-statuses (SES), and family backgrounds. Over the years, as she taught management and interacted with diverse populations, she felt comfortable using broad generalizations, but felt that she lacked a specific understanding or knowledge of the multifaceted role that religion plays in the contemporary workplace. Her years of consulting with hospitals, colleges/universities, clinics and hospitals, businesses and corporations, and even prisons brought a realization of how ill prepared both she and those she taught were in the field of religiosity.

In preparing her lecture on diversity, she scoured the professional and academic literature and wrote down a few notes that she wanted to share with her class on religion based discrimination:

- The Civil Rights Act of 1964 prohibits employment discrimination on the basis of these protected classes: Race, color, religion, sex, or national origin.
- The term *religion* is inclusive of all aspects of religious observance and practice, as well as belief, unless an employer demonstrates the inability to "reasonably accommodate" an employee or prospective employee's religious observance or practice without undue hardship on the conduct of the employer's business. A *reasonable accommodation* eliminates the employee's conflict between their religious practice and work requirements; the accommodation might be as simple as providing a place to meditate or prayer; excused from working on their Sabbath; or switching work schedules between employees and having other forms of flexible scheduling.
- The CRA, 1964 protects all aspects of religious observance, practice and belief and defines religion to include not only traditional, organized religions such as Christianity, Judaism, Islam, Hinduism, Buddhism, and

Sikhism, etc., but also religious beliefs that are new, uncommon, or not part of a formal church, or practiced by a small number of people, or may be seen as illogical or unreasonable by others.

- Religious protection applies to any practice that is motivated by a religious belief, even if others might engage in the same practices, but for secular reasons.
- If a dress or grooming practices is only based on personal preference, it not covered by the CRA, 1964. Employers must attempt to accommodate employees who are required to maintain a certain physical appearance or manner of dress that is consistent with the tenets of their religion, such as a scarf, head gear, or a certain garment type; or, in some instances, a beard, facial hair or a religious symbol. In terms of dress, the employer should be sensitive to the type of position held by the employee, safety and health factors, climate and comfort, and whether the dress or grooming practice creates a disruptive environment.
- Group prayer is permitted in the workplace if participation is voluntary and no employment related consequences are associated with either participating or not participating in the prayer session, such as retaliation, preferential treatment, or discrimination. Work groups make up the organizational structure and culture and the line between peer or group acceptance and full engagement is easily misunderstood or blurred.
- Much controversy has developed over religious practices, such as whether prayer in school, public meetings, and prayers that open a governmental proceeding are permitted. It is important to understand the long prohibited federal, state or other governmental jurisdiction endorsement of one religion over another, although the Supreme Court has historically struggled in its decisions when the church-state actions cross the Constitutional divide. For instance, in the Town of Greece, New York versus Galloway et al., 2014, the U.S. Supreme Court upheld the practice of public prayer and Pledge of Allegiance before local government meetings, in a 5-4 split decision, and along conservative-liberal lines. The court found impermissible preference for Christianity, representative of the town's congregations, not as the official policy or practice of discriminating against minority faiths. In this sense, public prayer is looked upon as a ceremonial gesture.
- Importantly, the CRA, 1964 also protects those who need special consideration because they profess no religious beliefs.

Court Decisions Have Practical Implications

Additionally, Professor Park itemized several court decisions that she knew she would be expected to understand and discuss in the area of religion-based discrimination. The six cases she enumerated for review purposes were:

- *Lyng v. Northwest Indian Cemetery Protection (1988)*, the Supreme Court ruled that the construction of a Forest service road through an ancient site

held cared by several tribes did not infringe upon the tribes' constitutionally-protected religious freedoms

- *Daniels v. City of Arlington (2001)*, a police officer claims his First Amendment rights were violated when he was forced to remove a religious pin on his uniform.
- *Altman v. Minnesota Dept. of Corrections (2003)*, correctional department employee assert they have the right to read their Bible silently as a way to protest a mandatory training seminar on "Gays and Lesbians in the Workplace."
- *Gunning v. Runyon (1998)*, a postal employee asserts that the postmaster violated the First Amendment by refusing to permit the playing of a Christian radio station over loudspeakers.
- *Brown v. Polk County Iowa (1995)*, a county employee challenges an employer policy requiring him to cease any activities that could be considered religious in the workplace.
- *Sherbert v. Verner (1963)*, the Supreme Court ruled that state of South Carolina could not deny unemployment compensation to a Seventh-day Adventist woman denied benefits because her religious faith prevented her from working on Saturdays.

Wrap-Up

The Civil Rights Act of 1964 prohibits employment discrimination on the basis of race, color, religion, sex or national origin. The term "religion" includes all aspects of religious observance and practice, as well as belief, unless an employer demonstrates that he is unable to reasonably accommodate to an employee's or prospective employee's religious observance or practice without undue hardship on the conduct of the employer's business. In order to further explore this topic, we will compare ten different religions, highlight major cases and different ways to celebrate religion.

The law protects all aspects of religious observance, practice, and belief, and defines religion very broadly to include not only traditional, organized religions such as Christianity, Judaism, Islam, Hinduism, Buddhism, and Sikhism, but also religious beliefs that are new, uncommon, or not part of a formal church, practices by only a small number of people, or may seem illogical or unreasonable to others. It applies to any practice that is motivated by a religious belief, even if other people may engage in the same practice for secular reasons. However, if a dress or grooming practice is personal preference, it is not covered by the religion protections.

The law's protections also extend to those who are discriminated against or need special consideration because they profess no religious beliefs.

Getting a Grip on Some Major Religions in the United States

In an attempt to better understand some of the major religions found in the U.S. workforce, Sandra developed seven broad categories pertaining to religious preference, practices, and observances: Rites of Passage; Diet and Food; Health Practices; Impact on Customs and Folkways; Days or Times of Observance; Rituals, Clothing, Dress and Grooming; and Family Relationships. Of special importance, religious observances may include, for example, praying, adhering to certain dietary rules and traditions, times and days for worshipping, placing religious objects on display, wearing religious symbols or articles of clothing. Then, as displayed in Exhibit 1, she presented her research on the following religions in relation to each of these seven religious' dimensions: Hinduism, Judaism (Orthodox and Conservative), Lutheranism, Roman Catholicism, Buddhism, Mormonism, Methodism, and Baptist beliefs.

The list of religions in the United States exceeds 2,500 and expands with the introduction of twenty or so new ones each year. For example, some of the newest religions, religious sects are: Free Daist, Adonism, Horse Fellowship, Anthroposophy, Heaven's Gate, Elan Vital, Falun Gong, Ghost Dance, Archministry, Church of Satan, Church of Daniel's Band, New Age, Metaphysical, Soka Gakkai, UFO Religion, Adidan, Vedanta, The Garbage Eaters, and Rastafarianism. These listed religions constitute a fraction of the religious belief systems and cults that often have far less than one million members in the United States. However, in the area of religiosity, Sandra also acknowledged the views held by Humanists, Agnostics, Heathens, Atheists, Pagans, and those who have no religion.

Overall, she was surprised by how little she knew or understood of the many diverse rituals, observances, rites of passage, and religious restrictions associated with the ten religious traditions she had focused upon. Thinking about the many other religions that have a million or more adherents in the United States alone, not to mention worldwide, she realized how daunting the task would be if she wished to become learned enough to speak with familiarity, knowledge, and understanding about religious traditions expressed in her own college classroom, not to mention the organizations she often came in contact with during her consultancies. She felt comfortable enough in demonstrating that the role of religion in the public and private workplaces had become an embattled issue that challenged the boundaries of work and state, and resulted in a large stream of litigious actions. In examining the literature, he found much discussion on employees' symbolic religious expressions, the wearing of clothing articles or other adornments of religious importance, or talking about one's religious faith to co-workers or customers and clients. Sandra also recognized that one need not give up one's religious beliefs in order to have gainful employment, and that increasingly discrimination suits have been brought against employers that are dual or even triple based, such age, religion and race; or, religion and ethnicity; or in many states, religion and sexual orientation.

Realizing how important discriminatory practices, implicit or explicit, had become in the workplace, and how commonly they are conjoined with other prejudicial acts, such as race, ethnicity, national origin, mental/physical ability, grooming and dress, gender identity, age, sexual orientation, etc., Professor Park compiled a list of major religions in the United States: Hinduism, Islamism, Judaism (Orthodox and Conservative), Lutheran, Roman Catholicism, Methodism, Church of Jesus Christ of latter-Day Saints, Buddhism, and Baptist. Although the list was selective, she felt that she had included the dominant traditions that were practiced by clients, customers, citizens, etc., in the organizational environments which she had come to know, especially businesses, hospitals, schools and colleges, and governmental agencies and programs of many types—health and human services, regulatory programs, housing assistance, etc., and sundry international organizations. In addition, in order to make the matrix applicable to those who directly work in these sundry sectors and organizations, she developed seven dimensions of religiosity: Diet and Food, Rites of Passage, health Practices, Customs and Folkways, Days or Times of Observance, Rituals, Clothing, Traditional Dress & Grooming, and Family Relationships. In summary, she produced a useful management tool for employees to cross-reference religion type with one or another of the religious dimensions. The matrix shown as Exhibit 1. Seven Dimensions of Religious Practices, Customs, Restrictions, and Observances for Selected Religions.

Questions and Instructions:

1. Are there any religious dimensions or religion types that were not included in Exhibit 1? Please list and explain their importance (why they should be included in the matrix).

2. Please consult the website for the Equal Employment and Opportunity Commission (EEOC)—an agency of the federal government that administers and enforces civil rights laws in the United States against workplace discrimination—and determine the major types of workplace discrimination that take place and are reported yearly. Please analyze and explain.

3. Among the Millennials (those born between 1981 and 1996) as a generation, the fastest growing religion is "NONE' according to Pew Research. What are the managerial implications of this major demographic trend in the United States? Please explain.

Exhibit 1. Seven Dimensions of Religious Practices, Customs, Restrictions, and Observances for Selected Religions

Religion	Diet & Food	Rites of Passage	Health Practices	Customs/ Folkways
Hindu	Common for Hindus to	Different rituals for pregnancy-	Traditionally, person dies at	Wedding pendant (tali)

	practice vegetarianism. However, they can choose their own diets, most abstain from eating pork or beef. Using the left hand for food is considered inappropriate.	ceremony at 3 months, 7 months a shower then at birth of a baby (dripping honey on the lips); a naming ceremony, first trip out and first tasting of solid foods. Ear lobe piercing-girls (left ear first) and or boys (right ear first) age 6 to 7 months or 5 to 7 years—thought to help with the body's natural electric current system. Head-shaving ceremony-- age range from 2 months to 2 years depends on the family. Going to school ceremony. Thread ceremony- for boys ages 6 to 12 years, worn always over the left shoulder; it is a new birth or twice-birth.	home. Bring them home from the hospital if they can. With death approaching they need to be facing East, lamp is lit near the head, urged to concentrate on his/her mantra, -- a practice done in the hospital. If possible, the patient is brought home from the hospital and traditionally the patient dies at home. Nobody is embalmed and no organs removed.	The family traditionally would dress and clean the body, normally done at home, will work with the funeral home to do it there if need be. Cremation is next. Shameful to cry for the dead. A memorial meal for the deceased with their favorite foods on the 3rd, 5th, 7th and 9th day of passing. Yearly anniversaries are done for the live of the sons of the deceased.
Islam (Muslim)	Forbidden: pork, lard, porcine (swine) substance, gelatin from animal sources which are not *halal*; meat that isn't slaughtered in the prescribed Islamic way; meat coming from a lawful animal which died before	After reaching puberty every Muslim must perform 5 prayers daily Funeral: show respect for the dead and give relatives and friends time to mourn and show grief. Burial happens as fast as possible, within 3 days. Body is washed &	Wudu-purification; involves washing the hands, face, arms and feet with water before each prayer time. Circumcision-- prescribes male circumcision with the sole purpose of facilitating cleanliness. Breastfeeding encouraged and if practiced	Charity giving-- 2.5% of one's excess wealth (what you have saved annually). For example, Islam commands Muslims to lower eyes when talking to people out of respect and honor for others. This can be offending to other cultures where eye contact is important. Celebration of child's birth: father is to slaughter one or two

	slaughter; blood; any food or drink with alcohol; any human substance or part; all carnivorous animal and birds of prey. Fasting the month of Ramadan (9th month of the lunar calendar) from sunup to sundown.	wrapped in white cloth; no coffin, if allowed by government, buried facing Makkah (Muslim holy city in Saudi Arabia). Disapprove of cremation. Graves are raised above ground level, so not to walk on them and large tombstones and decorations are not usually found.	continued to the weaning age of 2. Autopsy is not to be done if it can be avoided. Abortion is forbidden and is considered a crime against the law of God. Organ donation is allowed. No medications with alcohol as it is forbidden	animals (sheep or goat). One third of the meat is given to the poor; the rest shared in a community meal on the 7th day after the child's birth. Traditionally but not required, on the 7th day of the child's life, the parents shave the hair, and then it is weighed and the equal amount in gold or silver is donated to poor.
Judaism Orthodox	Kosher (prepared and eaten), varies among individuals, but ought to be carefully considered. Some avoid pork and shellfish, other abstain from wide variety of foods. Separation of meat and milk products.	Male circumcision (Brit Milah) is performed 8 days after birth. Women require special attention after childbirth. Separated from their husbands for a number of days after the birth Shiva—a seven-day period of mourning after the death honoring the life of the person who died and comforts those who remain. Some patients may refuse treatment on the Sabbath. Bar Mitzvah (boy 13 yrs. old) becomes an adult. Boys get their own pair of tefillin. Orthodox women may prefer a female doctor. C-	One should not die alone; family & friends will spend as much time with them as possible. Sick are encouraged to take care of any guilt, anxiety, and fear that they feel. Burial should take place as soon as possible following death and cremation is discouraged, but allowed. Autopsies are permitted only if necessary to benefit another. Abortion may be performed if the life of the mother is in danger. Organ donation is permissible. Dead bodies are never left unattended. Euthanasia, suicide, and assisted suicide are strictly forbidden by	On the Sabbath, an Orthodox Jew will not write, touch money, or use electrical appliances such as elevators, bed controls, or lights. A non-Jew may operate these things for the patient. Travel on the Sabbath is not permitted, so travel plans need to be carefully considered. Pork-based insulin should be avoided, if possible. However, due to the value placed on human life, it is acceptable to use it if no other alternatives are available. Funeral etiquette -- guests may be asked to help in the covering of the coffin with a shovel. Coffins are not required, but if used, then they must have holes drilled in them so the body comes in contact with the earth. Tombstones are required by Jewish law.

		sections are allowed. Jewish funerals take place within 24 hours of death, or sooner. Jewish law prohibits cremation and embalming. The deceased body is not displayed for viewing. Often no funeral flowers	Jewish law, although some forms of passive euthanasia are allowed. Autopsy should be avoided if possible.	Passover (first 2 days, observers don't go to work, drive, write or use electrical devices; middle four days' work is permitted and last days no processed food or drink is permitted). Baby showers are held after the baby is born.

Religion	**Diet and Food**	**Rites of Passage**	**Health Practices**	**Impact on Customs & Folkway**
Judaism Conservative	Kosher (prepared and eaten), varies among individuals, but ought to be carefully considered. Some avoid pork and shellfish, others completely abstain from these foods. Separation of meat and milk products is required.	Male circumcision (Brit Milah) is performed eight days after birth. Women require special attention after childbirth and are separated from their husbands for a number of days after the birth Shiva- 7 day period of mourning after the death honors the life of the person who died and comforts those who remain. Some patients may refuse treatment on the Sabbath. Bat Mitzvah (girl 12 yrs old)- becomes an adult this is only celebrated in Conservative not in Orthodox. Jewish funerals take place within	One should not die alone. Family & friends will spend as much time with them as possible. Sick are encouraged to take care of any guilt, anxiety, and fear that they feel. Burial should take place as soon as possible following death and cremation is discouraged, but allowed. Autopsies are permitted only if necessary to benefit another. Abortion may be performed if the life of the mother is in danger. Organ donation is permissible. Bodies once dead are never left alone. Euthanasia, suicide, and assisted suicide are strictly forbidden by	Conservative Jews are more modern; men and women sit together and women participate fully in synagogue services, prayers, rituals. In 1960 the Rabbinical Assembly of America agreed to modify the Orthodox Halacha (Jewish law) to permit use of electrical appliances on the Sabbath and drive to synagogue by car. In 1985, the ordination of women rabbis was permitted. Passover (first two days- believers don't go to work, drive, write or use electrical devices; middle four days' work is permitted and last days no processed food or drink).

		24 hours of death. Jewish law prohibits Cremation and embalming. No display of the deceased body.	Jewish law, although some forms of passive euthanasia are allowed.	
Lutheran	No restrictions. Fasting during lent at some level, but can be determined by the individual.	Baptism--both infant and adult; Lord's Supper (communion); burial from a church, not a funeral home or grave site service Anointing of the sick can be done.	Decision of family and individual as to the care. Organ Donation is encouraged. Contraception is permitted. Artificial insemination by a donor is a moral concern. Abortion is permitted to save the mother or in cases of rape or if the fetus has extreme abnormalities. Against assisted suicides and euthanasia.	Cremation is accepted. Tithing of some kind, not a set amount, and not to a specific place. Baptize only the living; no baptism in the case of a stillbirth.
Roman Catholic	Fasting on specific days (Ash Wednesday, Good Friday) along with restraint from eating meat on Fridays, but abstinence is required during Fridays of Lent. No dietary restrictions.	Baptism is the emersion of one in holy water by a priest to indicate one's acceptance and initiation into a life of faith. Confirmation of a baptized child before death, anointing the sick during a terminal illness or following an unexpected death Extreme Unction, Last Rites, or Anointing of the Sick is the final rite of passage, where one who seems to be nearing death is anointed with chrism, the same oil used in the	Health practices and beliefs cover various fields of the medical world. Holy Communion prior to surgery. Abortion is not tolerated. Organ donation is encouraged. Urged to protect and support the gift of life, by refusing to participate in interventions or techniques which destroy life or sacrifice the marital bond; against embryonic cell research, euthanasia and carefully	Tithing of some kind not a set amount.

		sacrament of Confirmation, and to absolve sins.	considers participation in treatments beyond ordinary care.	

Religion	Diet and Food	Rites of Passage	Health Practices	Impact on Customs & Folkway
Buddhist Churches of America	Eating moderately, abstaining from alcohol and drugs. Many will not eat any animal products because of the sanctity they place on life and they will not intentionally kill any living being.	Birth special due to belief in rebirth. Quiet environment for dying people to enable a good state of mind. Body kept quiet and peaceful and at home untouched for three days. If a hospital death, then family can ask for it to be undisturbed for as long as possible and may wish to wrap and wash the body. Autopsies are permitted after a period of time allowing soul to leave the body. Cremation is often preferred and is done five days after death. Memorial service is held 49 days after death.	Organ donation is acceptable to some while blood donation is considered honorable. Physical contact with the opposite sex is not allowed for monks and nuns. At point of death, being pain free is a high priority.	Abortion is regarded as killing. Birth control that prevents conception is acceptable. ICU's (Intensive Care Units) are particularly ill-suited for Buddhist patients because they want a quiet, peaceful death environment.
Church of Jesus Christ of latter-Day Saints	Members are counseled to eat all things sparingly. Emphasizing benefits of proper eating and physical and spiritual health. Against the use of	Baptism is for those that are eight years and older. Seen as a rebirth and entering the church as a new member of Christ. A living person can be baptized for a dead person.	Church opposes and counsels its members not to submit or perform abortion except in rare cases and after much counseling. No intercourse before marriage. Organ donation is not opposed,	Donate 10% of income to the church (tithing); this is a privilege, opportunity, and not considered a burden. Modesty, language and chastity are all connected since human bodies are a sacred creation made in the image of God.

	tobacco, alcohol, coffee, tea and illegal drugs.	Death is the joining of the body and spirit and families forever.	individuals and family make decision.	
Methodist	Abstinence from meat once a week (Friday) during Lent. No other restrictions.	Baptism is either done as infant or later in life. Infant Thanksgiving is done instead of baptism; child to make their own decision about baptized. Confirmation occurs around 12-16 years of age after attending church classes and includes Communion	Pregnancy contraceptives are permitted, but not to terminate a pregnancy. Abortions not permitted unless to save the life of the mother or child. Believe in medicine that will help but not prolong a terminal illness, but family makes decisions. Organ donation is encouraged.	
Baptist	No diet restrictions	Baptism: infant baptism is rejected; instead, baptism is entered into by adults who have been saved. Communion	Organ donation is encouraged. Abortion is forbidden. Health care is in the individual's and family hands.	Believe that men should be the only ones to lead a church.

	Days or Times of observance	**Traditional Rituals, Clothing, Dress & Grooming**	**Family Relationships**
Hindu	Worship is daily Pilgrimage must be completed at least once a year to learn to be detached by setting aside worldly affairs and making God the single focus.	Women should wear up to 16 pieces of jewelry at all times, modern times features some variation. All jewelry and adornments should not be removed without discussing with the patient or family in the hospital	It is less common but still around for 3 to 4 generations to live together. The women share the duties, and the men pool their money for support. Marriage between a man and a woman. Wedding Ritual can take several days by the time all of the practices are completed.

Islam (Muslim)	Prayers at dawn, noon, afternoon, sunset, and night prayers are to be done in a clean place. Friday prayer services are held at the Masjid (Mosque).	Both men and women must wear proper, decent, modest and clean clothes. Women are instructed by Allah to wear a minimum Hijab (head covering). Women cover entire body except face and hands. Tight and/or transparent clothing or clothing that expose those parts of the body which are sexually attractive, swim suites, extravagant clothes, makeup or perfume in public are lawful for women but prohibited by belief.	Families live close together. Polygamy is allowed but many Muslims consider it to be forbidden. Arranged marriages for the most part, but the couple decides if they will marry. Adoption is subject to certain parameters; ties are never severed with the biological family. Not allowed to divorce during pregnancy. Intercourse is forbidden during menstruation. Contraceptives are okay to use
Judaism Orthodox	Sabbath is observed from sundown on Friday to sundown on Saturday. Hanukkah Passover, Rosh Hashanah or Jewish New Year is observed for 2 days; also marks the beginning of a 10-day period on the Jewish calendar that focuses on repentance. This ten -day period is known as Days of Awe and ends with Yom Kippur.	A prayer tallit (shawl) and yarmulke/kipah (cap) may be used during prayer. Groom wears a kittel—a white robe, which is also worn on Yom Kippur and then upon death is buried with it. Bride will wear a modest dress. Women- cover their hair (after marriage it is seen as beauty), wear skirts and no pants (covering neckline to knee). Funeral dress: Men dress simply in a tie and suit, sometimes a kippah (yarmulke or cloth cap) will be given out to attendees. Women should wear a dress.	Wedding details: bride and groom will not meet the week preceding the wedding. Marrying age is 18 to 24. Divorce is recognized, but only the husband can initiate divorce proceedings, which the wife cannot prevent. Some cultures ban attending college. Women work only part-time and the rest of the day is dedicated for parenting; they often find jobs as teachers, accountants, or office workers.

	Yom Kippur refers to the Day of Atonement—the holiest day in the calendar		
Judaism Conservative	Sabbath is observed from sundown on Friday to sundown on Saturday. Hanukkah, Passover, Rosh Hashanah-Jewish New Year-observed for two days; also marks the beginning of a ten-day period on the Jewish calendar that focuses on repentance. Ten-day period is known as Days of Awe ends with Yom Kippur. Yom Kippur refers to the Day of Atonement--holiest day in the calendar.	In modern conservatism these items may be used: A prayer tallit (shawl) and yarmulke/kipah (cap) may be used during prayer. Grooms wears a Kittel--white robe which is also worn on Yom Kippur and then is buried with the deceased. Bride will wear a modest dress. Women-- cover their hair (after marriage it is seen as beauty), wear skirts and no pants (covering neckline to knee). Funeral dress: Men--dress simply with a tie and suit, sometimes a Kippah will be given out to attendees. Women should wear a dress.	Rabbis and cantors are prohibited to officiate at intermarriages in any way. The performance of remarriages without an acceptable gett (divorce) or other Halachic (Jewish law) terminations of previous marriage whether by death or annulment is prohibited.
Lutheran	Sunday, Christmas, Holy Week, Palm Sunday, Maundy Thursday, Good Friday, Lent, Easter		Marriage is between a man and a woman and is a lasting relationship, not just a legal one. Abstinence from sex before marriage and only with your partner after marriage.

Religion	Days or times of observance	Traditional Rituals, Clothing, Dress & Grooming	Family Relationships
Roman Catholic	Sunday, Christmas, Holy Thursday, Good Friday, Easter, All Saints Day, Solemnity of Mary, Mother of God, The Ascension, The Assumption of Mary into Heaven, The Immaculate Conception	Wearing of medals, religious articles, rosary, crucifix, scapula and religious icons (pictures and statues)	Abstain from sex and remain chaste until marriage. Matrimony is the sacrament of marriage between a man and a woman, in which they devote themselves to one another. The point of a religious marriage is to mimic the relationship between Jesus and the Church. Infertility treatments that involve persons outside the married couple are not acceptable.
Buddhist Churches of America	They receive every day with gratitude with such awareness they don't have special days to worship but do have important dates: New Year's Day; Shinran Shonin Memorial Day; Nirvana Day; Higan; Buddha's Birthday; Shiran Shonin's Birthday; Obon; BCA Founding Day; Perpetual Memorial Service; Bodhi Day; New Year's Eve		
Church of Jesus Christ of latter-Day Saints	Sundays; Christmas and Easter	Dress up for church on Sunday (suits and dresses).	No Polygamy. Marriage between a man and a woman only. Power to create children is very sacred, intercourse between legally married couples. Divorce is looked down upon.

Methodist	Sunday Advent- 1st season- 4 Sundays before Christmas Day to prepare for the coming of Jesus Christ Christmas Epiphany Lent--40 days not including Sundays to prepare for the death of Jesus Holy Week Easter Pentecost--50 days after Easter, celebrate the Church's receiving the gift of the Holy Spirit. Kingdomtide/"Ordinary Time"--end of Pentecost through summer and fall ending the first Sunday of Advent--used only in the United Methodist Church to encourage and emphasize Jesus' teachings.	Different seasons of worship have different colors that are used in the church, such as: Advent- purple or royal blue Christmas- white Epiphany- green Lent- purple Holy week/Easter- white Kingdomtide- green or red	Marriage between a man and a woman.
Baptist	Sunday Christmas Easter	Dress up for church. Women dress modestly. Crosses can be worn or displayed in the house	Believe women and men are equal in a marriage. Believe in men and women being married only. No intercourse before marriage.

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LIVE STREAMING IN CHINA: EXPLORING AND MONETIZING INTERPERSONAL COMMUNICATION

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ABSTRACT

The growing popularity and availability of live streaming has developed into an entrepreneurial opportunity for many social media users. The purpose of this study is to examine how live streamers interact with their audience and how these interactions differentiate live streaming from traditional social media. This paper conducted a qualitative research methodology with a primary focus on streamers' perspectives. This study makes a significant contribution to the live streaming literature by theorizing the conceptual framework of live streaming and reevaluating its unique characteristics. The findings demonstrate that live streaming represents a distinct development and extension of the traditional social media ecosystem. The results show that the defining feature of live streaming is the ability to interact synchronously with the audience and to send/receive electronic gifts. In addition, this study provides early insight into understanding how live streamers monetize live streaming by providing customized content and communication, highlighting the source effect as the core of live streaming.

Key Words: digital gifting, interpersonal communication, live streaming, monetization, social media

INTRODUCTION

Over the past decade, live streaming in China has emerged as a lucrative social media business model (Li et al., 2021). Within the live streaming platforms, live streamers have the capability to synchronously respond to the comments left by their audiences via the instant message chat boxes during the streaming sessions. This allows the live streamer to dynamically tailor the content of the live streaming to meet the audiences' expressed needs and desires in real-time (Li et al., 2021). Additionally, the platform serves as a means for streamers to monetize their content by leveraging the viewership of the streaming sessions. Through the platforms, live streaming audiences can directly send monetary gifts to the steamers they are watching. It has been fairly supported by social media literature that the fundamental characteristics of live streaming lie in the dynamic involvement of both streamers and audiences, as well as the audiences' ability to

send monetary gifts (Lim et al., 2020).

Existing studies have indicated that live streaming has become a popular practice in China, with a large number of Chinese Internet users finding it to be a profitable source of income, enabling them to make a living (Lu et al., 2018). The following reasons highlight how live streaming has become a viable and sustainable profession in China. First, Chinese internet users engage in live streaming for various purposes, including online gaming, managing social commerce channels, watching talent performances such as dancing, singing, or instrumental music, and sharing targeted opinions on topics of common interests. Second, in China, there is a preference among audiences for live streaming hosted by strangers rather than friends (Lu, et al. 2018), leading to a significant potential audience base. Lastly, Chinese live streaming platforms offer a distinct "send gifts" function. This mechanism serves as the primary monetization method for Chinese streamers (Li et al., 2021). Due to audience popularity and the potential for profitable monetization, live streaming has become a desirable full-time profession in China (Guan et al., 2022).

Research on live streaming is in an emergent state, with a primary focus on understanding online users' motivations for engaging in live streaming (Li et al., 2021). These investigations were conducted using quantitative research models built upon existing social media studies. However, as an emerging form of social media, live streaming presents several differences from traditional social media models, especially from a theoretical perspective. By drawing upon existing marketing and communication theories, this study aims to develop a theoretical framework that delves into the nature of live streaming and its differences from the traditional social media landscape. The contribution of this study lies in the consideration of the dynamic and active engagement of online users in live streaming sessions, with a specific focus on the impacts of interpersonal communications between audiences and streamers on content customization and gifting behaviors. In addition, unlike other live streaming studies, this paper conducted qualitative research using the grounded theory approach with a primary focus on live streamers' perspectives.

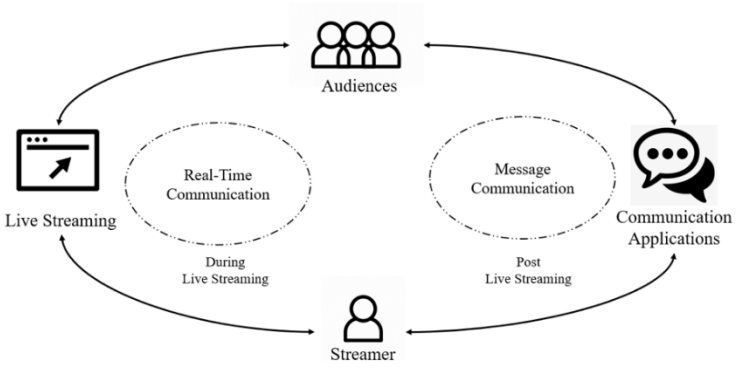
BACKGROUND

Introduction to live streaming

Twitch.tv, founded in June 2011, is the prototype of the modern live streaming phenomena and continues to hold the position of the world's leading social video platform and community for gamers and video game culture (Twitch, 2023). However, modern live streaming, especially in China, extends beyond the realm of gaming. Among Chinese streamers, only 20% primarily focus on gaming content, while 20% produce offerings very much like "talk shows", which involve discussions on personal beliefs, knowledge, and experiences (CAICT, 2016). Other examples of streaming content include makeup tutorials and demonstrations,

as well as performance-oriented streaming such as singing or dancing.

Live streaming has two distinct stages as illustrated in Figure 1. In the initial stage, live streaming involves the continuous webcast of a streamer's real-time life events. This includes activities such as using certain products, sharing opinions, playing games, etc. During this stage of the process, the audience can interact directly with the streamer. By using an instant message chat box during the live streaming session, the audience can participate by asking questions or providing feedback. When the streamer directly interacts with the audience, it transforms the audience into "co-creators" in the process (Li et al., 2021). The audience can also interact with each other by directly responding to one another in the chat box. This allows all audience members present in the same streaming session to engage in conversations, exchange opinions, and build connections with fellow audience members and the steamer. Like traditional social media, live streaming fosters a sense of community and facilitates meaningful interactions between the audience and the streamer, who share common interests (Johnson et al., 2015). Given the significant level of interactions between audiences and streamers, it is a common desire for them to stay connected even after the live streaming sessions, establishing the second stage of the process. In China, they usually use other personal communication applications like WeChat or QQ to maintain ongoing connections and further engagement beyond the scope of live streaming sessions.



This second stage is referred to as the "post live streaming" stage.

Figure 1. The Two Stages of Live Streaming

Gifting in live streaming

One unique feature of live streaming models seems to lie in the special ability of audiences to send virtual and monetary gifts (Guan et al., 2022). By simply clicking on a gift icon within the interface (worth real Chinese currency, varying from 0.1 cents to 5000 yuan), audiences can easily make payments to the streamer to express appreciation for the streaming content. When a virtual gift is sent, a broadcast message showing the ID of the audience member who sent the gift is displayed to all participants in the live streaming session. Immediately after seeing

the broadcast message, the streamer will show gratitude directly to the audience member who sent the gift. In this way, an ongoing interaction opportunity is created between the streamer and the audience (Li et al., 2021). Chinese live streaming is primarily supported by individual online users. A significant 70% of these audiences are willing to gift directly to individual streamers (Li et al., 2021). This direct support from the audiences plays a crucial role in attracting online users to the live streaming industry. As a result, a growing number of individuals are pursuing live streaming to earn a livelihood (Lu et al., 2018).

In China, live streaming platforms play a dominant role in the social media ecosystem. These platforms generate revenue by taking a large portion of the earnings from virtual gifts sent by audiences to streamers (Douyu, 2023). In exchange for this revenue share, the platforms continuously enhance and update their website features to facilitate gift purchases. Furthermore, virtual gifts are not only monetary transactions but also involve visual elements associated with specific occasions. For instance, on Valentine's Day, audiences can send virtual "roses" and "chocolates", while during the Chinese harvest festival, "mooncakes" may be available as gifts. In addition to these visual elements, the platforms offer a social dynamic by generating and displaying ranking lists of the most generous gift senders for a certain streamer (Douyu, 2023), which serves as an encouragement for the gift-giving process and enhances the interactive and engaging nature of live streaming. It could be said that the live streaming platforms and the streamers form a strategic alliance aimed at maximizing profitability and establishing an enduring and high-yielding business model.

METHODOLOGY

This research engaged in a targeted case study approach by interacting with individual live streamers in China. Seven live streamers were recruited to conduct a one-hour in-depth interview with a field recorder to capture and document the interactions. The same set of questions was posed to all participants to elicit discussion related to their motivations to become live streamers and their strategies to sustain their virtual communities to leverage live streaming as a personal business model. The questions include: 1) Why did you become a live streamer? 2) How do you decide the content of your live streaming? 3) How do you make live streaming for a living? 4) How do you get people to follow you? etc. All the interviews were conducted in native Mandarin by one of the study's co-authors, a Chinese national. The transcribed interviews were translated from Chinese to English by an individual who is fluent in both Chinese and English and unaware of the intended research content. In accordance with grounded theory methods (Glaser & Strauss, 1999), the analysis leverages the well-accepted sequence of initial coding followed by axial coding of the transcribed interviews (Saldaña, 2015). The qualitative analysis was performed using the Nvivo analysis tool in which the transcribed interviews were stored and analyzed for coding purposes.

First Cycle Coding: Initial Coding

In this research, the process of theory development through qualitative research follows the principles of grounded theory and utilizes the grounded theory coding technique (Saldaña, 2015). Grounded theory coding consists of three cycles in the current study: initial coding (level 1), axial coding (level 2), and theoretical coding (level 3). During initial coding, fragments of qualitative data are closely examined for their analytic import. Through comparing initial codes, comprehensive codes that subsume numerous initial codes are devised in the axial coding cycle (Glaser & Strauss, 1999). In the third cycle, codes selected during axial coding are reconsidered to conceptualize how these codes may be integrated into a theory (Saldaña, 2015).

During the initial analysis phase, the authors utilized Saldaña (2015)'s initial coding approach of In Vivo coding to parse the transcribed interviews conducted with the live streamers, which relies on the language and terminology employed by the participants themselves (Saldaña, 2015). As such, the first level of coding consists of brief statements of substance from each of the participants in response to the structured interview, each individual node of meaning called an In Vivo code (Saldaña, 2015). In this study, 42 individual coded nodes resulted from the first level of analysis.

Second Cycle Coding: Axial Coding

During the cycle of axial coding, the authors reviewed the fractured data that carried meaning during the initial coding step in a constant comparative approach to strategically reassemble them together in a coherent whole (Glaser & Strauss, 1999). In the current study, In Vivo codes from the initial coding analysis comprised 42 specific statements about the nature of live streaming; these 42 codes were subsequently grouped by similarity of meaning into 9 distinct axial codes. These axial codes are displayed for consideration in Table 1.

Proactive Audience Building	Individualized Audience Retention
Usage of Multi-Media	Self-Generated Content
Like What I Do (Knowledgeable)	Audience-Involved Content
Rewards for Content/Communication	In it for the Money
Job on the Side	

Table 1. Axial codes

In the second cycle of coding, a multitude of interconnected concepts that are essential to the practices of live streaming were discovered. The interviews investigated live streamers on various topics, including career aspects of live streaming, audience monetization, and strategies for attracting and retaining their audience. To that end, axial nodes that spoke to the concepts of audience building and audience retention were highly indicative of the nature of live streaming as a communication-centered business. The followings are examples of the In Vivo codes that were grouped into “Proactive Audiences Building”, “Individualized Audience Retention”, and “Usage of Muli-Media” as axial codes.

Proactive Audience Building

Streamer 2: "When an audience comes to my streaming, I just ask them to follow and watch me. If they follow you, it means that they start to like you."
Streamer 3: "I made friends through doing live streaming. Some of the audiences are still my friends right now."
Streamer 6: "I just say hello to them. If they are the higher-level audience (who spent more money on the platform), I will pay more attention to what they are saying."

The form of leadership on social media is considered as the ability to engage groups, boost subscriber numbers, and monetize the value of leadership (Lyu et al., 2022), which aligns with the role of live streamers. However, the results indicated that live streamers aim to build their audience groups in a proactive manner with more social skills, in contrast to traditional social media influencers who primarily rely on their content to attract and grow their fan base. Through synchronous communication, live streamers appear to have greater opportunities for actively engaging with the audience and leveraging their social skills.

Individualized Audience Retention

Streamer 3: "I will communicate more with the audience who give me more gifts."
Streamer 4: "I also give my loyal audience gifts."
Streamer 6: "If possible, I will invite them (his or her audience) to my city. Or I go to their cities to meet with each other.

Usage of Muli-Media

Streamer 2: "We (the streamer and his/her audiences) will build up a group chat in other social apps. .....also talk about other things that happened in their real life."
Streamer 7: "If they (his or her audiences) want to add my WeChat account, I will add them to the group chat immediately.

Typically, social media influencers have limited individual interactions with their followers, and if they do, it is usually confined to the same platform. However, the results found that live streamers utilized multiple additional communication applications to have additional interpersonal interactions with their audiences, even during their private time. It seems that streamers privately share their personal life with a part of their audience through these applications as well. Additionally, the nature of effective live streaming was also evident in the axial codes associated with the factors of appealing streaming content. "Self-Generated Content", "Do What I Like (Knowledgeable)", and "Audience-Involved Content" were axial codes that demonstrate the audience-centered focus of streaming content as a social media product. The following are details of the results.

Self-Generated Content

Streamer 3: "I get the information from my own experience, friends, or online resources. I keep reading articles related to …… and use the information in my streaming."
Streamer 5: "I decided on the streaming content."
Streamer 7: "I shared what happened to me today."

One of the ways that users engage with each other via social media is through user-generated content, including any form of online content that is created by users and shared instantaneously with a wide audience (Daugherty et al., 2008). In line with existing social media research, the interview results found that streamers would create a group audience of interest and provide self-generated content as products to their audiences. Additionally, most participants mentioned how thoughtfully they craft their streaming content beforehand.

Like What I Do (Knowledgeable)

Streamer 1: "I pursued a major in singing during my university studies and learned skills in dancing. And I like singing and dancing……. I teach dancing before."
Streamer 3: "I knew these when I was young. Mainly based on my own experience and personal skills."
Streamer 7: "I like to be a streamer for beauty and makeup."

Traditional social media interactions among users informally lead to opinion leaders who are recognized as engaged, knowledgeable, and trusted sources of information within their online communities (Turcotte et al. 2015). Individuals often seek information in a low-effort manner, such as relying on direct recommendations from their social networks (Turcotte et al., 2015).). Therefore, they prefer to surround certain social media channels or individuals as their preferred sources of information; these individuals are commonly referred to as opinion leaders (Turcotte et al. 2015). The interview results were consistent with established social media studies. The streamers recognized that individuals who are knowledgeable in certain areas (as opinion leaders) can get direct benefits from providing self-generated content. Participants commented on the impacts of their knowledge or personal skills. However, within the realm of live streaming, community leadership arises from streamers who willingly assume the central roles, diverging from traditional leadership that passively arises through interactions.

Audience-Involved Content

Streamer 1: "I need to learn new types of performances based on the audience's requirements."
Streamer 2:" We also taught the audience how to …… in the streaming according to their questions."
Streamer 5: "I do not decide the content ……, I chatted with my audience to find

a topic with them."

Traditional social media also enables a variety of social interactions whereby users can establish connections by subscribing to each other, expressing thoughts through comments, and even creating response posts or videos to engage with other users (Daugherty et al., 2008). However, interactions among traditional social media users, particularly on video-oriented platforms, are predominantly asynchronous. In contrast, the results found that streamers supported by instant communication technology can engage with their audience in real-time and collaboratively tailor the content of their streaming. In the interviews, every single participant emphasized how they engage in co-creation with their audience during the live streaming sessions, indicating one of the special natures of live streaming. Ultimately, live streaming significantly elevates the level of interpersonal communication between social media hosts and their audience to an exceptional degree.

Regarding business sensibility, there were several axial codes that signified serious business intents of live streaming, including "Rewards for Content and Communication", "In it for Money", and "Job on the Site". Unlike traditional social media models, direct gift-sending serves as one of the primary methods of monetization for Chinese live streaming rather than gaining revenue through advertising or website traffic (Li et al., 2021). The results suggested that streamers understand the financial rewards of streaming offered through audience engagement and content generation. Furthermore, the interview results revealed the intense motivations of streamers who are enticed to the lucrative nature of the business model of live streaming, as evidenced by the axial code "In it for Money". In addition, the participants highlighted the attractiveness of being a streamer as a long-term career option, referred to as "Job on the Site". Thus, streamers prioritize streaming as a profitable business model rather than solely considering it as a social media product for interpersonal interactions. Below are the specifics of the findings.

Rewards for Content/Communication

Streamer 1: "Live streaming is a way for me to perform in front of audiences and get rewards. Otherwise, I might just find a normal job."

Streamer 3: "I think live streaming is interesting because I can receive gifts."

Streamer 4: "…… most streamers start to do live streaming for gifts."

In it for the Money

Streamer 2: "The most important reason is that it can make lots of money, several times much more than other jobs."

Streamer 7:" It can make lots of money. There are other people who are doing streaming making lots of money."

Job on the Side

Streaming 3: "I just thought it was interesting and did it when I am free as a part-time job."

Streaming 4: "Doing live streaming is my full-time job because I think I am a good fit for a streamer, and it can earn money to cover all my costs."

Third Cycle Coding: Theoretical Coding

The third level of analysis in the grounded theory approach, theoretical coding, leads to the potential identification of constructs comprised of axial codes that group together on similarity and form potential networks of complementarity (Saldaña, 2015). Therefore, theoretical coding can conceptualize how the codes may relate to each other and help researchers theorize their data (Glaser & Strauss, 1999). Within this analysis, the researchers have distilled down the 42 initial codes to 9 key nodes of meaning in axial coding. In this approach, at the third level of analysis, the authors coded for how it occurred, in consideration of the interaction between the identified axial codes and their theoretical groupings. The emerging tree diagram (Figure 2) presents the theoretical array of axial codes and leads us to the convergence of three different aspects of the live streaming product.

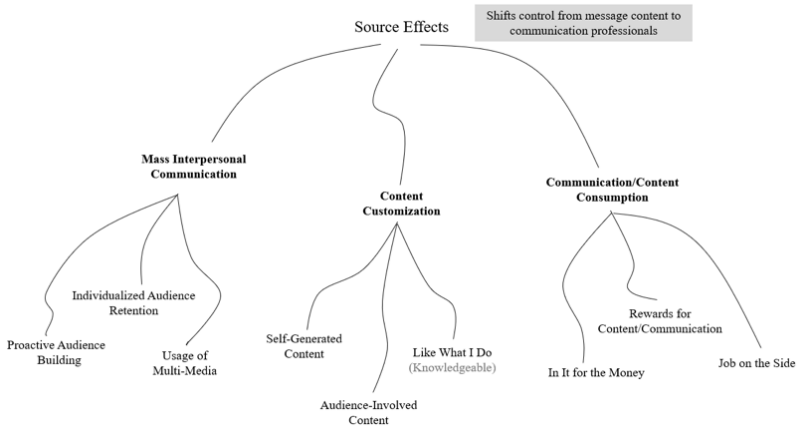


Figure 2. The Tree Diagram of Theoretical Codes

Traditionally, streaming was perceived as a form of mass communication, where a single streamer broadcasts content to a broad audience (Lim et al., 2020). However, contemporary live streaming, with its interactive features, includes not only mass communication but also interpersonal communication components. The results of the axial coding analysis interpret the mass exposure model of live streaming, represented by the node of "Proactive Audience Building". However, as previously indicated, this process is highly individualized and interactive and heavily relies on the streamers' social skills. Streamers also aim to maintain their audience through personal connections across various communication software. This emphasis on interpersonal communication components is exemplified by the two axial codes – "Individualized Audience Retention" and "Usage of Multi-Media". As a result, the theoretical coding analysis shows that live streaming represents a hybrid communication style, characterized by the rubric of "mass interpersonal communication" (Lim et al., 2020).

Live streaming, as mass interpersonal communication, offers a significantly more effective way of sharing user content compared to traditional computer-mediated communication technologies (Leonardi, 2017). When streamers communicate with individual audience members, the content remains visible to all the others simultaneously. The benefit of this "talk to one, talk to all" aspect of live streaming greatly enhances content sharing, as audience participation plays an important role (Leonardi, 2017). Additionally, this approach offers audiences an individualized and self-relevant experience to their specific needs. As mass interpersonal communication, live streaming becomes more personalized and tailored to individual audience members' interests and needs (Lee et al., 2015). Audiences can develop a closer relationship with both the streamers and other members of the streaming community, further increasing their overall streaming experience.

Next, the results of theoretical coding indicate that live streaming is a communication process that takes place through the customization of sought content for audiences with live streamers. The success of this process is strongly linked to the extent to which audiences perceive a streamer as a knowledgeable source for content co-creation. Social media technologies have changed communication by empowering users to create and share self-generated content (Daugherty et al., 2008). Social media users tend to seek knowledgeable channels or influencers online as prospective content sources (Turcotte et al., 2015). In the live streaming environment, streamers who are willing to manage a virtual community for the sake of reaping benefits must continuously create and deliver high-quality self-general content (Lyu et al., 2022), represented by the two axial codes "Self-Generated Content" and "Like What I Do (Knowledgeable)".

The active and dynamic engagement of audiences and streamers (axial node as "Audience-Involved Content) establishes a fundamental differentiation between live streaming and traditional social media (Li et al., 2021;). Given that live streaming allows the audience to engage in synchronous communication with streamers, it brings the notion of content co-creation through interactions. This phenomenon was previously characterized as "customization" in the marking literature on e-commerce (Lee et al., 2015). In live streaming, a streamer can interact with multiple audience members simultaneously, and these members can collaboratively interact with each other as well. This dynamic allows for a many-to-many customization framework that is exclusive to live streaming. Therefore, the combination of "Self-Generated Content", "Like What I Do", and "Audience-Involved Content" effectively illustrates the collaborative process through which customized content is co-created by both audiences and streamers.

The third node that emerges from the theoretical coding analysis is the "Communication/Content Consumption", which interprets the monetization process of live streaming. The axial code "Rewards for Content/Communication" provides evidence that gifting allows live streamers to directly monetize their streaming content and interactions with their audiences. Then, the strong desires

of streamers for the gifting aspect of live streaming underpin a rapidly expanding industry over the past decade, where an increasing number of individuals are seeking to earn their livelihood by acting as streamers (Lu et al., 2018). "In it for Money" and "Job on the Site" explain streamers' strong demands and the business nature of live streaming. Overall, this business model provides a great opportunity for streamers who leverage their social skills and expertise to deliver content.

Previous live streaming research has examined the various motivations driving the monetization process. The motivations can be categorized into three aspects: paying for selective content, rewarding favored streamers, or expressing positive emotions (Lu et al., 2018). Therefore, live streaming consumption goes beyond just paying for digital content, as it includes a high degree of interaction/communication among audiences and streamers. Marketing research has examined that affiliation is one of the fundamental human needs that individuals may seek to address through consumption activities (Lu et al., 2018). Overall, the affiliation-driven process reflects the experiential and emotional values of gifting in the live streaming environment (Aw & Labrecque, 2020).

THEORETICAL IMPLICATIONS

The recursive analysis process has generated three theoretical codes, which offer valuable insights and meaning that guide the implications of this qualitative research. The analysis results demonstrate that the emergence of live streaming, allowing the co-creation of customized content with others for profit and fame, presents a promising model for consideration by individual online users. Returning to the research question of the differences between the traditional social media landscape and live streaming, the answer can potentially be found through the combination of the three theoretical codes. As shown in Figure 2, live streaming effectively redirects the attention of online users from message content to communication professionals, which is known as the source effect. The concept of source effect refers to the influence that the source of the message has on the persuasion of a target audience (Kang & Sundar, 2016). Even though the source effect is present in traditional social media, live streaming takes it to an unprecedented extreme level.

Building on the technological foundation of Web 2.0, social media platforms enable the creation and sharing of user-generated content (Daugherty et al., 2008). Social media technologies have changed communication by providing a greater number of sources of information than ever before, particularly from individual online users (Daugherty et al., 2008). This has led to a diverse and inclusive environment for sharing information. Individuals generally possess limited cognitive capacity to process all the information available on social media (Fischer et al., 2005). Within the limited capacity model, they also follow the "principle of least effort" to find the optimal balance between cognitive effort and expected outcome (Fischer et al., 2005). In social media, individuals experiencing cognitive

burdens frequently seek out direct recommendations from their social networks, specifically from like-minded online channels or individuals (Turcotte et al., 2015). In this seeking process, online leadership roles such as online influencers emerge through interactions among members of the online community (Johnson et al., 2015). A large body of research demonstrates that the formation of parasocial relationships, which involve developing a false sense of friendship, plays a crucial role in the success of influencer marketing (Aw & Labrecque, 2020). However, as mentioned earlier, the mass interpersonal communication framework of live streaming significantly intensifies the level of interactions among streamers and their audiences to an extraordinary extent. Streamers actively strive to establish real and enduring friendships with their audience, thereby attracting the audience not just to the content they provide, but also to their own personal presence. Hence, live streaming takes the source effect of streamers to the extreme.

Content customization can also give rise to the source effect of live streaming. Customization is conceptualized as the matching process between the received messages and some aspect of the viewing "self" (Lee et al., 2015). Customization allows individuals to inform the other parts of the communication of their interests, thereby perceiving themselves as the ones who dictate the information delivery process (Lee et al., 2015). Research has shown that customization allows individuals to perceive themselves as the source of information by triggering the sense of "self-as-source" (Kang & Sundar, 2016). As a result, customization creates a greater sense of control, relevance, and involvement in the tailoring process, leading to the development of positive attitudes toward and perceptions of the delivered content (Lee et al., 2015). In addition, it has been examined that individuals who experience a strong sense of "self-as-source" tend to process message content less systematically (Kang & Sundar, 2016). Instead, they are more likely to rely on heuristic processing, such as directly evaluating the content based on information sources (Kang & Sundar, 2016), referred to as the source effect. In the context of live streaming, the co-creation of streaming content is likely to create a sense of "self-as-source" among audiences. When audience members perceive themselves as a part of information sources, they are more likely to direct their attention toward the sources rather than solely on the streaming content itself.

When audiences can gift the streamer directly for their communication and interactions, the consumption process transitions from material consumption to experiential consumption. Experiential consumption is defined as "spending money with the primary intention of acquiring a life experience – an event or series of events that you personally encounter or live through (Van Boven & Gilovich, 2003, p. 1194)". For decades, researchers have supported the idea of an experiential advantage, suggesting that consumers yield more happiness from purchasing experiences compared to material possessions (Van Boven & Gilovich, 2003). A recent meta-analysis (Weingarten & Goodman, 2021) found significant positive effects of experiential consumption on various psychological need states, including autonomy, self-esteem, and relatedness. Relatedness is defined as the

need for meaningful conversations or spending time with others to experience stronger positive emotions (Weingarten & Goodman, 2021). Several researchers have examined the influence of the need for relatedness on experiential gifting behaviors as well. Experiential gifting is preferred when the sender and receiver have stronger social connections, in turn, it also contributes to further strengthening their social bonds (Weingarten & Goodman, 2021). For live streaming, gifting behaviors are significantly influenced by the interactions between streamers and their audience. One of the monetization strategies for live streamers is to cultivate an enduring friendship with their audience, aiming to fulfill their audience's needs for relatedness. When the relationship between the streamer and their audience is sufficiently strong, the audience tends to prioritize their social connections over the streaming content for their gifting behaviors.

In summary, the combination of the three theoretical codes highlights the essence of live streaming: the streamers themselves hold a significantly stronger influence on the persuasion of their target audience compared to the content they produce. This phenomenon can be explained by a mass interpersonal communication model, which establishes closer social connections; the co-creation process, which offers customized content; and the monetization strategy, which caters to the audience's needs for relatedness.

DISCUSSION AND FUTURE RESEARCH

Live streaming involves the broadcasting of an individual's personal life events, experiences, practical skills, and beliefs to a large audience who share a common interest in the topic. This process leverages the cumulative capabilities of online social media, facilitating personalized interactions between streamers and their audiences to an extreme level. Audience members can actively participate in the content co-creation process, which can alleviate content production duties for the streamers and increase audiences' interest in the jointly created outcome. Moreover, audience members can express their support and appreciation by sending electronic gifts to their favored streamers, making live streaming a compelling career option for many individuals in the online community.

In contrast to existing live streaming research, this study discourages researchers from simply considering the interactions between streamers and their audience as a false sense of friendship, as commonly defined in the literature as parasocial relationships (Lim et al., 2020). The streamers' monetization strategies rely heavily on establishing a strong relationship or as they called it "friendships" with their audience. For future studies, it is recommended to conduct similar qualitative studies to explore audience members' perceptions regarding the relationships between themselves and their favorite streamers. It is important to redesign the conceptual framework for live streaming, with a specific emphasis on the engagements between steamers and their audiences.

In addition to reevaluating the conceptual foundations of live streaming research, exploring the dark side of live streaming is an essential and worthwhile research direction. Although direct gift-giving can be seen as a great way for audiences to express appreciation and develop stronger affiliative bonds with their favorite streamers, it's crucial to recognize that gifting behaviors may not always be fully appreciated by the streamers. As previously discussed, streamers' primary concern often revolves around making profits, and the strong affiliative bonds could potentially introduce a sense of burden for the streamers. On the other hand, the conflicting nature of live streaming interactions can have serious impacts on the audiences as well. The notion of buying someone's friendship, which can be implied by direct gift-giving, goes against the traditional value of forming relationships. This disconnection between establishing strong connections and the act of gifting may lead to feelings of over control, a fear of losing control, or even mental health issues among the audience. Studying the potential psychological impacts of these conflicts is essential for the overall well-being of both audiences and streamers.

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LEADERSHIP THEORIES AND STYLES UNDERSTOOD AND SYNTHESIZED

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ABSTRACT
College and university courses are awash with numerous theories of what constitutes effective and meaningful leadership theories, traits, and qualities. The approaches to leadership are as plentiful as those presented by who have held key positions in the several economic sectors. Many of the approaches to understanding what leadership concepts and ideas are transferable, lack empirical validation. In fact, they are filled with normative, value-based assumptions, and personal judgments of what works and what doesn't. There are many dictums that fit this orientation, such as "Most organizations are overly managed, but under led," and call for the development of workable leadership styles. This paper examines many competing and complimentary theories of both leadership and management, whether transactional or transformative, and the accompanying attributes of communication styles, integrity, emotional intelligence (EI), trustworthiness, and mindfulness, together with concepts of change, adaptability, and the formal mathematical model of complexity leadership theory (randomness). There may be reason to use the cognitive science of "indexing" associated with systematic case study analysis and methodology in learning the theory and practice of leadership in a dynamic society.

Key Words: Leadership, management, vision, process

INTRODUCTION

Leadership! How does it relate to management education? Is leadership distinct from management or are they joint enterprises? The leadership literature tends to treat these as distinct, autonomous concepts. At the same time, practitioners often refer to leadership and management interchangeably. If Warren Bennis' frequently quoted admonition that "…managers are people who do things right and leaders are people who do the right thing," (Drucker,1959; Cellis, 2020) is correct then, regardless of whether these are independent or interconnected concepts,

organizations need individuals in key positions who can do both leadership and management effectively and synchronously.

Yet what does this entail? As we prepare people for 2lst Century public, private and plural (nonprofit) organizations, are both leadership and management capacities being emphasized? If these concepts are inextricably connected, then one of them should not be given greater attention at the expense of the other. In their own spheres, what are the key leadership concepts need to be understood and practiced by managers? Jointly, how should they be connected and balanced? In brief, are we training people to manage, or are we facilitating the development of people who have successfully integrated the capabilities and skills to both lead and manage?

THE SEARCH FOR UNDERSTANDING LEADERSHIP

Leadership has been a subject of study for some considerable time. In their search for understand, scholars have examined leadership from varied perspectives. Approaches to the study of leadership have ranged from individual leader traits, behaviors and styles (Bass, 1990; Jago, 1982), to adaptive leadership that is contingent on situational circumstances and the interactive effects of leader and follower exchanges (Schriesheim et al., 2001; Yang et al., 2020). Additionally, leadership studies have examined how individual characteristics such as gender affect the leadership experience (Christman & McClellan, 2008). Within his volume *Leadership*, Peter Northhouse (2019) reviews these areas of study. He includes a chapter that discusses the trait approach, skills approach, behavioral approach, and situational approach. He also has chapters covering path-goal theory and leader-member exchange theory. His remaining chapters are on transformational leadership, authentic leadership, servant leadership, adaptive leadership, followership, leadership ethics, team leadership, gender and leadership, and culture and leadership. All of these chapters and their contents offer views, ideas, and some structure for thinking. They do not, however, conclude with a comprehensive theory or integrative model of leadership. Indeed, the research from these varied perspectives has not resulted in a single unifying theory of leadership. The studies have not provided a clear outline of what constitutes a "successful leader." Regardless, research findings offer insights into the capabilities and skills associated with successful leadership. Thus, there are lessons to be gained from these approaches. The theoretical perspectives on leadership serve as lenses through which leadership can be examined and useful practices can be learned. This book provides a collection of cases upon which varied lens can be applied in order to better understand the practice of leadership.

According to Warren Bennis, leadership involves "the capacity to translate vision into reality" (Bennis, 2009; Weinfurter, 2013). We believe that leaders are somehow supposed to "make something" happen. Yet how does this take place? What techniques should be implemented in order the "make things happen" most effectively? This is a central issue that leadership theories try to address.

Traditionally, many leaders have thought of themselves as the makers and causers of action. Many followers, in turn, have thought of leaders as causal agents who can be credited or blamed for resulting consequences. In formal leadership roles in which power is based on title and rank, making something happen frequently involves issuing directives through tools such as memos or group speeches. James McGregor Burns characterized this kind of leadership as one built on a "structure of action" (Burns, 2011). An unfortunate byproduct of this kind of top-down leadership can be authoritarian command and control, and tyranny. While this approach may result in compliance, we know that compliance does not imply follower initiative or motivation. Indeed, the employees of 21st century work settings likely find the traditional "I am in charge" style off-putting, at best. The modern technology savvy, educated, multicultural and multi-ethnic workforce will not respond well to this traditional approach to leadership. Furthermore, current organizations operate in complex environments. A leader is but one person, and no single person can know everything necessary for the success of 21st century organizations. As the popular adage referenced by Stephen Hawking states, "The greatest enemy of knowledge is… the illusion of knowledge." Organizations operating in complex circumstances cannot be effectively led by individuals who think they have all the answers.

In examining leadership styles, James Burns offers readers a two-category conceptualization: transformational and transactional. Transactional leadership consists of exchanges with followers. It uses organized actions for rewarding or punishing followers based on their effort and compliance levels (Burns, 2011). As shown by Bass (1996), application of transactional leadership has limited long-term valence. In contrast, transformational leadership occurs when leaders and followers collaborate, work together, and develop a shared common purpose. Transformational leadership empowers followers. Recent research shows that, across genders and cultures, the concept of transformational leadership, with its consequent empowerment of followers, is associated with successful leadership (Clapham, 2021; Clapham & Meyer, 2022).

One approach for empowering followers is to embrace the role of servant leader, a term popularized by Robert Greenleaf (1970). This approach emphasizes the fact that leadership activities are not intended to be directly self-serving. Rather, the purpose of leaders' work is to support the enterprises they serve. To this end, a servant leader engages employees or followers in goal setting and decision making processes, and encourages them to take actions that meet organizational needs through responsible, value driven approaches. Setiawan and colleagues (2020) go so far as to assert that servant leaders place others' relevance and importance above their own. Moynihan, Pandey, and Wright (2012) affirm that leadership is indirect to organization behavior. Perhaps, one of the most important effects of servant leadership may be to regenerate employee motivation. Justin Badger (2019) writes that even in extremely stressful work environments servant leaders can generate employee resilience. While resilience and motivation are not synonymous

concepts, Barbara Resnick and colleagues (2018) indicate that people who are motivated and people who have resilience display behavioral similarities.

Zachary Oberfield put transactional and transformational leadership to the test. He researched U.S. Federal Government agencies across seven years during the 21st century (Oberfield, 2014). He found common patterns of outcomes across all the agencies. Importantly, transformational "improvements in leadership were associated with follower cooperation, satisfaction, and perceptions of work quality (p. 423-424)." He also notes that once leaders were recognized as "transformational," the perception and its effects tended to persist. Oberfield recommends that leaders who lean toward transactional styles should, following a brief transactional introductory period, work toward satisfying employee "higher order" needs using a transformational approach (p. 426).

But what characteristics or behaviors are required for involving employees in this approach to leadership? Open communication is key. Leaders must have the skill and knowledge to engage in discussions of needs and values. It is possible that participants, whether they be described as followers, team members, or collaborative partners, may feel somewhat bewildered when hearing a leader using terms like "shared values" or "higher order needs." To facilitate engagement in these discussions, leaders should first consider the situational context. One key contextual factor to consider is the number of change efforts that employees may have experienced in the past and the consequences of these change efforts. It is likely that some prior change efforts did not "take." It is also possible that leadership signaled desire for changes with no follow through. This may have resulted in employee skepticism toward leadership. Moving toward transformational leadership requires demonstrating that meaningful conversations result in planning and execution of change efforts. With consistency and time, employees can begin to develop an understanding of what transformational leadership means, who engages in such leadership, and when leaders can emerge from within. There is a point when they will be comfortable operating under transformational leadership, but the time this change takes should not be underestimated. Leaders should remain long enough for change efforts to solidify, and transformational leadership to become embedded.

An important leader characteristic for success of this process is integrity. Characterized by honesty and trustworthiness, integrity informs a leader's actions and behaviors. Integrity influences decision making. This trait, combined with open communication, results in perceptions of authenticity. A leader must be true to him or herself and be open to sharing in order to appear authentic to followers. Indeed, the style of leadership must be genuine (Avolio & Gardner, 2005). Trying too hard to be the leader will likely result in alienation of members of the group, team, or organization.

Another important characteristic of leaders is emotional intelligence. Emotional intelligence involves understanding the emotions of oneself and others, and appropriately managing one's own emotions. Naturally, understanding and managing emotions is not easy. It requires both reflection and empathy. Reflection entails taking the time to think deeply on an issue. Empathy is described as understanding the experiences of others by imagining oneself in similar circumstances (Bergethon & Davis, 2018). Fortunately, there are skills that can be learned to improve application of emotional intelligence (McEnrue et al, 2009). Emotional intelligence together with integrity and open communication engender trust in a leader among followers and employees (Lumpkin & Achen, 2018).

Christopher Johns (2016) indicates that transformational leadership requires nurturing a relationship built on trust. Without trust, true collaboration cannot be created. Collaboration is empowering because it allows room for leadership to emerge from within a group, team, or organization. Thus, leadership does not need to arise from a formal titled position. A collaborative team can develop organically to produce a kind of bonding which, once firmly in place, results in shared goals and the motivation to pursue these goals. Effort can then be directed toward a common purpose, resulting in greater achievement. Under these circumstances, creativity and innovation can grow exponentially. People working in these environments feel they are given room to grow, and become more satisfied at work and with life in general. Transformational leaders create synergies of energy according to Johns.

Johns is not alone in his thinking about leadership. In her book *Dare to Lead*, Brene` Brown (2018) writes that building the transformational foundation as described by Johns, while not easy, generates results. The transformational leader, termed by Brown "the brave leader," must do "unlearning." He or she must "practice and fail" and survive the "misses." Such "unlearning" is also required of those being transformed from followers to collaborators. Bill Nye, The Science Guy says in his book *Everything All at Once* (2017), that all design processes for products, services, programs, television shows, and all manner of activities, such as leadership involve starts and stops, trials and failures, before getting "it right." No activity or leadership work can be perfect the first time through. Initial failures with the intention of generating leadership change should be seen as "bumps in the road," not roadblocks to moving toward improved collaborative leadership. Once started, change activities must continue to move forward. Early stages of relearning are foundational and cannot be allowed to erode. Stopping and starting over is like being on a long cross-country run, stopping, and starting again. It is much harder to begin again!

Change generates discomfort! Therefore, trying to move a group, team, or organization beyond its current state is likely to produce resistance. Because resistance can undermine the change process, readiness for change is as important to success as the change itself. There will be those who want to move quickly

toward change but doing so before all is in place will create some tension. It is crucial to take the time to instill belief in the benefits of moving toward change at the beginning of the process. This requires engendering trust through authenticity, open communication, and empathy. Moving without a proper foundation for change may comprise the trust in the leader. Leadership will take root only with patience and perseverance. There is no shortcut for leadership. Positive efforts toward change can produce, in Bill Nye The Science Guy's words, "amazing results." (2017)

Christopher Johns (2016) describes the importance of mindfulness in facilitating a leader moving from transactional activities to transformational leadership. Johns indicates that mindfulness involves being "far more self-reflective than normal." (pp. 1-3). He points out that mindfulness begins with "paying attention to NOW." (p. 162) According to Johns, being truly present in the moment is a beginning, not an end. Mindfulness is also about the past and the future. The past provides context. The future provides direction. Johns states that leadership is "purposeful" in that a leader provides a vision of the future can be realized. Actions of the leader are drivers of that vision. Being mindful of the present is necessary for successfully directing actions toward a future vision.

Sound leadership is also informed by formal and informal study. Continued "stretching and learning" is important as transformation unfolds. Good leaders believe that there is always more to be learned, and they seek to know more. Good leaders are frequently voracious readers (Williams, 2015). Many leaders, such as Barack Obama and Teddy Roosevelt read history (p. 2015). Other leaders read weekly news magazines. Some leaders are members of professional organizations and follow materials in professional publications such as *Governing*. A good example of the benefits of professional associations comes from the profession of Public Administration (PA). Leaders can read the *Public Administration Review* (PAR) for specialized research. The American Society for Public Administration (ASPA) sends members the *PA Times* which contains policy and articles for working as leaders who manage public administration programs. Another value of the ASPA is that its members come from varied backgrounds, from police officers to academics to social workers, and thus encompass diverse perspectives. The ASPA also gives a leadership award at its annual conference.

It is clear from this discussion that theories of leadership are complex and multidimensional. According to Luis Curral and colleagues (2016) leadership is best viewed as a complex process that is not linear and at the same time is emergent. It is a collective, developing, and evolving process. This view fits with Robert Kasier and Darren Overfield's definition of leadership as "an evolved solution to an adaptive problem of collective effort" (Kaiser & Overfield, 2010, p.166). The statement presents a challenge to all of us who seek to learn about, study, and teach leadership or train others in leadership. Through their concept of "leadership value chain," Kaiser and Overfield bring attention to variables which

show how leaders make a difference. They provide a graph illustrating the elements of the leadership value chain. These include five elements, or variables, each with sub-variables: leadership characteristics, leadership style, unit processes, unit results, and organizational effectiveness. They proclaim their value chain elements may form "the ultimate measure of value of leadership" (p. 177). They clarify that context is vital to the value chain, since no two environments are the same. In other words, the value chain is dependent on the situational factors that vary across organizations. The value chain brings elements from many perspectives on leadership. This makes it a useful supplement to the leadership field. They disavow the model as a dynamic theory providing explanatory power. Rather, they see it as a practical tool, and suggest a series of potential applications such leader selection and succession planning, leadership development, performance appraisal, compensation decisions, and organizational development work.

Consideration of context is important. Curral and colleagues (2016) argue that an important feature of context is randomness. Consideration of randomness and its challenges is central to complexity leadership theory. Complexity leadership theory seeks to understand the interactive forces at work as modern organizations try to adapt to changing contextual factors. The theory focuses on what it considers to be the most important adaptive organizational features in the face of changing environments: individuals and teams inside and outside of the organization. In order to understand adaptation amid randomness, Curral et al. (2016) draw on evolutionary game applications. In evolutionary games, the individuals and groups change as the environment changes. According to complexity theory, from which complexity leadership theory emerged, complexity is composed of the networks of interactions within and among the elements of organizations. Complex systems must adapt to changing circumstances and changing "players" in the same way organizations must adapt. Complexity leadership theory views leadership as an interaction among individuals which can create leaders who emerge from within the context of the organizational structure, its production processes, standards of behavior, and grouping arrangements of personnel. Randomness, according to complexity leadership theory, prevents a "single isolated agent" from making any more than a "trivial" contribution to the organization's operational efficiency. The practical consequence of this kind of complexity compounded by randomness is a decoupling of centralized power among "a minority of individuals" and increased communication and sharing of information across the entire organizational structure. In sum, then, complexity leadership theory is the formal, mathematical model of leadership approaches reviewed here.

PROJECTING LEADERSHIP THEORIES TO LEARNING

Case Analysis is an approach allowing students, instructors, and observers of management to learn from an "experience." The experience is found in the case. The case approach creates an analogy that can be transferred to other learning or

practice contexts. Case analysis is lens of sorts that can stimulate evaluations of problem situations and examination of possible solutions. This approach has been applied to artificial intelligence development. Cases and their reasoning are incorporated into memory storage and can then be used as a basis from which to draw solutions when similar situations arise. This approach, when applied carefully, can be a valuable learning experience for practitioners and students in public administration and management.

Case analysis memory storage can best be developed through the use of a template or outline that is conceptually place "over" the information provided in a case. In the language of cognitive science this process is known as "indexing" to categorize the case, the case problem, and the case solution (See for example Hmelo et al, 2000). Using the indexing approach, lessons can be learned and retrieved. In this way, learning can occur at a tactical level. Lessons learned in this manner can be extrapolated to similar cases based on the indexing or template or outline used.

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WHO IS STEALING OUR TRADE SECRETS?

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ABSTRACT

Espionage (also known as corporate, industrial, or economic espionage, and more recently, cyber espionage) is stealing trade secrets from an organization or government entity for personal gain or a benefit to a country. Espionage was historically linked to military or homeland security defenses or high-tech industries, but has evolved to threaten products, procedures, and even ideas for any industry, large or small. The amount of capital spent by the United States for research and development is higher than in any country worldwide. It involves efforts and resources for developing unique products or processes to give them an edge in the business world. The adverse effects of stolen trade secrets cause substantial damages. Victims may suffer the following consequences: loss of valuable employees, lost revenue, loss of investments used for research and development, interrupted or halted products, a damaged reputation, or bankruptcy. The objective of this paper is to shed light on the most prevalent thief in the loss of trade secrets in the United States, the People's Republic of China, how those losses impact our economy, and ways we can protect ourselves in the future.

KEYWORDS: Espionage, cyber espionage, intellectual, proprietary

INTRODUCTION

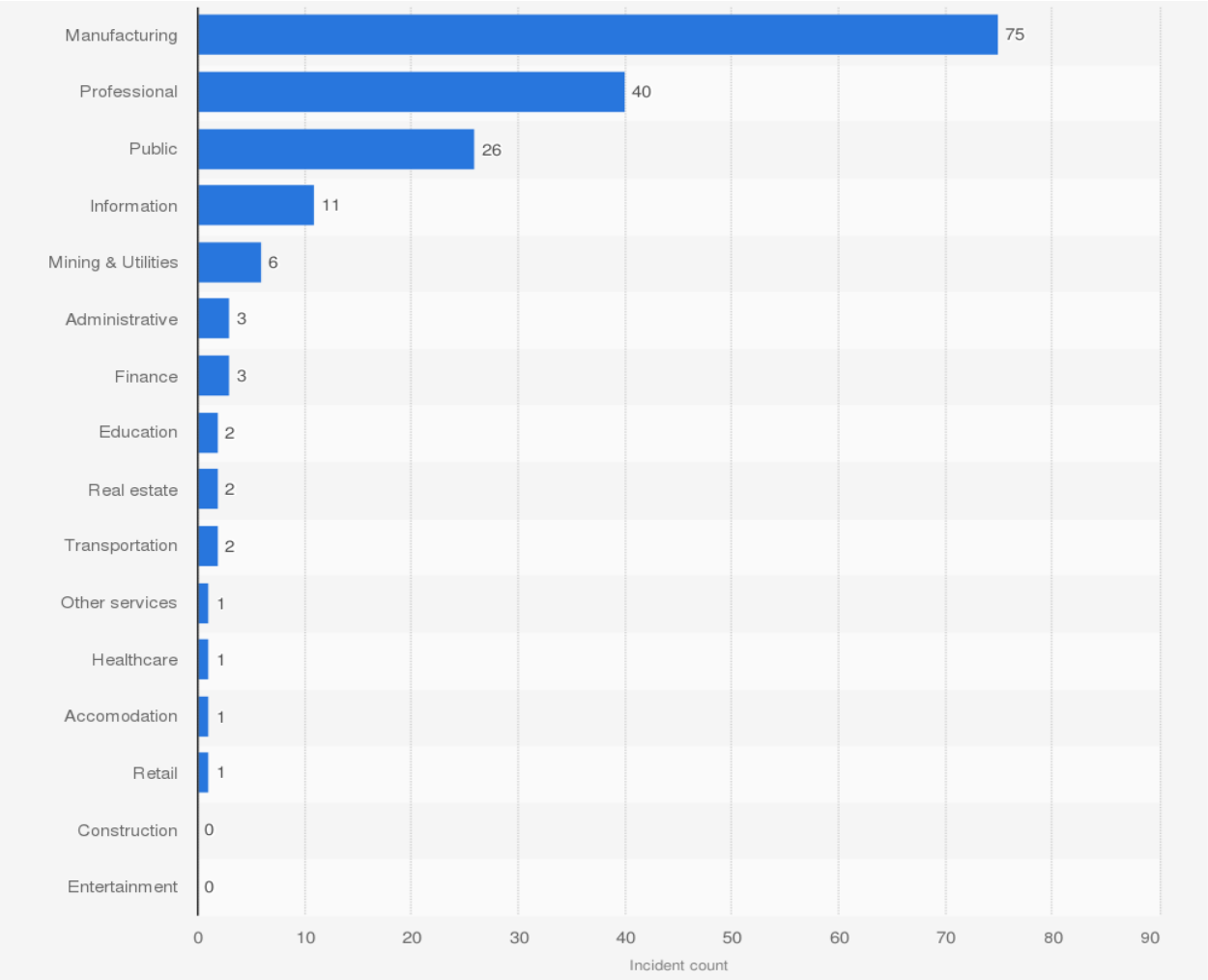
Espionage, or stolen trade secrets, is knowingly stealing or misappropriating sensitive or proprietary information for someone else; usually another country, for economic or military benefit (Economic, 2015). Around the globe, countries and corporations suffer from the effects of hijacked trade secrets, which can be anything from the loss of capital to the loss of employees (Cass, 2013). Which country is the most prevalent in stealing information from the United States? What is the impact the United

States is suffering because of that loss? And, moreover, how does the United States protect information from being stolen?

Stealing information is not new; it goes back to the beginning of time; when someone knows or creates something that would benefit someone else in the competition, it can be the focus of theft. The 5th century B.C. manual on ancient military strategy, *The Art of War,* by Sun Tzu covers espionage in its 13th chapter. The chapter gives instructions for using spies to obtain valuable information and using that information to destroy the enemy (Sunzi, 2018).

Trade secrets include secret information that has some form of value to its owner; keeping those secrets safe is important to remain competitive (Jalil, 2020). Safeguarding proprietary information goes back to the beginning of time; Benjamin Franklin said that three people could keep a secret if two of them are dead. Trade secrets are important to corporations because they allow them a foothold in the competitive market, and when these secrets are stolen, the impact on corporations can be devastating (Cass, 2013). The devastation caused by such stolen proprietary information can involve lost wages, the loss of capital spent on research and development, lost stockholder equity, lost employees, bankruptcy, or a business having to shut down completely (Jalil, 2020).

Espionage, also called corporate, industrial, and economic espionage, uses espionage techniques for commercial, financial, or economic purposes (Fruhlinger, 2018). Espionage uses spies from one government or corporation to obtain information about another government or corporation. It can even be as simple as an insider stealing information for personal gains, such as a disgruntled employee hired by a competitor to use the information to increase their company standing (Jalil, 2020). Cyber-attacks are the most common type of espionage used to steal sensitive or valuable information from an organization; the number one threat against American corporations in cyber threats is China (Hjortdal, 2011). Trade secrets are not the only form of information on the radar of the Chinese government; personal and financial information from United States citizens, is also being stolen through a series of data breaches occurring in the past several years (Chen, 2019). The increased reliance on information technology services makes it easier for spies and hackers to steal information through cyber-attacks (Kahn, 2017). The industry sectors of the United States that are of interest to foreign entities are manufacturing, energy and utilities, biomedical and healthcare, and information technology (The Impact, 2018). The graph below shows the most targeted industries in 2019 from cyber espionage (Verizon, 2019).



Industries Targeted by Espionage in 2019

Some espionage tools include eavesdropping, taking photos in offices and factories, data-mining, stealing computers, surveillance equipment, and dumpster diving. Some may consider some of these tools as the innocent use of competitive intelligence, but ethically, stealing valuable information through one of these avenues and using it for financial or economic gain is both unethical and illegal (Does, 2020).

LITERATURE REVIEW

Carr (2001) provides information from the Federal Bureau of Investigations (FBI), reporting that as far back as 1999, vast amounts of foreign governments were targeting corporations in the United States for their intellectual property, but the most prevalent being the People's Republic of China. It focuses on the victimization that an organization goes through when reporting thefts of trade secrets, and the mounting cases of espionage committed against the United States by China. Sibeck (2010) goes even further in suggesting the largest conspirator against the United States in stealing proprietary information is China. Hjortdal (2011) lays out the use of cyber espionage by the Chinese government to infiltrate corporations in the United States through hacking and insider threats. Poreba (2012) discusses the use of Chinese nationals, sent to the United States as foreign exchange students, stealing proprietary information from universities they attend, and then from the organizations they go to work for after graduation. Tan (2012) reports incidents of unethical practices surrounding American businesses in China, with the focus on an incident that occurred when Google attempted to enter the Chinese market. Brown (2018) suggests that the Chinese government not only steals American trade secrets but invests any way they can in emerging technology to ensure a stronghold in the competitive environment.

Jalil (2020) provides information that links espionage, historically, to military defenses or technical or scientific industries, but recently all industries have become a target for poached proprietary information. Further details are provided for the importance of trade secrets to an organization, losses that can occur from the theft of secrets, and ways to protect proprietary information from theft. The Lexis Nexis Legal Newsroom article, *Does Competitive Intelligence Cross to Espionage* (2020), discusses competitive intelligence and the unethical and illegal ways it can be used. Archer (2014) provides details into trade secrets, their importance for competitive advantage, and how protecting those secrets from being pirated is essential. The article delves further into why secrets are stolen and ways to protect secrets from theft. Suzuki (2015) reports on

the use of patents and trademarks to protect proprietary information and the impact of lost information.

Casler (2015) highlights the age of technology and handheld personal devices that provide easier access for stealing proprietary information from an organization. In *Laws of Creation* (2019), Cass further identifies the prevalence of the loss of trade secrets and the laws and types of protection that support trade secrets. The book is an in-depth analysis of the effects of intellectual property law on trademarks, trade secrets, copyrights, and patents. Chen (2019) reports that trade secrets are not the only information targeted; multiple data breaches in the past several years, orchestrated by the Chinese government, show losses of both personal and financial information of United States citizens.

Bensen (2012) provides insight into the Economic Espionage Act and the Uniform Trade Secret Act put in place to protect trade secrets and assist in litigation efforts for victims of espionage. The article draws attention to the number of increasing cases of espionage against the United States, and the ways that the acts protect against them. A second article from Bensen (2016) delves further into the Economic Espionage Act, highlighting updates to the act due to the recent increase in losses of trade secrets due to misappropriation and the criminal penalties for stealing secrets from an organization. The Lexis Nexis *Confidential Information Overview* (2015) covers laws supporting confidentiality, confidentiality agreements, and practical implications and information to consider when using this type of protection to safeguard trade secrets in an organization. However, Cooter (2012), in *Solomon's Knot: How Law Can End the Poverty of Nations*, brings about an idea that many laws surrounding the protection of information are ineffective and the root cause of poverty in smaller nations and one of the reasons behind espionage. He discusses how an organization can keep what they make and the laws and regulations surrounding holding on to proprietary information. Delgado (2013) also implicates a country's willingness or not to share information, as a risk factor in them becoming a victim of espionage. Kuntz (2013) blames the ineffectiveness of the Economic Espionage Act on the increasing cases of corporate espionage in the United States, stating that there have not been enough convictions and the laws do not deter thefts. According to Kim (2018), there have also been issues with the Espionage Act failing to protect innocent citizens that were falsely accused of espionage, showing that mistakes can be made across the board when policies are not effective.

CASES OF STOLEN TRADE SECRETS

Espionage has negatively impacted the United States since its inception, but there has been a drastic increase in the past ten years. Which country is stealing our secrets? According to the Assistant Attorney General, John Demers, ninety percent of trade secret theft that has occurred in the United States in the past ten years can be traced to China, with their efforts focused on American technology created in the Silicon Valley from companies such as Apple or Intel (Stock, 2019). They invest, any way they can, in emerging technology in order to ensure their foothold in the competitive environment, whether through investment capital or human capital (Brown, 2018).

A Boeing Co. engineer was sentenced to fifteen years in federal prison in February of 2010 for economic espionage benefitting a foreign entity, making false statements to the FBI during questioning, and acting as an agent of China. Dongfan Chung was allegedly a Chinese agent for over three decades while employed with Rockwell International from 1973 to 1996 and Boeing from 1996 to 2010. The stolen secrets included information for the Space Shuttle program, the B-1 Bomber, and the Delta IV rocket, and the case resulted from the previous investigation into Chi Mak. Later reports show that espionage continues, and the "price tag" of its citizens is one that China can afford (Former, 2010).

In 2011 Kexue Huang, a Dow Chemical employee, allegedly stole trade secrets for Dow AgroSciences, LLC's insecticide, Spinosad, while employed between 2003 to 2008. After that, during his employment with Cargill, Inc. in 2008 as a biotechnologist, he stole information on the enzyme DNA sequence. Huang was charged with stealing trade secrets and economic espionage committed for the benefit of the Chinese government. He was sentenced to seven years in federal prison, and then three years of supervision following completion of his sentence (Chinese, 2011).

In 2013, the Chinese wind-turbine maker, Sinovel Wind Group Co. Ltd., was indicted for taking proprietary files and specifications related to wind turbine technology from American Superconductor Corp. The charges alleged that Sinovel provided money to a disgruntled American Superconductor employee in exchange for the code. The theft cost American Superconductor Corp. more than $1 million in monetary damages, over $1 billion in stock market losses, and led to over seven hundred employee layoffs (Jalil, 2020). Later in 2011, an American Semiconductor employee stationed overseas pled guilty to the theft. Sinovel denied allegations of wrongdoing; however, the Chief Executive Officer of American Semiconductor reported that an estimated twenty

percent of the wind turbine fleet in China was running on American Semiconductors' stolen software. Sinovel was indicted for misappropriated trade secrets, industrial espionage, and wire fraud (Ailworth, 2018).

In March of 2013, an employee of L-3 Communications was sentenced to five years in federal prison for lying to federal agents during interrogation and transporting property that he had taken from his employer. He was also charged with violations that involved the Economic Espionage Act of 1996, the Arms Export Control Act, and the International Traffic in Arms Regulations. While employed at L-3 Communications, Sixing Liu (a.k.a. Steve Liu) removed files about the design specifications and performance of unmanned aerial vehicles, rockets, missiles, rockets, and target locators for the People's Republic of China to promote future employment with their government (Former, 2010).

In May of 2014, five hackers collaborating with the Chinese were charged with economic espionage and computer hacking of several American companies in industries manufacturing solar products, nuclear power, and metals. Thirty-one counts of various espionage-related charges were brought against the conspirators that allegedly stole proprietary information from several United States corporations between 2006 and 2014 to benefit competitors in China. All the defendants were officers in the People's Liberation Army of China and were accused of stealing trade secrets from several corporations in the United States, to include Westinghouse Electric Co., Alcoa, Inc., SolarWorld AG, and three others (U.S., 2014).

Four instances of stolen trade secrets occurred with Dupont in 2014, 2016, and 2018. In 2014 Robert Maegerle, a Dupont Engineer, sold trade secrets to a Chinese firm. The secrets included information related to the company's titanium dioxide production process. In 2016, Anchi Hou downloaded over twenty thousand files containing Dupont's proprietary information on flexographic printing plate technology. A civil complaint was filed against Hou after he visited printing firms in Taiwan, allegedly planning to sell them Dupont's secrets, and the FBI arrested him shortly after attempting to leave the United States (Reisch, 2017). Then again, in 2014, Dupont Pioneer discovered men crawling around in their cornfields; Chinese citizen Mo Hailong was arrested for corn kernel theft, sentencing him to ten years in prison and then immediate deportation. The conspiracy involved corn stolen from both Monsanto and Dupont Pioneer and then shipping corn to China to replicate its genetic properties. Hailong worked for the People's Republic of China, and the genetic information was allegedly taken to improve the genetic makeup of corn produced by the Beijing Dabeinong Technology Group and Kings Nower Seed (Zorthian,

2016). In 2018, Dupont was the target of economic espionage by the Chinese government, this time for decades long development of the powder used to create the color white, Titanium Dioxide. The secret process, worth billions of dollars in annual revenue, made up twenty-nine percent of the supply of the color white used worldwide. Walter Liew led the conspiracy to steal secrets and provide intelligence to China; he is currently in prison (Stock, 2019).

In May of 2015 Hao Zhang, a Tianjin University professor, was arrested for acquiring proprietary information from the university where he worked to provide to the Chinese government; he was charged with economic espionage. Six defendants were included in the conspiracy (Hao Zhang, Wei Pang, Jinping Chen, Huisui Zhang, Chong Zhou, and Zhao Gang) to steal information while earning a doctorate at the university. The defendants obtained the proprietary information while working on a project for the Defense Advanced Research Projects Agency (DARPA) researching film bulk acoustic resonator (FBAR) technology. The conspirators accepted positions with the owners of the technology, Avago Technologies and Skyworks Solutions Inc., where they stole source code, recipes, specifications, and designs and provided them to China. The formal accusation included conspiracy and espionage charges for the theft of trade secrets (Chinese, 2015).

A Chinese businessperson was sentenced to four years in federal prison in 2016 for his involvement in a conspiracy to send classified military information to the People's Republic of China. Su Bin accessed computer systems of several major United States defense contractors and allegedly conspired to send the information he acquired to China. The stolen sensitive information included designs and specifications for fighter jets and the C-17 strategic transport aircraft produced for the United States military (Chinese, 2016).

In July of 2018, Apple engineer Xiaolang Zhang accessed Apple's autonomous car research, uploaded the information using AirDrop to his personal computer, and then supplied the research to a Chinese start-up, Xiaopang Motors, which was also developing the technology. Zhang allegedly downloaded the engineering information, schematics, reports, and blueprints for the autonomous car but was arrested while attempting to board a flight to China. He was sentenced to ten years in prison plus fined $250,000 for his crimes (Chui, 2018). Jizhong Chen attempted to steal the same technology six months later, but he was caught taking photographs in sensitive areas of the company. Thousands of files and hundreds of photographs were discovered on his personal device before he left for China (Atkins, 2019). Another Apple employee was arrested on espionage

charges in early 2019 when the augmented-reality firm, Magic Leap Inc., sued a former employee for stealing designs to start a rival company, also in China. (Somerville, 2019).

In August of 2018, a verdict was rendered in favor of Lumileds LLC, a San Jose based LED company, against a Chinese competitor, Elec-Tech International Co., Ltd., finding them responsible for damages of sixty-six million dollars for intellectual property theft to recoup lost research and development costs. The charges alleged that two Elec-Tech employees, Donglei Wang, and Gangyi Chen, stole Lumiled's trade secrets and sent them to China to develop Elec-Tech's light-emitting diode (LED) technology (Lucido, 2018).

In November of 2018, two Chinese companies, Fujian Jinhua Integrated Circuit and the United Microelectronics Corporation, along with three Chinese nationals, were charged with conspiracy for poaching computer memory chip technology from Micron Technology. The Justice Department reported that a former employee of Micron Technology, working for the People's Republic of China, recruited two former colleagues to steal over eight billion dollars in trade secrets related to the company's dynamic random-access memory (DRAM) and then partnered with Fujian Jinhua Integrated Circuit. According to Attorney General Jeff Sessions, espionage committed China against the United States is increasing rapidly (Rappeport, 2018).

Another formal accusation, close on the heels of Micron, involves two Chinese intelligence officers and five computer hackers who attempted to access the computer systems of several United States corporations to steal aerospace technology. "No country presents a broader, more severe threat to our ideas, our innovation, and our economic security than China," stated the FBI Director, Christopher A. Wray. "The Chinese government is determined to acquire American technology and they're willing to use a variety of means to do that – from foreign investments, corporate acquisitions and cyber-intrusions to obtaining the services of current or former company employees to get inside information." (Rappeport, 2018)

In August of 2019, United States prosecutors added additional instances of alleged theft to previous allegations of espionage by Huawei Technologies Co., a Chinese telecommunications giant, examining the accusations of theft from multiple companies over several years and the act of recruiting employees from their competitors to assist in the theft of proprietary information through bonuses. The new inquiries overlap with findings from May of 2019 - allegations of stolen intellectual property throughout Huawei's history. The reports alleged stolen technology related to the smartphone camera developed by Rui Oliveira, a Portuguese

multimedia producer, as well as theft of trade secrets related to smartphone-testing technology from 2012 to 2013 from T-Mobile US Inc.; however, Huawei maintains its innocence of the allegations (Strumpf 2019).

In January of this year, three incidents occurred with Chinese citizens attempting to provide American intelligence to the Chinese government. All three were unrelated, but all had to do with types of research conducted by United States entities. First, the FBI arrested Charles Leiber, the Harvard University chair of the chemistry department, as well as an expert in nanotechnology, for lying about his work for the Wuhan Institute of Technology, a Chinese university, from 2012 to 2017. The Thousand Talents Plan, a program to attract experts and academics to work in China, allegedly signed a contract with Lieber. During the time he worked for them, Lieber allegedly made $50,000 a month and was provided with a living allowance and grant money (Barrett, 2020).

In a second, separate incident occurring in the same time, Yanqing Ye, a Boston University student, was charged with failing to disclose her Lieutenant status with China's People's Liberation Army on her visa application. They concluded she was working with China by conducting tasks for her military superiors. She allegedly assessed websites belonging to the United States military, then conducted research and sent sensitive documents and information back to China. Ye was charged with being an agent with a foreign government, falsifying statements and documents, and fraud. After being charged, she was deported to China (Barrett, 2020). This incident promotes the idea of China using foreign exchange students to infiltrate Unites States universities and organizations to steal trade secrets (Poreba, 2012).

In the third incident, a Chinese citizen performing cancer research at Beth Israel Deaconess Medical Center in Boston, Zaosong Zheng, was accused of trying to smuggle biological research to China. He was caught at the airport attempting to bring twenty-one vials of material hidden in his socks, where he admitted that the vials would have been used for research in China. According to the FBI, the activity shows that China has aspired for years, plotting to enhance their competitive edge in the global market through the theft of American intellectual property (Barrett, 2020).

These three incidents, all happening in the same frame of time, show there is not a decrease in China's attempts to obtain American trade secrets, but an increase. The increase in attempts to steal proprietary information shows us that we need to be vigilant in our protection of proprietary information to safeguard our economy from the devastation caused by the loss of this information. Despite the successes shown in the cases mentioned, the loss of trade secrets and intellectual property by American

businesses to foreign spies is increasing drastically. United States District Court records show trade secret theft and economic espionage has increased forty-five percent in the past five years (Stock, 2019).

Even companies attempting to enter the competitive Chinese market come under attack; in 2010, Google attempted to provide their search engine services for entrance into the Chinese market but had to withdraw after being cyber-attacked by the Chinese government. Google reported online security attacks, hacking, and surveillance by the Chinese government in a censorship attempt to limit free speech (Tan, 2012).

China has one of the largest economies worldwide, despite their widespread lack of technology. Their main focus is on bringing modern technology into the country to improve their economic and market positions in the global economy (Sibeck, 2010). They have had rapid economic growth, a surge in information technology industries, and an extreme increase in internet users in the past ten years (Tan, 2012). Espionage has always been important to China to improve its military and economy, but the focus is now more on corporate espionage to improve its global market. They rely on foreign exchange students studying in United States universities, encouraging them to stay and work after graduation (Poreba, 2012). The Chinese government also sends Chinese nationals to American cities, to travel or live, in order to obtain trade secrets and sensitive information (Sibeck, 2010).

While not all the cases of stolen proprietary information in the last ten years from American companies occurred from China, the highest percentage of all the reported and tried cases were from agents acting on behalf of the Chinese government or Chinese corporations.

WHY ARE TRADE SECRETS BEING STOLEN?

Copyrights, patents, property laws, and tools are meant to protect trade secrets; however, these laws and tools may differ in foreign countries where the majority of the losses are occurring. Sometimes the laws meant to protect, may actually hinder, and increase the risk of a company or country experiencing espionage from other companies or countries (Cooter, 2012). It is the opinion of some economists that sharing knowledge with countries that may not have it, usually smaller countries that are not completely developed, would prevent many cases of espionage (Delgado, 2013). But many still hold the opinion that the most prevalent issue of trade secret loss occurs from the Chinese government, against an organization or country where they feel they need and can obtain a competitive advantage through theft (Poreba, 2012).

IMPACTS OF STOLEN TRADE SECRETS

Espionage and the loss of proprietary information cost the United States close to six hundred billion dollars, according to a 2017 report to Congress (Stock, 2019). Analysis by the British security company, G4S, estimates global espionage to have a price tag of $1.1 trillion (Atkins, 2019). In response, the United States has imposed taxes on two-hundred and fifty billion dollars in Chinese imports, causing retaliation from China with taxes of one hundred and ten billion dollars on American products. This behavior has caused an upset in global financial markets, weakened the global economy, and threatened the economic security of both nations (Liedtke, 2019).

The most significant economic impact of espionage is the possible threat to the national security of the United States; the United States National Security Agency officials told Congress in January of 2019 that China is the largest threat to the United States, both through commercial and military means (Liedtke, 2019). Other economic impacts of espionage are the negative impact on competitive advantage, loss of exclusive intellectual property, and decreases to market share (Robusto, 2016). As in the case with American Superconductor, the devastation caused by the drastic loss of their trade secrets nearly led to bankruptcy. In other cases, espionage victims may even have to compete against their proprietary technology (Jalil, 2020). Some researchers estimate $300-500 billion and over a million jobs lost every year, but the FBI places the monetary loss more near $13 billion; however, the FBI bases their information on cases where spies were caught and convicted, rather than all cases that were reported or unreported (Robusto, 2016).

Hence, it is noticeably clear that we have a serious issue of trade secrets theft by many actors (including China). Now the question, how do we find ways to protect ourselves in the future?

PREVENTION OF AND PROTECTION FROM STOLEN TRADE SECRETS

The Economic Espionage Act of 1996 deemed espionage a criminal act and provides the legal framework for prosecuting entities stealing a corporation's trade secrets. Even though there have been convictions for stolen proprietary information and economic espionage penalties have increased, the Economic Espionage Act still has limits on its usefulness because of the high rate of espionage cases (Carr, 2001). There have also

been cases where the Espionage Act fails to protect victims of espionage, as well as innocent citizens falsely accused of espionage (Kim, 2018). The issue of corporations not reporting the theft because of their lack of faith in the laws protecting them or the fear of negative stock market effects after reporting the theft are one because of its ineffectiveness (Somerville, 2019).

Due to increases in espionage in recent years, the Justice Department is encouraging companies to report digital crimes, including theft of intellectual property, providing the companies with an ally in the fight against corporate espionage and the theft of trade secrets (Somerville, 2019). Some companies are aggressive and cooperative in fighting intellectual property theft; like with the Lumileds case, the loss was highly publicized and provided a message to other companies not to be silent about the losses of trade secrets and to fight the entities targeting privileged technology (Stock, 2019). Confidentiality agreements are one avenue that an organization can use to legally protect their information from employees, suppliers, and customers. The laws that govern and support the confidentiality of information may be helpful in litigating a loss of trade secrets from an internal source (Confidential, 2015).

Espionage can affect all types of organizations, large or small, and any type of industry can be a target. The likeliest threat actors are internal to the organization, but anyone that can access the information can be a threat (Atkins, 2019). Spies may be disgruntled employees, a supplier that uses their entrance to collect valuable proprietary information, another corporation in competition, a foreign government, or anyone that can access data. These spies are after:

- Protected information about products being developed
- Client data
- Financial information
- Information used to win bids or steal customers or employees
- Marketing information for a quick response to changes or marketing campaigns.

The simplest way to protect trade secrets is through education; if employees are aware of what to look for and how to protect proprietary information, they are more likely to be aware of threats. With the age of electronics and the ease of secrecy provided by personal devices, such as cellular phones, being alert to the risk and protecting information is imperative to the security of a company's assets (Casler, 2015). Some tasks that can be completed to ensure the protection of a company's assets are:

- Auditing of security for access and permissions
- Assessment of physical access to sensitive areas

- Processes for new employees, suppliers, or visitors
- Password protection
- Device blocking; cameras and cellular phones
- Analyses of data use, data storage, data leakage, encryption
- Printer and copier usage
- Restriction of removable media
- Disposal, protection, and sharing of sensitive data
- Badge access
- Security cameras
- Annual training on information protection and social engineering (Jalil, 2020)

In November of 2018, a new plan was announced by the United States Justice Department to combat attacks of economic espionage (Stock, 2019). The FBI launched a nationwide campaign on fighting espionage and raising awareness of the threat of plagiarized trade secrets. Part of the initiative includes a short film that will assist in educating corporations, or anyone else with trade secrets that need protection, about the threat of espionage and ways to mitigate the risks. The film, *The Company Man: Protecting America's Secrets*, provides espionage insight into the threats by highlighting an actual United States corporation that was victimized by a foreign actor. In the film, the business worked with the FBI to resolve the problem and obtain justice (Economic, 2015).

SUMMARY AND CONCLUSION

From the number of reported and documented espionage cases in recent years suggest that the country that is the most involved with stealing trade secrets from the United States is China. Through multiple attempts, some successful and some not, China has cost our country's corporations billions of dollars, upset financial markets around the world, weakened the global economy, and threatened our national security. Internal and external protection of proprietary information and the collaboration of all involved entities to prevent the theft are warranted to decrease espionage threats against United States corporations.

We should also acknowledge this will be an-going challenge that the U.S. government and corporations have to deal with on a regular basis. Hence, it is extremely important that they keep their eyes on the ball all the time.

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TELEHEALTH UTILIZATION TO REDUCE HOSPITAL ADMISSIONS IN HIGH-RISK PATIENT POPULATIONS

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ABSTRACT

With the introduction of the Hospital Readmissions Reduction Program, hospitals have been under pressure to reduce their readmission rates by providing quality post-discharge care and avoiding financial penalties. Although some readmissions are expected and planned, the majority are not, and these additional costs have created a financial strain on the federal government and the hospital systems. Decreasing readmission rates is pivotal to the ever-increasing healthcare costs in the United States and the population's overall health. Readmission rates are highest in Medicare and Medicaid patients, high-risk populations, and low socioeconomic communities due to additional challenges they face once leaving the hospital. One intervention that could decrease these rates is incorporating telehealth in transition care management. Telehealth has shown to be a sustainable and effective method to provide post-discharge care to patients with a higher risk of readmission using different forms of technology. With comprehensive telehealth training, successful remote medical and social guidance can be an option to help reduce admissions in high-risk populations.

Key words: Telehealth, Readmissions, High-Risk Population, Transitional Care Management

INTRODUCTION

The cost of healthcare in the United States has steadily increased, and many programs have been implemented to help decrease the cost without affecting the quality. The Affordable Care Act, in 2012, established the Hospital Readmission Reduction Program (HRRP) to not only improve quality measures but to help decrease the cost of healthcare (Mcllvennan, Eapen & Allen, 2019). A massive initiative in hospitals across the country was to look at the highest readmissions patients and their medical issues and formulate a plan to reduce their readmission.

It was discovered that the highest readmission rates were patients with myocardial infarction, heart failure, pneumonia, chronic obstructive pulmonary disease, coronary artery bypass graft surgery, and elective primary total hip arthroplasty and total knee arthroplasty. High readmission rates reflect poorly on hospital quality and are associated with high financial costs that ultimately cascade down to the patient. Although the reason behind readmissions is multi-factorial, historically, almost 20% of Medicare discharges had readmission within 30 days, and it was estimated that 12% of readmissions were potentially avoidable. Preventing even 10% of these readmissions was a potential Medicare savings of $1 billion (MedPAC 201).

Post-hospitalization is a very vulnerable and unpredictable period for patients, especially those from high-risk and underserved populations. Patients can face an increased risk of adverse events, relapse, falls, and infection, and the risk is pronounced for older adults and patients who do not have a solid support system after discharge. According to the Statistical Brief released in 2021 by the Agency for Healthcare Research and Quality, 3.8 million readmissions occurred across all expected payers in 2018. Of that 3.8 million, 2.3 million (60.3 percent) were Medicare, and 721,300 (19 percent) were Medicaid, with the average readmission cost per patient at $15,200. With over half of the readmissions being over the age of 65, most patients that return to the hospitals fall into the high-risk population. To help improve readmissions and post- hospital care, Medicare provides enhanced reimbursements to hospitals, skilled nursing facilities, and acute rehabilitation facilities for outpatient care provided in the 30 days following discharge through transitional care management (TCM). TCM has been linked to reduced mortality, readmissions, and total costs, yet it is still underutilized by those who would benefit from it the most (Marcotte et al., 2020). Increased use of TCM utilization, according to Burdick, Oliver & Hort (2023), can improve continuity of care post-hospital discharge by addressing risks for readmissions early in the outpatient setting but finding solutions to make the follow-up care more manageable and accessible has been the key to keeping readmissions low. One of the most significant barriers to patients seeking transitional care is scheduling the in-person visit needed to qualify for reimbursement, especially after recovering from an acute illness. One of the most cited problems stopping patients from following up with medical care was the inability to find transportation due to a lack of public transit, expired or revoked driver's licenses, and mobility issues (Syed, Garber & Sharp, 2013). A transitional care team member must contact the patient or caregiver within two days after discharge, and a face-to-face visit with a clinician must occur within seven days of discharge for patients with highly complex cases and 14 days for moderately complex conditions (Anderson, O'Donoghue, & Dechen, 2021).

Using effective telehealth programs could help reduce hospital readmissions when the main causes of readmissions for high-risk and underserved populations are addressed (Franciosi et al., 2021). Telehealth provides an additional avenue of medical care to all people by creating an extra layer of access. Although Medicare permitted telehealth for TCM programs in 2014, it was not until the Coronavirus disease 2019 (COVID -19) pandemic that national adaption of telehealth services grew dramatically (Patel, Mehrotra & Huskamp, 2021). The COVID-19 pandemic brought far-reaching regulatory reform and legislative changes to telehealth by allowing broad coverage for telehealth services in all specialties across the country. It increased health access across the country and showed its potential to be used to reduce readmissions in all patient populations. The Health Resources & Services Administration defines telehealth as "the use of electronic information and telecommunications technologies to support long-distance clinical health care, patient and professional health-related education, public health and health administration." With the advancements in technology, it has experienced significant growth (Health Resources & Services Administration, 2022). One leading concern of the HRRP is the potential for disproportionate penalties for hospitals that serve underserved communities, as the analysis was often done on pre-HRRP data. Although the COVID -19 pandemic forced the increased use of telehealth, it is still not widely adopted to address readmissions in high-risk or low-socioeconomic patients.

LITERATURE REVIEW

There are numerous reasons why hospitals need to reduce their readmission rates, with financial penalties being one of the biggest. Hospital readmissions are costly to the U.S. hospital systems, accounting for an additional $17.4 billion annually, and it has intensified hospital administration to implement strategies to reduce readmission rates (Warchol, Monestime, & Mayer, 2019). A study done in 2013 found that 67% of hospitals that were safety net hospitals serving low-income patients were penalized due to excessive readmission. Social factors are essential components of health outcomes and are disproportionately represented in high-risk and high-need populations (Centers for Medicare and Medicaid Serves, 2023). To avoid potential penalties, one of the strategies that can be used by care management is telehealth, which effectively addresses readmission problems with high-risk populations (Rosen, McCall & Primack, 2017). Specific social characteristics like race, socioeconomic status, location of residence, ethnicity, and disabilities could predict readmission risk, particularly in complex conditions like heart failure and acute myocardial infarction. It has been shown that low socioeconomic status is associated with an increase in hospital readmission (Murry et al., 2021). With this knowledge, the effective use of telehealth by case management could enable prompt information exchange between patients, providers, and all those involved in the patient's post- hospital care (Béland, Dumont-Samson & Hudon, 2022).

A patient's success rate after hospital discharge is often associated with the complexities of the hospital stay, chronic medical problems, and the number of medications given for treatment. Telehealth protocols allow for a continuation of care for patients that would otherwise have trouble receiving follow-up care and may enable providers to become aware of and address changes in health status in a timelier manner, preventing deterioration of the medical conditions (Beland, Dumont-Samson & Hudon, 2022).

Nearly one-quarter of patients discharged with heart failure are readmitted within 30 days, burdening the hospital systems and patients' families. Among Medicare patients, the all- cause 30-day readmission rates for heart failure are 20%-25% making it the highest for any medical condition in the United States (Creber et al., 2021). A research trial was conducted at two academic health systems in New York; New York Presbyterian and Mount Sinai. The 'Using Mobile Integrated Health and Telehealth to Support Transitions of Care among Heart Failure Patients' (MIGHTy-Heart) trial looked at two interventions that will help to improve transition care from hospital to home in heart failure patients. The two interventions are integrated mobile health (MIH) and transitions of care coordinators (TOCC). The MIH bundled home visits with telehealth video visits from emergency medicine physicians, and the TOCC consisted of follow-up phone calls from a registered nurse within 48-72 hours of discharge to help with any clinical and non-clinical needs like medication review and lifestyle changes (Creber et al., 2021). The specific goal of the MIH intervention is to assist in care transitions by treating acute symptoms and connecting patients to outpatient care teams and resources. The MIH provides additional support to the existing clinical team by leveraging the local paramedics and real-time physicians trained to access heart failure patients. This provides a rapid, in-home treatment that takes the barriers of finding transportation, sick time off work, and potential rural community off the table as reasons for not having adequate follow-up care.

The Transition of Care Coordinators (TCC) intervention still uses telehealth. Still, the nurses assess the patient's clinical status, any unmet clinical and social needs needed for recovery, and continued education about medication and lifestyle changes. If the nurse identifies any medical emergency, the patient's clinical team will be notified immediately. The outcomes for both interventions are reductions in all-cause hospital readmissions, hospital-free days, preventable emergency department visits, and improved quality of life.

Telehealth has the capacity to be more than a phone call. According to the Department of Health and Human Services (2023), telehealth applications include live videoconferencing, store- and-forward videoconferencing, remote patient monitoring (RPM), and mobile health. Telehealth allows for remote monitoring of a patient's health to prevent a serious level of care, and more complex types of

home telehealth include video capabilities that allow for visual contact with the patient and remote biometric measurements like weight, blood pressure, pulse, temperature, pulse oximetry, electrocardiogram (EKG) and blood glucose (Gordon et al., 2020). With healthcare moving toward increased use of remote delivery of care, the development of care models is critical to keep up with telehealth technologies, and case management combined with video conferences allows for a barrier-free exchange of information and gives a sense of security knowing medical help is a video call away (Schmidt et al., 2019).

Another example of telehealth used in transitional care management was a clinical trial done in the Dartmouth Health system that included four geographic divisions, each composed of multi-specialty clinics that were 95% rural. Data from the Accountable Care Organization (ACO) enrolled patients that received both a telehealth TCM call and TCM visit had a readmission rate 58% lower than patients who did not receive both services (Burdick et al., 2022). With the addition of telehealth phone calls and follow-ups, the readmission rate dropped for every group of patients due to consistent clinical checkups. Research by Long et al. (2013) showed that the most consistent reason for patients not reaching out to their primary providers is the belief that primary care providers could not manage urgent or acute issues and the issues would not be addressed in a timely manner. For this reason, patients found themselves back in the emergency department and were readmitted. According to Tuckson et al. (2020), implementing a telehealth protocol allows healthcare providers to increase the continuity of care, reduce patient travel burden, and help overcome clinician shortages, especially in rural and other underserved populations.

PROPOSED SOLUTIONS

A potential key component of implementing telehealth to reduce hospital admissions is to decide on which patients will be a part of the transitional telehealth care. Not all patients are good candidates for using telehealth after discharge, so a hospital needs to understand its readmission rate numbers. With the help of predictive analytics stratified by patient population, a hospital can identify at-risk patients and their health information to assess which patients have the highest readmission rates. It is crucial to understand the at-risk patients to see if telehealth would work for them post-discharge (Warchol et al., 2019).

DATA ANALYTICS

Before implementing a new process, predictive analytics must be researched to provide a larger picture of the overall strategy to narrow down the most affected target population. A statistical brief by Weiss and Jiang (2021) found that Medicare and Medicaid had the highest number of readmissions with the highest number of 30-day all-cause adult hospital readmissions: Septicemia, heart failure, diabetes,

COPD, Pneumonia, acute unspecified renal failure, and acute myocardial infarction. With these readmission rate numbers; a hospital could pinpoint which population would benefit the most from a telehealth transitional care model and what resources would be needed. A teaching hospital system located in a large, urban city on the east coast integrated telehealth into its readmission reduction program, and at the end of the fiscal year of 2015, their all-cause 30-day readmission rate dropped by 19.3% to 5.2%, a reduction of 14 percent (O'Connor et al., 2016). The health agency, affiliated with the teaching hospital system, found, after running analytics, that heart failure was the agency's second most common diagnosis, and it was able to put a telehealth monitoring program together that targeted heart failure patients.

TRANSITIONAL CARE MODEL

Once the targeted population has been prioritized, creating a telehealth readmissions protocol could be done in a few different ways depending on the patient's diagnosis at the time of discharge and the expected payor. One thoroughly tested model that has shown incredible effectiveness in lowing the readmissions of high-risk patients is the Transitional Care Model (TCM) (Hirschman et al., 2015). The TCM is a nurse-led intervention targeting older adults at risk for poor outcomes as they move from hospital to community settings; community settings include skilled nursing, rehabilitation facilities, and home (Centers for Medicare & Medicaid Services, 2022). When a patient is discharged from an inpatient setting, a provider must provide at least three TCM components during the 30-day service period. One of those components is non-face-to-face services consisting of telehealth services. Using telehealth as part of the transitional care model promotes early detection of clinical decompensation in patients, allowing for timely intervention to prevent deterioration of the patient's condition leading to readmission (Kitsiou, Pare & Jaana, 2015).

CARE TRANSITIONAL INTERVENTION MODEL

Another transition model that uses telehealth to help with reducing readmissions is the Care Transitions Intervention (CTI). The CTI has four pillars of transitional care: 1) medication self- management, 2) clinical follow-up, 3) knowledge of clinical red flags and 4) increased access to patient health records (Noel et al., 2020). In a clinical trial, the Telehealth Transitions of Care intervention, or TTOC, was created and designed with the CTI model's four pillars and used multi-functional remote patient monitoring and video visits to enhance the PCP services post- discharge. With the TTOC added to the CTI model, it allowed patients to receive high-quality tele-transitions of care, high adherents to their medications, and become more involved with their healthcare (Noel et al., 2020). In the CTI model, the telehealth visits allow for continued answers to medication questions

and identify and correct discrepancies, continued reminders to follow up with their PCP or share information with their offices and assess their vitals and health status every week. Providing follow-up care through in-person and telehealth visits to chronically ill patients helps ensure their medical and socioeconomic needs are met during care transitions to help reduce rates of hospital readmissions (Coleman et al., 2006).

PROJECT BOOST

The Society of Hospital Medicine's Project BOOST (Better Outcomes for Older Adults through Safe Transitions) incorporated Patient Safe-D(ischarge) program to help reduce preventable readmissions and reduce medication errors after being discharged (Patient Safety Network, 2021). BOOST provides a full implementation toolkit to help institutions implement this and other discharge programs, and it incorporates telehealth through follow-up phone and video calls. Telehealth follow-up appointments allow for broad clinical conditions to be reviewed and evaluated, medication reconciliation, and follow-up appointments. BOOST will enable hospitals to adapt the model to fit the components that work for the organization and community's needs, priorities, available resources, and culture (Patient Safety Network, 2021).

Telehealth improves transitional care after the patient is discharged from the hospital by improving patient engagement, adherence to medication, and timely response time to acute changes. It allows patients to be self-advocates for themselves and their health. Hospitals have options when picking a transitional care model with telehealth components, and it is essential to find one that fits the hospital and their community's needs.

IMPLEMENTION PLAN

The Transitional Care Model

Transitional care management is one of several care management programs offered by Medicare. It focuses on the first 30 days after discharge, and patients are only enrolled for this duration. To qualify, the patient must be discharged from an inpatient acute care hospital, psychiatric hospital, nursing home, and rehabilitation center. The patient's primary care doctor or specialists and non-physician practitioners (NPP) can provide TCM services. These NPPs are nurse practitioners, physician assistants, clinical nurse specialists, or certified nurse midwives. A case manager can perform nearly all the tasks required for the TCM program, except for the in-office visits. On average, a care manager can monitor 100 to 125 patients per month, with most of the program done via phone or telehealth (Béland, Dumont-Samson & Hudon, 2022).

A typical TCM workflow would consist of the appropriate physician or specialist receiving the patient's discharge papers and summary within 48 to 72 hours. Interactive communications with the patient should be completed within two business days of discharge. Simultaneously, clinical staff provides non-face-to-face services under physician direction, like continued education for patient and caregiver, medication adherence and reconciliation, and any assistance needed from the community and health resources. Most, if not all, of these non-face- to-face services are provided through telehealth communication (Health Quality Innovation Network, 2021).

Care Transitions Intervention Model

Implementing a Care Transitions Intervention with telehealth is a four-week self-management program designed to give patients the skills, tools, and support to meet their health and self-management needs. CTI targets patients ages 65 years and older who suffer from chronic conditions like congestive heart failure, chronic pulmonary disease, diabetes, stroke, hip fractures, pulmonary embolism, and deep vein thrombosis (Coleman et al., 2006).

To implement the CTI program, Transitions Coach will need to be hired and trained.

Transitions coaches can be advanced practice nurses (APNs), RN, master's in social work (MSW), licensed clinical social worker (LCSW), Occupational therapists, Paramedics, and trained Community Health Workers (CHWs). The Transitions Coach will meet with the patient and family to discuss the program and any concerns before discharge. Once the patient has been discharged, the Transition Coach will conduct a follow-up home visit within 72 hours after discharge and schedule three telehealth visits to help the patient with medication questions, personal health goals, and any essential health and social needs. The three telehealth visits are scheduled per week and are set up to support the patient through their recovery and self-care. A study by Parrish et al. (2009) collected feedback from five hospitals and communities that started CTI and found that engaged leadership, ample training for the transition coaches, and dedicated CTI staff were integral in making the program a success.

Implementing Project BOOST

The Society of Hospital Medicine's Project BOOST was designed to help hospitals reduce preventable readmissions, reduce medication errors, and empower patients, families, and caregivers to improve discharge education. BOOST is an innovative program that allows hospitals to customize the care transitions program to fit the hospital and their communities.

Implementation of the BOOST takes about 12-24 months, starting with the initial meeting and moving to a sustainable program. When implementing the program, the hospital will need to create a central team consisting of a team leader (physician, nurse, care manager, or social worker), quality improvement (QI) facilitator, project manager, process owners (frontline staff involved in care transitions, including pharmacy, nursing, and case management staff), and information technology experts (Patient Safety Network, 2021). The advantage of implementing BOOST is that it can be incorporated into a hospital's existing transition care program using the BOOST toolkit. A vital aspect of the BOOST program is the follow-up telehealth calls with the patients. Telehealth visits are essential to address clinical conditions since discharge and must be documented in the patient's chart or portal. Project BOOST provides a full implementation toolkit that is free of charge and implementing the care transitions model can be done with minimal funding.

Telehealth training

The most significant factor in implementing a successful telehealth care transition program is having competent and evidence-based trained staff. The Association of American Medical College published "Telehealth Competencies Across the Learning Continuum" (2021), which developed a telehealth curriculum using the competency-based education (CBE) approach. The competencies are organized into six domains: 1) Patient Safety and Appropriate Use of Telehealth, 2) Access and Equity in Telehealth, 3) Communication via Telehealth, 4) Data Collection and Assessment via Telehealth, 5) Technology for Telehealth, and 6) Ethical Practices and Legal Requirements for Telehealth and three tiers that represent developmental stages in physician development: 1) entry to residency or recent medical school graduate, 2) entry to practice or recent residency graduate, and 3) experienced faculty physician or three to five years post-residency. The increased use of telehealth to reduce readmission in care transition programs must be reinforced with the development of policy, training, and procedures to provide comprehensive post-discharge clinical care to patients.

CONCLUSION

The use of telehealth with transition care management programs is a great solution to help reduce preventable readmissions for inpatient hospitals. Telehealth can be an additional resource used by doctors and caregivers to provide timely intervention to high-risk patient populations and the needed medical guidance for those who may not have transportation or the financial means to follow up with a provider. With the increased use of transition care management programs, incorporating telehealth components could have a major impact on helping to reduce the readmission rates across the country.

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