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FROM THE EDITORS

In this issue of *Quarterly Review of Business Disciplines,* Tameka Womack and Carin Lightner-Laws, Clayton State University, and Constance Lightner, Fayetteville State University, explore the transformation of the value chain and issues of ethics and quality that occur during development and implementation of a vaccine during a pandemic. Mary Joann Rouse, Sandra Thomas, and Patricia Matuszek, Troy University, investigate the need for students to become technologically adept across platforms and devices in response to the COVID pandemic. They present COVID-compliant redesign of an Information Systems course with workflow product applications.

The research of Francoise Lepage and Denise Lucy, Dominican University of California, and Jayati Ghosh, Saginaw Valley State University, utilizes the constructs of business competitiveness in the context of internationally accepted indices to measure US global competitiveness from three dimensions: economic, political, and social. Cory Angert, University of Houston-Downtown, revisits and dissects past corporate failures to reveal not only mistakes but also some theoretically brilliant ideas that failed due to various reasons. John Shoaf, Allstate Insurance Company, and K. Matthew Wong, St. John's University, suggest a new method for presenting options to insurance customers by providing clarity in evaluating risk decisions during the purchasing process. The paper extends formulas currently presented as prospect theory to improve customer awareness of insurance policy value.

Margaret A. Goralski, *Quinnipiac University*, Editor-in Chief
Charles A. Lubbers, *University of South Dakota,* Associate Editor

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AN EXPLORATORY STUDY OF THE TRANSFORMATION OF THE VALUE CHAIN AND ISSUES DURING COVID-19 VACCINE DEVELOPMENT

Tameka Womack, Clayton State University

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Constance Lightner, Fayetteville State University

ABSTRACT

During a pandemic, the time frame to develop a vaccine can shrink to merely 5-9 months. Countries are shortening the normal value chain for vaccine development to mitigate the death toll during a global health crisis. An expedited process, politics, varying distribution priorities, Phase 1, 2 & 3 testing disparities, minimal oversight, financial incentives, and a lack of transparency are all issues that impact trust and the quality of a vaccine. The value chain for developing a COVID-19 vaccine is explored along with possible ethical/quality issues that could arise during this process. Descriptive statistics, chi-square tests and results from Marascuilo pairwise comparison procedures were used to analyze surveys about trust, concerns, and vaccinations amid a pandemic. The results indicate that more respondents were worried about getting COVID-19 than getting the seasonal flu and that respondents from the US were less willing to get a COVID-19 vaccine as compared with other countries.

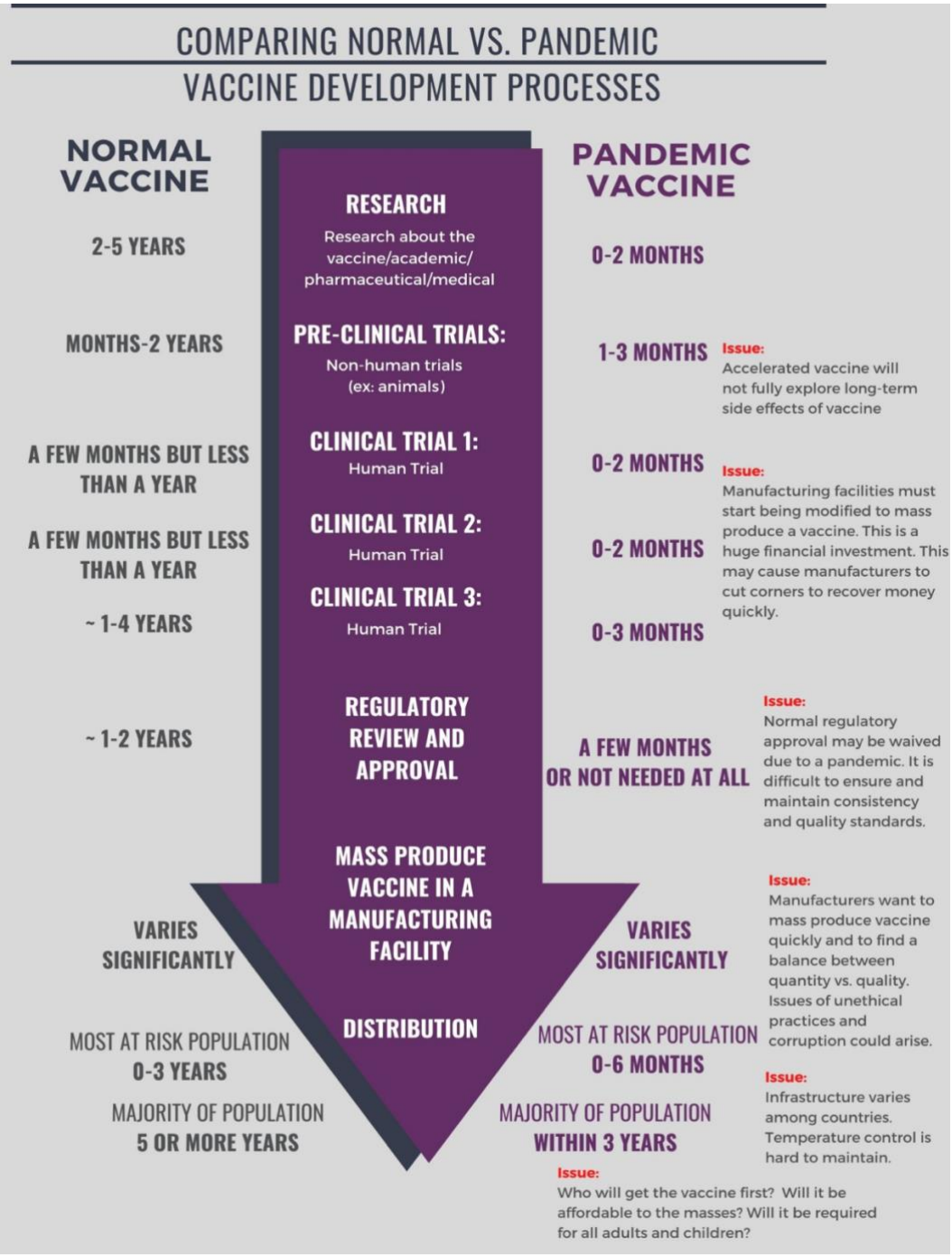
Keywords: COVID-19, Value chain for vaccines, Pandemic drug therapies, Public opinion about vaccines

INTRODUCTION

Supply chain management is a rapidly evolving field. Constant changes in the socioeconomical, political, regulatory, technological, and environmental landscape (Wieland, Handfield., & Durach, 2016) drive companies to continuously improve their processes. Optimal supply chain strategies aim to be demand driven, reduce costs, eliminate waste, and incorporate just-in-time practices (Baghalian, Rezapour & Farahani, 2013). A supply chain is typically comprised of a complex mix of companies and people who are tasked with getting the right product to the right customer at the right time. The supply chain for vaccines is even more complex. In addition to managing normal components of a supply chain (e.g. suppliers, manufacturers, logistics companies, distributors, retail stores), vaccines require pre-clinical trials, three clinical trial phases and a regulatory review process. The supply chain for vaccines also involves effectively storing vaccines, managing the inventory, meeting rigorous temperature control requirements in the cold chain as well as maintaining adequate logistics management information systems (World Health Organization, 2016). The distribution process requires meticulous management and logistics support, forecasting the vaccination schedule, and utilizing various logistics tools currently used with the World Health Organization.

In our research, we discuss the typical value chain for vaccine development. We compare this ordinary process to the projected value chain amid the COVID-19 pandemic. Figure 1 shows the normal process to develop and distribute vaccines to the public as compared with the current trajectory for COVID-19. The major difference is the expedited time frame that shrinks from 5-10 years to merely 5-9 months during pandemics. We also discuss issues which commonly arise during an expedited vaccine development process. As we highlight these issues, we attempt to

Figure 1. Displays the timeline to develop a vaccine normally vs. during a pandemic.



gain insight about the varying attitudes concerning vaccines during a pandemic. In the final part of our paper, we peruse several surveys about different pandemics to better understand respondents' knowledge about contraction, confidence in the government and vaccination attitudes. While we do not attempt to ascertain causation/correlation for these varying survey responses, we do want to explore if there are noticeable differences in the responses depending on the type of pandemic or country.

This paper is organized as follows: Section 2 outlines the value chain for vaccine development. Section 3 highlights possible ethical and quality issues that could arise during the pre-clinical trials, Phase 1, 2 and 3, regulatory approval, mass production, storage, or distribution stages for developing a COVID-19 vaccine. In section 4 several surveys about concerns, trust and vaccines during a pandemic are explored and analyzed. Finally, in section 5 the conclusion and future research directions are discussed.

VACCINE DEVELOPMENT

Vaccine Development for Past Pandemics

Vaccines are used to protect adults and children from serious illnesses or complications related to preventable diseases. Typically, vaccines undergo stringent development and testing protocols to ensure that a safe and effective drug is distributed. US vaccine manufactures must attain a license to develop the vaccine and face reviews by the National Vaccine Program, the Advisory Committee on Immunization Practices (ACIP) and other key vaccine committees (Centers for Disease Control and Prevention, 2018). The first vaccines were developed in the 1850s to eradicate smallpox. The success of these drugs served as the impetus behind continued research to prevent future pandemics. A measles outbreak in the 1950s led to sweeping legislative changes in the US. By the 1990's, all 50 states required children (with some religious and philosophical exemptions) to obtain certain immunizations before attending school. These mandates for school aged children highlighted issues with requiring, developing, and distributing vaccines (Malone & Hinman, 2007); these issues ranged from the research/testing procedure flaws to apparent access disparities (Centers for Disease Control and Prevention, 2018; Krosin, Klitzman, Levin, Cheng, & Ranney, 2006).

Over the past 20 years, there have been several pandemics with a significant global impact – specifically H1N1, MERS, Zika, Ebola, and SARS. H1N1 first emerged in April 2009. By September 2009 four H1N1 vaccines were developed and approved by the US Food and Drug Administration (FDA) (Centers for Disease Control and Prevention, 2020). According to the Immunization Action Coalition, "The 2009 H1N1 influenza vaccines are being produced by the same companies using the same procedures used to produce seasonal influenza vaccines. The 2009 H1N1 vaccines are exactly the same as seasonal influenza vaccines except for the strain of influenza virus they contain" (Immunization Action Coalition, n.d.). The vaccine development and approval processes were collectively 5 months, which is far shorter than the average 5-10 years that the normal vaccine process takes. In comparison, vaccines for Ebola, SARS and Zika took considerably longer to develop (Lurie, Saville, Hatchett & Halton, 2020).

Middle East Respiratory Syndrome (MERS) was first reported by health officials in Saudi Arabia in September 2012. As of December 2019, there were approximately 2500 confirmed cases of MERS reported from 27 countries. This virus is transmitted through dromedary camels to humans and occasionally through human-to-human contact. Currently, researchers in the United Kingdom and Saudi Arabia are in Phase 1 (human clinical trials) for developing a MERS vaccine (German Center for Infection Research, 2020).

In 2016, there were more than 36,000 cases of the Zika virus found in the US Virgin Islands, Puerto Rico, and American Somoa. By 2018, the vaccine was still in Phase 2 of the clinical trial (Grennell, 2018). To date, there is still not a readily available vaccine for the Zika virus. Since the number of cases has drastically dropped since 2016, there is not an urgency to develop a vaccine. Because the development process is long, cumbersome, and costly, many manufactures never recouped the money from their initial investment and are struggling for ways to streamline their methods.

Ebola outbreaks have been documented since the 1970s in sub-Saharan Africa. In 2014, Liberia, Sierra Leone, and Guinea experienced a rash of new cases and deaths attributed to Ebola outbreaks. Between 2014 and 2016 over 11,000 deaths were attributed to this virus. Ebola is transmitted through direct contact with infected blood, body fluids and surfaces. In December 2019, approximately 5 years after the onset of the global pandemic, Ervebo was approved as a vaccine for Ebola. This vaccine, developed by Merck Sharp & Dohme Corp., will be available for individuals 18 years of age or older. Ervebo consists of a live, genetically engineered vaccine that contains a protein from the Zaire Ebola virus. The FDA, "granted this application Priority Review and a Tropical Disease Priority Review Voucher under a program intended to encourage development of new drugs and biologics for the prevention and treatment of certain tropical diseases". After a 6-month review process, the FDA approved Ervebo as a safe and effective drug to prevent Ebola outbreaks (US Food and Drug Administration, 2019).

Severe Acute Respiratory Syndrome (SARS) was first discovered in Asia in February 2003. It spread to the US, South America, Europe, and other Asian countries within a few months. SARS is a viral illness that attacks your respiratory system. This airborne virus can be transmitted through small droplets of saliva -similar to COVID-19, a cold or influenza. According to the World Health Organization (WHO), 774 people have died worldwide from SARS. Seventeen years later, the vaccine is still in the developmental stage (Centers for Disease Control and Prevention, 2017).

Timelines for developing COVID-19, H1N1, MERS, Zika, Ebola, and SARS vaccines vary tremendously. The development process is significantly impacted by whether a vaccine is DNA/RNA based or a traditional one (microbial protein or inactive microbe) (Vanderbilt University Medical Center, 2020). To combat COVID-19, Moderna and Pfizer developed mRNA vaccines, while Johnson & Johnson developed a more traditional virus-based technology (VCU Health, 2021). DNA/RNA vaccines are quicker to develop because it is easier to produce DNA/RNA molecules vs. the right type of proteins needed in traditional vaccines. According to Hensley (2020), "Instead of injecting a weakened form of a virus or bacteria into the body as with a traditional vaccine, DNA and RNA vaccines use part of the virus' own genetic code to stimulate an immune response. In other words, they carry the genetic instructions for the host's cells to make antigens." As we explore the vaccine development process, it is worth noting that there are a

variety of factors (some scientific and others socio-economic) that may impact the development timelines.

Legal Implications of Vaccinations

As with any new drug therapy, people occasionally experience adverse side effects after being vaccinated. Since many vaccinations were mandated (and not necessarily wanted) in the 1980's in the US, people sought financial compensation for any complications they endured; consequently, a plethora of lawsuits against manufacturers ensued. The legal process was long, arduous, and expensive and often led to manufacturing companies shelling out an exorbitant amount of money. The government intervened and instituted the National Childhood Vaccine Injury Act (NCVIA) and the Vaccine Injury Compensation Program (VICP) in 1986.

The NCVIA formalized the process of providing financial compensation to citizens injured as a result of getting required vaccines. The act preserved a citizen's right to sue a manufacturer if federal compensation is denied or too small (Rockwell, 2017). This act also led to more transparency and information sharing; all healthcare providers are required to distribute vaccine benefit and risk information before children are vaccinated, keep written records of vaccine manufacturer names and lot numbers, enter serious health problems following the administration of the vaccine into a child's permanent record, and report any injury (or serious health problem) to the Vaccine Adverse Event System (Rockwell, 2017).

Historically, when a manufacturer paid a vaccine related claim, it would make them more vulnerable to additional lawsuits because there was an implied admission of fault and liability associated with the settlement. Hence, many companies refused to produce vaccines, to mitigate future lawsuits and liability claims. The VICP was created to provide no-fault, compensation for people experiencing adverse effects scientifically linked to vaccines. Although citizens can file a lawsuit after going through the VICP, special rules make those suits extremely difficult to win. Initially, the VICP parameters only included vaccines recommended by the Centers for Disease Control and Prevention (CDC) for routine administration to children. More recently, the VICP expanded their coverage to include smallpox, trivalent influenza vaccines, and injuries to adults as well (Mello, 2007). Since vaccines that are new and/or are being licensed have historically been included in the VICP, we assume that COVID-19 vaccines in the developmental stage would also be included in this fund.

The Public Service Act authorizes the Health and Human Services Secretary to lead all public health and medical responses during a pandemic and to also declare a public health emergency (US Department of Health and Human Services, 2020). The Pandemic and All-Hazards Preparedness Act of 2006 was amended in 2019 and changed to the Pandemic and All Hazards Preparedness and Advancing Innovation Act. This act has more broad and flexible implications for response activities (US Department of Health and Human Services, 2020). The new legislation allows manufactures of pandemic vaccines to have near total immunity from civil lawsuits and claims ineligible for compensation via the VICP (Mello, 2007). Thus, we surmise that the manufacturers of the COVID-19 vaccine will have near total immunity from being legally and financially responsible for any adverse side effects.

Pre-Clinical Trials and Phase 1, 2 and 3

Several stages are required to develop an effective and safe vaccine. Initially, epidemiologists must understand the pathology behind any virus/disease before they can begin working on a vaccine. As their research progresses, scientists can start pre-clinical trials with animals. Typically, pre-clinical trials last for years until researchers can identify and mitigate adverse side effects of the drug therapies. After the pre-clinical trials, there are 3-phases which utilize human subjects to test the efficacy of a vaccine. Researchers often disagree about who should be included in the human vaccine trials (Centers for Disease Control and Prevention, 2018). Vaccine developers typically target healthy people with strong immune systems (Boyle, 2020) for the Phase 1, 2 and 3 trials. This approach could skew the results and lead developers to overestimate the efficacy of the drug therapy. Conversely, if the vaccine was administered to people with compromised immune systems, researchers run the risk of clinical trial participants being irreparably harmed or even dying. Also, children typically do not participate in the clinical trials, because there are concerns regarding their immune systems not being fully developed and their ability to tolerate possible side effects (College of Physicians of Philadelphia, 2020).

In Phases 1 and 2, the vaccine is given to humans. Phase 1 typically involves giving 20-80 healthy volunteers the vaccine to ensure that it is safe and induces an immune response against the virus. Phase 2 commonly utilizes double-blinded and placebo-controlled clinical trials of a few hundred healthy adults to ensure the vaccine is tolerable, produces the necessary antibodies and has minimal side effects. CEPI and Moderna Biotech Company began working on a COVID-19 vaccine soon after the first gene sequence was posted (CEPI, 2020; Lurie et al., 2020). CEPI is an alliance to finance and coordinate the development of new vaccines to prevent and contain infectious diseases. This company is also an international-private organization funded by the Bill and Melinda Gates Foundation, European Commission, Wellcome Trust, and the following countries: Japan, Norway, United Kingdom, Australia, Canada, Belgium, Ethiopia, and Germany (Lurie et al., 2020). Moderna entered Phase 1 of clinical trials in March 2020 and received regulatory clearance to start Phase 2 studies within two months (Park, 2020).

Phase 3 usually has several thousand participants and it provides more definitive data on the safety and effectiveness of the vaccine as well as its adverse effects (Institute of Medicine, 2003). When companies move into Phase 3, they must begin planning how the vaccine will be mass produced and distributed to the public. Essentially, this planning process occurs prior to getting regulatory approval. According to Lurie et al. (2020), "Manufacturing will need to be scaled up to commercial levels before substantial safety and immunogenicity data are available. Building manufacturing capacity can cost hundreds of millions of dollars". Time is a commodity when developing a vaccine amid a pandemic. Since companies are racing to be the first ones with a readily available vaccine that can stave off death and other complications related to the pandemic, they do not have the luxury of going through each Phase of the vaccine development process sequentially. Instead, companies work on different part of the value chain simultaneously. According to Lurie et al. (2020), "…for novel platform technologies, most of which are unlicensed, large-scale manufacturing has never been done, so facilities capable of producing large quantities of product must be identified, technologies transferred, and manufacturing processes adapted, all without knowing if the vaccine candidate is viable". Phase 3 clinical trials will be produced in a facility that will be uniquely suited for mass production once the vaccine is approved (Institute of

Medicine, 2003). As a result, manufacturers must frequently invest more than $30 million in the production facility prior to final product approval (Grabowski & Vernon, 2001).

Regulatory Approval and Mass Production

Manufacturers must obtain a product license application (PLA) and complete an establishment license application (ELA) before they can start the approval process to ascertain whether they are eligible to mass produce a vaccine. The ELA ensures that the facility, equipment used to produce the vaccine, and all personnel involved in the manufacturing process meet FDA standards (Hay & Zammit, 2002). This could be a long, costly, and laborious process that may not ultimately result in regulatory approval to produce a vaccine. There are only 5 companies that routinely supply vaccines to the United States - Aventis Pasteur, GlaxoSmithKline, Merck, Wyeth and Powderject (Rockwell, 2017). Merck and Wyeth are located in the US while Aventis Pasteur, Powderject and GlaxoSmithKline are based in Europe. Each company can potentially secure several licenses to produce vaccines. For example, while Wyeth and Merck have 16 and 13 licenses in the US respectively, seven other manufacturers have only 1 license to produce a vaccine for the COVID-19 virus (Rockwell, 2017). Since there are a limited number of manufacturers that are licensed to produce a COVID-19 vaccine, disruptions in their supply chain or production will almost guarantee shortages and a limited ability to distribute the vaccine to targeted populations. Scientists have been concerned that, "…the number of vaccine manufacturers seems to be declining as the number of single-suppliers increase" (DeBrock, 1985; Arnould & Debrock 1993).

Companies typically seek regulatory approval before mass producing a vaccine. China and Russia did not follow this normal process. In July 2020, China bypassed the clinical trial phases and began distributing their non-regulatory approved vaccine to high-risk groups throughout the country. According to the NY Times, "Three vaccine candidates are being injected into workers whom the government considers essential, along with many others, including employees of the pharmaceutical firms themselves" (Wee, 2020). Similarly, in August 2020, Russia became the first country to approve a vaccine for acute respiratory syndrome Coronavirus 2 (SARS-CoV-2). According to Burki (2020), "At the time of approval, the vaccine had not even started Phase 3 trials, nor had any results on the earlier stage trials been published." In September 2020, Phase 1 and 2 results from a study of 76 participants were released. With such as small number of participants, many question whether the vaccine is safe -especially without Phase 3 results and regulatory approval (Burki, 2020).

After a vaccine receives regulatory approval, manufacturing companies attempt to achieve a delicate balance between speed and quality to mass produce the drug. Manufacturing facilities must ensure that the vaccine is produced in a consistent manner and is free of contamination. Numerous samples must be taken in every step of the production process. Then, both internal and external laboratories must continuously check that proper quality and safety protocols are followed (Lemmens, Decouttere, Vandaele & Bernuzzi, 2016; Smith, Lipsitch, & Almond, 2011). Regulatory requirements may vary widely depending on each country's regulations; thus, it can be difficult to maintain similar manufacturing and testing processes. (International Federation of Pharmaceutical Manufacturers & Associations, 2014).

Manufacturing companies must forecast the demand for the vaccine (based on historical data and current trends) and make sure that the quality of the drug is maintained throughout the distribution process. Vaccines must be stored in regulated temperature-controlled facilities, known as cold storage units. The Cold Chain Equipment Inventory and Gap Analysis Tool is commonly used to help manage inventory. The EPI Logistics Forecasting Tool provides scenario analysis and projects multi-year forecast needs of vaccines and safe injection equipment. This tool also forecasts the cold chain and ambient storage capacities for national immunization distribution. The Immunization Supply Chain Sizing Tool is used to forecast the required cold-chain capacity at each level and facility. It takes into consideration the introduction of new vaccines, changing formulations of vaccines, elimination of vaccines, etc. (World Health Organization, 2016). Vaccine Vial Monitor Infographics and Vaccine Volume Calculators are used to monitor color changes in vials that could impact the efficacy of the drug and how national immunizations effect cold chain capacity, respectively. These tools and technologies are used collectively to maintain the integrity of the vaccines while being stored and distributed.

Manufacturers have a vested interest in mass producing vaccines quickly. Oftentimes the increase in production speed leads to decreased quality control measures. The speed of mass production is dependent on adequate machinery, labor, supply chain partner collaboration, effective communication, reliable logistics companies, machine capacity and improved technological systems (Allwood et al., 2016). A sterile and temperature-controlled environment is needed throughout the production, warehousing, and distribution process. If all temperatures are not consistent and maintained for any reason (including broken equipment, human error, and technological issues), the vaccine quality could be negatively impacted. Vaccines approved by the Food and Drug Administration (FDA) are subject to very stringent safety/quality standards and review procedures (Hay & Zammit, 2002). Each batch must be tested and approved before it can be released and distributed to the masses. If Moderna's COVID-19 vaccine does prove to be safe and effective, the company's CEO Stephane Bancel stated that, "…the company will not immediately have enough for everyone. We will all be supply constrained for quite some time, meaning we won't be able to make as many products as will be required to vaccinate everyone on the planet" (Feuer, 2020a). He stated that the company will work closely with the US government to determine who will receive the first doses In May 2020, Moderna announced that they would be partnering with Swiss Pharmaceutical company, Lonzo, to accelerate the production of the COVID-19 vaccine; they hoped to begin manufacturing in July 2020. Lonzo and Moderna are planning to manufacture approximately 1 billion doses per year (Feuer, 2020a).

Managing, Storing and Distributing a Vaccine

Many believed the FDA would manage and monitor the efficacy of vaccines distributed throughout the world. However, according to the Institute of Medicine (2003), "FDA resources for vaccine regulation have not kept pace with the growth and complexity of vaccine products. FDA regulation has shifted from a focus on science to a focus on enforcement. This shift may increase the risks and costs associated with vaccine production without increasing safety" (Institute of Medicine, 2003). If the FDA is not able to keep up with the demands and processes involved to rapidly develop a vaccine, how can people trust the effectiveness and quality of the drug?

To manage a vaccine effectively, workers need adequate training, strict process controls, and the proper equipment readily available (Lemmens et al., 2016). Vaccine management can be classified as managerial or operational. The operational functions of vaccine management include sorting the vaccines and the immunization equipment, updating inventory records and monitoring storage temperatures and other conditions. This function also includes performing maintenance duties on the cold-chain equipment, sharing challenges with management and troubleshooting ways to mitigate issues. The managerial functions of vaccine management include conducting a needs assessment, developing projections for vaccine usage, estimating equipment needs, ordering vaccine related equipment, keeping meticulous records, and providing support for workers and managers. It also includes developing a maintenance schedule for the cold-chain equipment and transportation/distribution plan for the vaccine. Many vaccines utilize a Controlled Temperature Chain (CTC) (World Health Organization, 2016). The CTC allows vaccines to be stored at varying temperatures while still maintain its antigen. A license must be attained to use a CTC. Additionally, there needs to be a vaccine vial monitor on each vial as well as a peak threshold indicator on each vaccine carrier (World Health Organization, 2016). Maintaining the cold chain from production until final consumption is an expensive and complex task that is exacerbated in warm-climate areas or developing countries (Lemmens et.al, 2016). Whether a vaccine is developed during a pandemic or not, the same steps are required to manage and store the drug therapy.

The distribution process for vaccines requires rigorous oversight, meticulous management practices, logistics support, accurate forecasting of the vaccination schedule, and utilization of various logistics tools currently used by the WHO. It is estimated that it will cost over $8 billion to distribute the COVID-19 vaccine throughout the US (Higgins-Dunn, 2020). These prohibitive costs and a lack of the proper infrastructure in many developing countries, will make the task of distributing a COVID-19 vaccine even more daunting. According to the US Department of Health and Human Services, "State health departments will distribute the doses to appropriate hospitals in their states because state and local health departments have the greatest insight into community-level needs in the COVID-19 response" (Facher, 2020). The CDC, WHO and other reputable agencies have agreed that health care personnel, other non-medical essential workers, those with high-risk medical conditions and adults aged 65 years or older should have priority and receive the COVID-19 vaccine first. Currently, there is still not a national policy that governs the distribution of the vaccine in the US (Stulpin, 2020).

TRUST, QUALITY AND ETHICAL ISSUES THROUGHOUT THE VALUE CHAIN FOR VACCINE DEVELOPMENT

From the onset of the pandemic to October 2020, over 1.1 million COVID-19 related deaths were reported worldwide. Because countries have struggled to contain the virus and mitigate the steadily rising death toll, pharmaceutical companies have been scrambling to rapidly produce a vaccine. It commonly "takes seven to ten years or more and about 1 billion U.S. Dollars" to develop a reputable and effective vaccine (Boyle, 2020). During a pandemic, normal timelines for vaccine development and testing are shortened. An expedited process, politics, varying distribution priorities, Phase 1, 2 & 3 testing disparities, minimal oversight, financial investments influencing decision making and a lack of transparency are all issues that impact trust and the quality of a vaccine.

Allwood et al. (2016) discusses how many companies prioritized production speed over more time-consuming quality-controlled processes (Allwood et al., 2016). Millions of dollars are invested in manufacturing equipment, adequate storage containers, warehousing facilities, labor hours and supplies before a manufacturer receives regulatory approval to mass produce a vaccine (Grabowski & Vernon, 2001). So, if the Phase 1, 2 and 3 trials are not completed expeditiously, this can result in a substantial financial loss. Also, because time is of the essence, some companies (and countries) skip the regulatory approval step; this step ensures that there are quality-controlled processes in place to produce a safe and effective drug (Wee, 2020). Numerous companies rushed to develop a vaccine for COVID-19 within the first year of the first known cases worldwide. Conventional thinking leads one to surmise that faster development, approval and distribution of a vaccine would translate to an increased market share. Burki (2020), Wee (2020) and OECD (2021) highlight several concerns about the hurried process. Some of these concerns, led to the following questions: 1) Are the vaccines safe and have they been tested adequately?; 2) Have the proper steps been taken to mitigate side effects?; 3) Can consumers trust that manufactures are being completely forthright about the efficacy of their vaccine given their tremendous financial investment? Ultimately, when you review articles about China giving thousands of their citizens a COVID-19 vaccine in July 2020 and Russia approving their vaccine in August 2020 without even completing Phase 3 testing, many of the aforementioned questions have merit (Burki, 2020; Wee, 2020; OECD, 2021).

In the US, there have been contentious battles between republicans and democrats for control of the legislative and executive branches of the government. Both politicians and scientists have been leading discussions about ways to combat COVID-19. Oftentimes, party affiliation heavily influences whether voters get vaccinated or adhere to suggested guidelines such as wearing a mask, social distancing, and rapid testing (Friedman, Gershon & Gneezy, 2021; Colvin & Whitehurst, 2021). In July 2020, President Trump's administration charged the US Department of Health and Human Services with collecting (and reporting) data about COVID-19. The CDC had been the premier organization tasked with researching, reporting, and leading the discussion about infectious diseases and pandemics since 1946 (Huang, 2020; Feuer, 2020b; Fox 6, 2020).

The polarizing nature of the pandemic response has led some minority groups, conservative conspiracy theorists and liberal democrats to ask the following questions: 1) How infectious is this virus?; 2) Is this virus a hoax that has been overhyped for political gain?; 3) How safe will a vaccine be?; 4) Can politicians be trusted to lead the discussion on the best practices to mitigate the impact of the COVID-19?; 5) Are the reported number of contracted cases and deaths accurate or made up for personal/political gain? A person's trust and willingness to take a vaccine is often tied to their political affiliation or race (Douglas, 2021; Ojikutu et al., 2021; Colvin & Whitehurst, 2021).

Phase 1, 2 and 3 trials are typically conducted on healthy subjects. Thus, the results may be skewed and more favorable, than if the vaccine was administered to sick or more at-risk patients. More information needs to be released about the age, ethnicity, co-morbidities, health status, gender etc. of subjects used for Phase 1, 2 and 3 trials. Initially, Russia approved their COVID-19 vaccine without releasing the results from the clinical trials; in subsequent weeks they published limited results for a study with 76 participants. The lack of transparency leads to questions about whether the clinical trial results are accurate and whether they can be trusted (Burki, 2020; Wee, 2020; OECD, 2021).

Distribution strategies and accessibility to a vaccine vary by country and region. These apparent disparities have led to questions regarding how the vaccine will be distributed and how people in rural areas will get vaccinated. World health organizations agreed that health care personnel, other non-medical essential workers, those with high-risk medical conditions and adults aged 65 years or older should receive the COVID-19 vaccine first (Stulpin, 2020). However, for the masses there is not a national policy in the US for distributing the vaccine. This uncertainty highlighted in Stulpin's (2020) and Sigalos'(2020) articles prompt the following questions: 1) Will the COVID-19 vaccine be affordable to the masses?; 2) Will wealth or socioeconomic class impact how vaccinations are prioritized?; 3) Will vaccinations be mandatory for adults and/or kids?; 4) Since VICP funds are restricted during a pandemic, how will citizens be compensated for adverse reactions to a drug if vaccinations are mandated? A contentious political climate in the US and the lack of a centralized response to the COVID-19 pandemic has eroded public trust and confidence that the government can adequately mitigate the virus (Stulpin, 2020; Sigalos, 2020).

ANALYSIS AND DISCUSSION OF SURVEYS ABOUT CONCERNS, TRUST AND VACCINES DURING A PANDEMIC

Epidemiologist were able to quickly develop a COVID-19 vaccine (within 9 months instead of 5+ years) because of how easily the mRNA molecules in the vaccine could be produced. According to Friedman et al. (2021) and Douglas (2021), many remain wary of the expedited vaccine development timeline and apprehensive about being vaccinated. Politics, the socioeconomic environment, distribution disparities and deviations from the normal development process, have led to inherent biases, fears, and concerns about the efficacy of the vaccines and the severity of the virus. These attitudes and beliefs are reflected in various surveys that capture respondents' views about contracting a virus, confidence in the government and attitudes about vaccinations amid a pandemic.

The purpose of this analysis and discussion is to review surveys about pandemics and highlight differences in the responses. The surveys in this section were retrieved between June-September 2020. Although analyzing correlating factors that impact the responses is beyond the scope of this research, the quality and ethical issues highlighted throughout this article could provide insight about why disparities exist in the survey results.

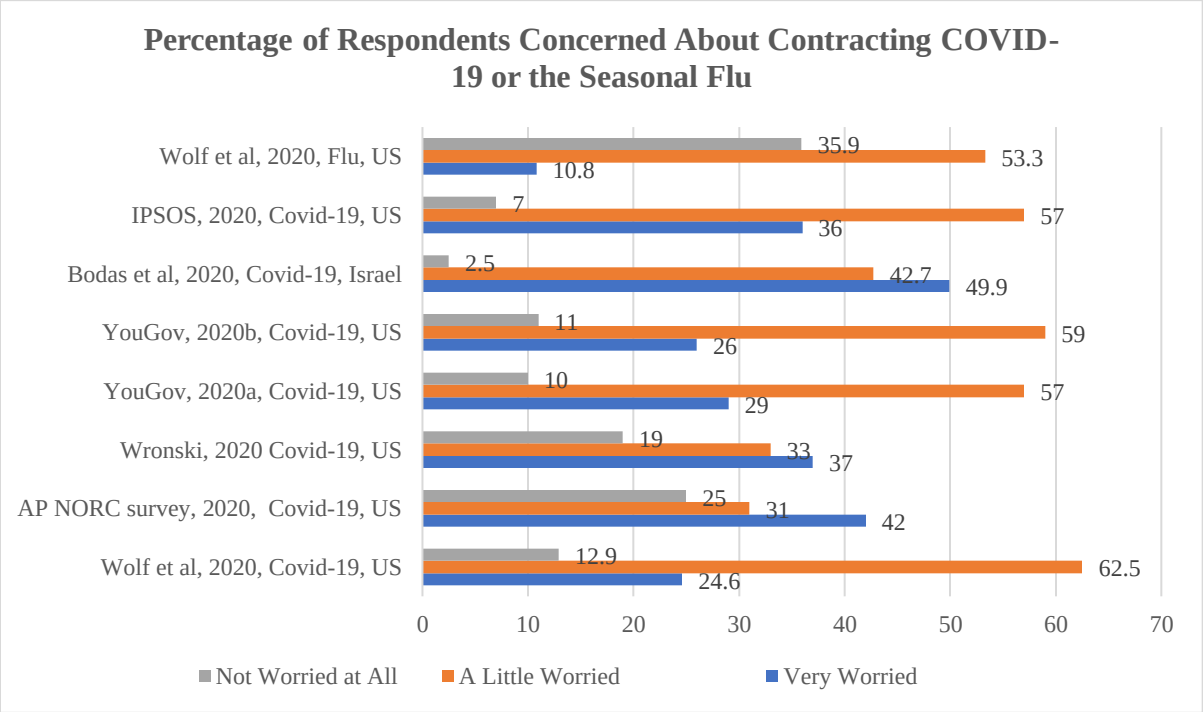
Initially, hundreds of articles were perused about surveys during pandemics over the past 20 years. Information was collected about the demographics, questions, and responses. It was challenging to compare the results for different surveys because varying Likert scales (and questions) were used and oftentimes the raw data was inaccessible. Ultimately, there were numerous questions in these surveys that could be definitively placed in 1 of the 3 groups -specifically, views about contracting a virus, confidence in the government or attitudes about vaccinations. Tables 1-3, list specific surveys about H1N1, MERS, Zika, Ebola, and SARS that have questions which fall into these three groups and have readily available data. By no means is this a comprehensive list. It is simply a snapshot of articles googled between June 2020 and September 2020. The types of questions slightly vary from article to article but the responses are still comparable.

In tables 4 and 5, the count and percentage of respondents who answered they were very worried (VW), A little worried (LW) or not worried at all (NW) about contracting COVID-19 or the

seasonal flu are listed. Since all of the surveys did not initially have these three distinct survey response categories, some categories were merged together if there were more than three possible answer choices in the original survey. Table 5 and figure 2, show that while 24.6-49.9 percent of the respondents were concerned that they (or their family members) would contract COVID-19, only 10.8 percent were worried about the seasonal flu. Most people were only moderately concerned about contracting either of these viruses. In order to further explore whether there was a significant difference in the proportion of respondents who were very worried about contracting these viruses, a chi-square test was conducted; this test revealed the p-value<0.001(χ^2=1053.71) and that there were significant differences in the proportions for these 8 surveys collectively.

Table 6A shows the results from a Marascuilo pairwise comparison procedure for the 8 population proportions. Of the 28 pairwise comparisons, 18 revealed significant differences in the proportions. The results illustrate that the differences in the proportion of respondents who were very worried about contracting the flu (Wolf et al., 2020, Flu) vs. COVID-19 in all but one pairing (3, 8) were significant. The disparities in the responses for questions about contracting the flu vs. COVID-19 are not unexpected; COVID-19 is still relatively new and people are processing how to understand the long-term impact and implications of this virus. As with any new global health crises, it is normal that people would have a heightened level of concern about the unknown. With more

Figure 2. Shows the percentage of people who answered that they were very worried (VW), a little worried (LW) or not at all worried (NW) that they or a family member would get COVID-19.

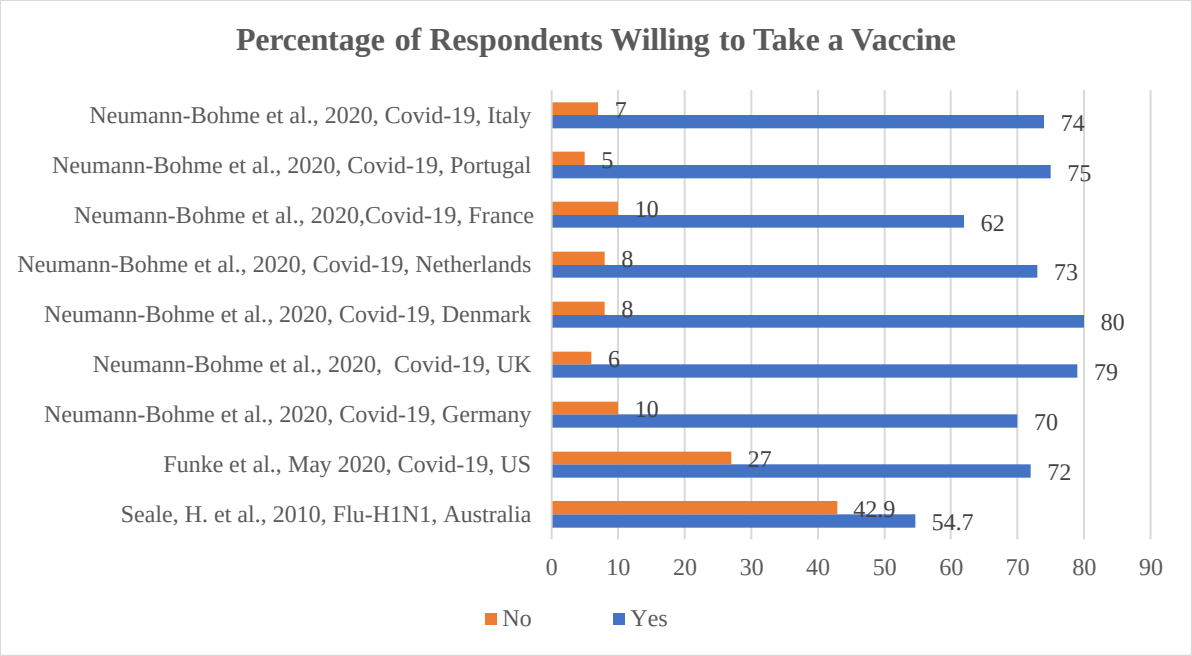


research and scientific studies, it would be interesting to track how these responses evolve over time.

Table 7, table 8 and figure 3 display the count and/or percentage of respondents who answered

that they would take a vaccine for COVID-19 or the flu-H1N1. While 62-80% of those surveyed revealed that they would take a vaccine for COVID-19, only 54.7% would get a flu-H1N1 vaccine.

Figure 3. Shows the percentage of respondents who are willing to take a vaccine for COVID-19 or the flu-H1N1.



Also, if only the surveys about willingness to take a COVID-19 vaccine are examined, an interesting dichotomy exists between respondents in the US vs. European countries; in European countries 5-10% indicated that they would not take a vaccine, whereas 27% were against taking it in the US. A chi-square test was conducted to explore the differences in the proportion of respondents who were willing to take a COVID-19 vaccine; this test revealed the p-value<0.001 (χ^2=882.79) and that there were significant differences in the proportions for these 9 surveys. Table 6B shows the results from a Marascuilo pairwise comparison procedure for the 9 population proportions listed. Of the 36 pairwise comparisons, 18 revealed significant differences in the proportions. Also, the differences in the proportion of respondents willing to take a vaccine for the flu-H1N1 (Seale, H. et al., 2010, Flu-H1N1) vs. COVID-19, were statistically significant. Similarly, the pairwise comparison procedure reveals a significant difference in the proportion of respondents willing to take a COVID-19 vaccine in the US vs. other European countries.

There are a multitude of factors which influence whether a person is concerned about contracting a virus or willing to get vaccinated during a public health crisis. Epidemiologists, politicians, and individuals are still in the early phases of understanding the trajectory of COVID-19 and its global impact long-term. Thus, this analysis is not comprehensive because surveys and data collection is on-going.

CONCLUSION AND FUTURE WORKS

In our research, we compare the typical supply chain for vaccine development to the current value chain used for many pharmaceutical companies developing a vaccine for COVID-19. While we focus on the expedited time frame to develop the COVID-19 vaccine, we also mentioned the rapid vaccine development for H1N1 as well. An H1N1 vaccine, "…was developed relatively rapidly, largely because influenza-vaccine technology was well developed and key regulators had previously decided that vaccines made using egg- and cell-based platforms could be licensed under the rules used for a strain change" (Lurie, 2020). Similarly, the mRNA based COVID-19 vaccine was also rapidly developed because it is relatively easier and faster to produce DNA/RNA molecules. Both the H1N1 and COVID-19 vaccines were developed within 5-9 months vs. the timeline for other pandemics, which normally spans 5+ years; although there are scientific reasons that support the expedited timeline to develop these vaccines, skepticism about the efficacy of the drug is understandable because the typical process was not followed.

Throughout this paper, we emphasize ethical and quality issues that could arise throughout the pre-clinical, phase trials, manufacturing, and distribution stages. We also perused various surveys about pandemics to understand how responses about contraction concerns and getting vaccinated vary. Descriptive statistics, chi-square tests and results from Marascuilo pairwise comparison procedures yielded insightful information. Significantly more respondents were worried about getting COVID-19 than getting the seasonal flu. Given the novelty of the COVID-19 and the familiarity with the seasonal flu, it is understandable that the heightened level of concern is different. Also, more people were willing to get vaccinated for COVID-19 than the flu-H1N1. It is also interesting to note that a pointedly greater number of respondents from the US were unwilling to get a COVID-19 vaccine as compared with individuals in other countries.

In the future it would be interesting to explore what factors have the most significant impact on respondents' attitudes about vaccination and virus contraction.

Table 1. Lists articles that discuss people's views about contracting a virus during a pandemic.

KNOWLEDGE ABOUT CONTRACTION			
Topic	**Reference**	**Question Wording**	**Explanation of Measurements**
Belief in disease contraction	Wolf et al, 2020; AP NORC Center survey, 2020; YouGov, 2020a; Wronski, 2020; Jang, WM et al, 2020; Bodas et. al, 2020; IPSOS Group, 2020	How worried are you about getting the Coronavirus?; How worried that or someone in your family will be exposed to the Coronavirus?; How worried are you about getting the flu?; How worried are you that you could get MERS?; Are you worried by the COVID-19 outbreak?	These measures indicate the degree to which people are worried about contracting the disease.
Belief in severity of disease	Wolf et al., 2020	Do you think you will get sick from the Coronavirus?	These measures indicate how likely it is that a person thinks they will get sick from a disease.
Belief in disease contraction amongst friends	Wolf et al., 2020	Do you think someone you know may get sick from the Coronavirus this year?	These measures indicate the degree to which people believe their friend, family member or associates are susceptible to obtaining the disease.

Table 2. Lists articles about people's confidence in the government or elected officials' ability to manage various pandemics.

CONFIDENCE IN THE GOVERNMENT			
Topic	**Reference**	**Question Wording**	**Explanation of Measurements**
Confidence in federal government	Wolf et al, 2020; Safford. T. et al., 2017; Bodas et al., 2020	How confident are you that the federal government can prevent a nationwide outbreak of the Coronavirus?; How confident are you in the federal government's ability to respond to Zika?; Do you trust the public health instructions of the MOH during the COVID-19 outbreak?	These measures indicate the confidence level in the government's ability to control of a disease outbreak.
Confidence in government officials	Wronski, 2020; IPSOS, 2020	Do you approve or disapprove of the way your governor is handling your state's response to the Coronavirus?; Do you approve or disapprove of your governor's handling of the Coronavirus outbreak?; Do you approve or disapprove the way of Congress' handling of the Coronavirus outbreak?; Do you approve or disapprove of the way President Trump is handling the federal government's response to the Coronavirus?	These measures indicate how the respondents feel about elected officials' abilities to handle a pandemic.
Longevity of the outbreak	YouGov, 2020a; YouGov, 2020b	Do you think the Coronavirus outbreak will have a lasting effect on the United States, or do you think things will soon get back to normal?	These measures indicate people's belief about the lasting effect of the Coronavirus.
Vaccination obtainment after government recommendation	Seale, H. et al., 2010	Will you get the vaccine if the government recommends it?	These measures indicate the respondents' confidence in government regulation and vaccine development.

Table 3. Lists articles about the attitudes and beliefs people have toward pandemic vaccinations.

VACCINATION ATTITUDES			
Topic	**Reference**	**Question Wording**	**Explanation of Measurements**
Vaccination side effects (Flu-H1N1; Flu-Seasonal;Covid-19)	Seale, H. et al., 2010; Cheney, M. et al., 2013; Wellcome, 2019	I am concerned about the side effects of the vaccine; I worry about side effects from the flu shot; Do you strongly agree that vaccines are safe?; Serious side effects from the flu shot are common.	These measures assess the concern level ofpotential side effects.
Safety of vaccination (Flu-H1N1; Flu-Seasonal;Covid-19)	Seale, H. et al., 2010; Cheney, M. et al., 2013; Wellcome, 2019	I am concerned that the vaccine has not been tested adequately; I wonder about the safety of the flu vaccine; Do you strongly agree that vaccines are effective?	These measures assess the concern level of the safety of various vaccinations.

Protection of vaccination (Flu-H1N1)	Seale, H. et al., 2010	The vaccination will protect me from the pandemic (swine flu); The vaccination will stop the spread of the swine flu.	These measures assess people's confidence in the protection levels of a pandemic vaccine.
Getting Vaccinated (Flu-H1N1; Covid-19)	Seale, H. et al., 2010; Funk et al. 2020; IPSOS 2020; Neumann-Bohme et al.2020	If a vaccine was made available to the general public, would you get vaccinated?; Would you be willing to take a vaccine if it were developed inside of the US?	These measures assess the probability of vaccine obtainment in a pandemic era.

Table 4. Focuses on questions and answers about how worried the respondents are about getting either COVID-19 or the Seasonal Flu.

CONCERNS ABOUT CONTRACTING COVID-19 OR THE SEASONAL FLU						
Exact Question	**Reference**	**Pandemic**	**Sample Size (n)**	**Survey Results and Scale**	**Survey Date**	**Country of Respondents**
How worried are you about getting the corona virus?	Wolf et al, 2020	Covid-19	630	24.6% Very worried, 39.1 % Somewhat worried, 23.4% A little worried, 12.9% Not worried at all	March 2020	US
How worried are you about you or someone in your family infected with the flu and Coronavirus?	AP NORC Center, 2020	Covid-19	1056	21% Extremely worried, 21% Very worried, 31% Somewhat worried, Not too; 18% not too worried, 7% Not at all worried	May 2020	US
How worried that or someone in your family will be exposed to the corona virus?	Wronski, 2020	Covid-19	46450	37% Very worried, 33% Somewhat worried,19%, Not too worried, 1% No answer	July 2020	US
How concerned are you that you or someone in your family will contract the coronavirus	YouGov, 2020a	Covid-19	997	29% Very concerned, 36% Somewhat concerned, 21% Not very concerned, 10% Not all concerned, 5% Not sure	May 2020	US
How concerned are you that you or someone in your family will contract the coronavirus	YouGov, 2020b	Covid-19	989	26% Very concerned,36% somewhat concerned, 23% Not very concerned, 11% Not at all concerned, 4% Not sure	June 2020	US
Are you worried about the Covid-19 outbreak?	Bodas et al, 2020	Covid-19	563	2.5% Not at all, 13.9% A little, 28.8% Moderate, 26.1% A lot, 23.8% very much	April 2020	Israel
How concerned are you that you or	IPSOS, 2020	Covid-19	500	36% Very concerned, 42%	May 2020	US

someone you know will be infected by the Coronavirus?				Somewhat, 15% Not so concerned, 7% Not concerned at all		
How worried are you about getting the flu?	Wolf et al, 2020	Seasonal Flu	630	10.8% Very worried, 26.8 % Somewhat worried, 26.5% A little worried, 35.9% Not worried at all	March 2020	US

Table 5. Shows the number (and percentage) of people who answered that they were very worried (VW), a little worried (LW), or not at all worried (NW) that they or a family member would get COVID-19.

	CONCERNS ABOUT CONTRACTING COVID-19 OR THE SEASONAL THE FLU-H1N1				
	Reference	**VW Percent (Count)**	**LW Percent (Count)**	**NW Percent (Count)**	**Total**
1	Wolf et al, 2020, n=630[c], COVID-19, US	24.6 (154.98)	62.5 (393.75)	12.9 (81.27)	**100% (630)**
2	AP NORC survey, 2020, n=1056*[c], COVID-19, US	42 (443.57)	31 (327.40)	25 (264.03)	**98% (1035)**
3	Wronski, 2020, n=46450*, COVID-19, US	37 (17360.07)	33 (15483.30)	19 (8914.63)	**89% (41758)**
4	YouGov, 2020a, n=997*[c], COVID-19, US	29 (289.09)	57 (568.22)	10 (99.69)	**96% (957)**
5	YouGov, 2020b, n=989*[c], COVID-19, US	26 (257.02)	59 (583.24)	11(108.74)	**96% (949)**
6	Bodas et al, 2020, n=563*[c], COVID-19, Israel	49.9 (280.72)	42.7 (240.22)	2.5 (14.06)	**95.1% (535)**
7	IPSOS, 2020, n=500[c], COVID-19, US	36 (180)	57 (285)	7 (35)	**100% (500)**
8	Wolf et al, 2020, n=630[c], Flu, US	10.8 (68.04)	53.3 (335.79)	35.9 (226.17)	**100% (630)**

VW- Very worried or concerned, **LW**- A little worried or concerned, **NW**- Not worried or concerned at all

[c] *Columns were merged. Responses of **somewhat** and **not very** were lumped together and summed. Responses of **very much concerned** and a **lot concerned** were lumped together and summed.*

** Responses that were left blank, or such as **not sure** or **don't know** were not included in these total counts and percentages.*

Table 6A. (left) Shows the results from a Marascuilo pairwise comparison procedure for eight population proportions very worried about contracting COVID-19. Table 6B. (right) Shows the results from a Marascuilo pairwise comparison procedure for nine population proportions who are willing to take a vaccine for COVID-19 or the flu-H1N1.

Pairwise Comparisons	$\lvert p_i - p_j \rvert$	CV_{ij}
1, 2	0.18257	0.08643
1, 3	0.16973	0.06499
1, 4	0.05608	0.08509
1, 5	0.02483	0.08408
1, 6	0.27871	0.10344
1, 7	0.11400	0.10307
1, 8	0.13800	0.07933
2, 3	0.01284	0.05840
2, 4	0.12649	0.08017
2, 5	0.15774	0.07909
2, 6	0.09614	0.09943
2, 7	0.06857	0.09905
2, 8	0.32057	0.07402
3, 4	0.11365	0.05640
3, 5	0.14490	0.05486
3, 6	0.10898	0.08148
3, 7	0.05573	0.08102
3, 8	0.30773	0.04725
4, 5	0.03125	0.07763
4, 6	0.22263	0.09827
4, 7	0.05792	0.09788
4, 8	0.19408	0.07246
5, 6	0.25388	0.09739
5, 7	0.08917	0.09700
5, 8	0.16283	0.07126
6, 7	0.16471	0.11419
6, 8	0.41671	0.09332
7, 8	0.25200	0.09291

	References
1	Wolf et al, 2020, n=630c, Covid-19, US
2	AP NORC survey, 2020, n=1056*c, Covid-19, US
3	Wronski, n=46450*, Covid-19, US
4	YouGov 2020a, n=997*c, Covid-19, US
5	YouGov 2020b, n=989*c, Covid-19, US
6	Bodas et al, 2020, n=563*c, Covid-19, Israel
7	IPSOS, 2020, n=500c, Covid-19, US
8	Wolf et al, 2020, n=630c, Flu, US

Pairwise Comparisons	$\lvert p_i - p_j \rvert$	CV_{ij}
1, 2	0.16682	0.08078
1, 3	0.31454	0.09144
1, 4	0.36895	0.08625
1, 5	0.34863	0.08774
1, 6	0.34078	0.08914
1, 7	0.30065	0.09390
1, 8	0.37704	0.08589
1, 9	0.35312	0.08805
2, 3	0.14773	0.04903
2, 4	0.20214	0.03848
2, 5	0.18182	0.04171
2, 6	0.17396	0.04458
2, 7	0.13384	0.05347
2, 8	0.21023	0.03767
2, 9	0.18631	0.04237
3, 4	0.05441	0.05759
3, 5	0.03409	0.05980
3, 6	0.02623	0.06184
3, 7	0.01389	0.06853
3, 8	0.06250	0.05706
3, 9	0.03858	0.06026
4, 5	0.02032	0.05151
4, 6	0.02818	0.05386
4, 7	0.06830	0.06142
4, 8	0.00809	0.04830
4, 9	0.01583	0.05204
5, 6	0.00786	0.05622
5, 7	0.04798	0.06350
5, 8	0.02841	0.05091
5, 9	0.00449	0.05448
6, 7	0.04012	0.06542
6, 8	0.03627	0.05329
6, 9	0.01235	0.05671
7, 8	0.07639	0.06092
7, 9	0.05247	0.06393
8, 9	0.02392	0.05145

	References
1	Seale, H. et al., 2010, Flu-H1N1, Australia
2	Funke et al., May 2020, Covid-19,US
3	Neumann-Bohme et al., 2020, Covid-19, Germany
4	Neumann-Bohme et al., 2020, Covid-19, UK
5	Neumann-Bohme et al., 2020, Covid-19, Denmark
6	Neumann-Bohme et al., 2020, Covid-19, Netherlands
7	Neumann-Bohme et al., 2020, Covid-19, France
8	Neumann-Bohme et al., 2020, Covid-19, Portugal
9	Neumann-Bohme et al., 2020, Covid-19, Italy

Table 7. Focuses on questions and answers about whether respondents would be willing to get a vaccine for COVID-19.

WILLINGESS TO TAKE A VACCINE FOR COVID-19 OR THE FLU-H1N1						
Exact Question	**Reference**	**Pandemic**	**Sample Size (n)**	**Survey Results and Scale**	**Survey Date**	**Country of Respondents**
If a vaccine to prevent COVID-19 were available today, would you get it?	Funk et al., 2020	COVID-19	10,957	42% Definitely, 30% Probably, 16% Probably not, 11% Definitely not, 1% No answer	May 2020	US
Would be willing to get vaccinated against COVID-19 if a vaccine would be available?	Neumann-Bohme et al., 2020	COVID-19	1000	70% Yes, 10%, No, 20% Unsure	June 2020	Germany
"	"	COVID-19	1000	79% Yes, 6% No, 15% Unsure	June 2020	UK
"	"	COVID-19	1000	80% Yes, 8% No, 12% Unsure	June 2020	Denmark
"	"	COVID-19	1000	73% Yes, 8% No, 19% Unsure	June 2020	Netherlands
"	"	COVID-19	1000	62% Yes, 10% No, 28%	June 2020	France
"	"	COVID-19	1000	75% Yes, 5% No, 21% Unsure	June 2020	Portugal
"	"	COVID-19	1000	74% Yes, 7% No, 19% Unsure	June 2020	Italy
If a vaccine was made available to the general public would you get vaccinated?	Seale, H. et al., 2010	Flu-H1N1	n= 627	54.7% Yes, 42.9% No, 2.3% Not specified	September-October 2009	Australia

Table 8. Shows the number (and percentage) of people who answered that they would (Yes) or would not (No) get a COVID-19 vaccine when it became available.

	WILLINGESS TO TAKE A VACCINE FOR COVID-19 OR FLU			
	Reference	**Yes Percent (Count)**	**No Percent (Count)**	**Total**
1	Seale, H. et al., 2010, n=627*, Flu-H1N1, Australia	54.7 (343)	42.9 (269)	**97.6% (612)**
2	Funke et al., May 2020, n=10957*, COVID-19, US	72 (7888.73)	27 (2958.27)	**99% (10847)**
3	Neumann-Bohme et al., 2020, n=1000*, COVID-19, Germany	70 (700)	10 (100)	**80% (800)**
4	", COVID-19, UK	79 (790)	6 (60)	**85% (850)**
5	", COVID-19, Denmark	80 (800)	8 (80)	**88% (880)**
6	", COVID-19, Netherlands	73 (730)	8 (80)	**81% (810)**
7	", COVID-19, France	62 (620)	10 (100)	**72% (720)**
8	", COVID-19, Portugal	75 (750)	5 (50)	**80% (800)**
9	", COVID-19, Italy	74 (740)	7 (70)	**81% (810)**

Responses that were left blank, or such as **not sure or **don't know** were not included in these total counts and percentages.*

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HOW DO GLOBALISM AND NATIONALISM IMPACT THE INTERNATIONAL BUSINESS COMPETITIVENESS OF THE UNITED STATES OF AMERICA?

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ABSTRACT

Business competitiveness in the global marketplace is dependent upon the stability, infrastructure, policies, and practices of the nations with which it does business. A nation's competitiveness is fundamentally interconnected with its businesses and while on the world stage, it is tied to its globalist and nationalist strategies. There are objective approaches to measuring various dimensions of national outcomes of competitiveness from economic, political, and social platforms. Many internationally recognized indices seek to offer standard-based, objective perspectives and associated data on what constitutes nation-state greatness. These indices are based upon a globalist perspective, acknowledging that a nation's competitiveness is in relationship with other nations. The paper utilizes the constructs of business competitiveness in the context of several of these internationally accepted indices.

This study operationalizes the USA's global competitiveness from three dimensions: economic, political, and social, by analyzing indices recognized as valuable to assessing a nation's outcomes. Further, it considers the international business competitiveness of the USA over four decades of the presidential administrations, from Carter to Obama, to advance the country's international commerce and determine if there is alignment with the international standard measured by these indices. Also, each presidential business competitive policy and their concomitant outcomes, are analyzed based on the theoretical underpinnings of both nationalism and globalism and posit which posture best supports USA's international competitiveness on the macro level. The paper concludes that both globalist and nationalist strategies in a globalized world have advanced the USA's international business competitiveness.

Keywords: international business competitiveness, globalization, globalism, nationalism, country indices

INTRODUCTION

Does globalism or nationalism best support the international business competitiveness of the USA? This is a philosophical question, which has been debated by scholars from Plato to Smith (Sowell, 2007). The debate can be traced through the philosophical works from Plato's, *The Republic* to that of Adam Smith's, *The Wealth of Nations.* The perspective between globalists and nationalists differ on human nature. The globalists appear to have an unconstrained view of human nature. They are the children of the Western period of the Enlightenment. They believed that science had unburdened humanity of the myths that had controlled their lives and coupled with critical

thinking, anything was possible. The nationalists, on the other hand, appear to have a constrained vision that views the external constraints of laws, institutions, customs and traditions, religion, as absolutely vital for the fulfillment of human destiny. This social reality, based on intellectual proclivities, is accepted as fact rather than perception. There lies the challenge.

When considering the contemporary era, globalization has profoundly impacted world economies. Waldman and Javidan (2020) describes globalization and economic interdependence among nations as a driver for Gross Domestic Product (GDP). Due to globalization, GDP grew from $50 trillion in 2000 to $75 trillion in 2016. Employment also grew beyond borders with migrant employees sending $466 billion to their families in their home countries. Waldman and Javidan (2020) purport that a global mindset of executives has promoted development, maturation, and growth across international businesses.

Conversely, Waldman and Javidan (2020) report there is a movement toward nationalism, leaning toward protectionism, encouraging domestic production and consumers to buy goods from their home countries to ensure maximum benefit to the domestic economy due to national self-interest. Nationalism is often considered as bigoted and xenophobic, leading to protectionist national policies. However, Waldman and Javidan (2020) argue that businesses need to find a middle ground.

This paper seeks to answer three questions: 1) Is the USA competitive in the global business marketplace? 2) Is there a link between American Presidents' policies and USA's international business competitiveness? 3) Is there a difference in USA's global business outcomes based on a president's perspective on globalism and nationalism over 40 years under Presidents Carter through Obama? The paper defines the concepts of globalism, nationalism, and national interest in the process of identifying whether the perspectives of the presidents of the USA on globalism and/or nationalism led to business competitiveness. This study analyzes selected indices utilized to provide a historical perspective of USA competitiveness. The paper will then review the presidential strategic initiatives from the last 40 years and explore the level of alignment between their initiatives and the actual outcomes expressed in the selected indices. Finally, the paper analyses the presidential approaches in terms of globalism and/or nationalism and relates them to the USA's international business competitiveness.

UTILIZING COUNTRY INDICES TO ASSESS BUSINESS COMPETITIVENESS

Porter (1990) defined competitiveness as the engine of the market economy, which is fundamental to a firm's success or failure in becoming internationalized. Business internationalization theory purports that competitiveness is the capacity of internal considerations when approaching new markets, targets, and business networks (Hilmersson, 2014). Looking into external factors, Molodchik, Shakina & Bykova (2012) considered industry, country specificity, economic climate, education, and technological progress as relevant influencing forces of competitiveness. Hussain & Hoque (2002) also examined the influences of the social, economic, and political pressures and constraints of competition, concluding that all these factors should be considered as relevant environmental drivers.

There are a wide range of approaches to determining international competitiveness of a country's businesses on the world stage and can be found in various disciplines in the literature. According to Zmuda (2017) while there are definitional ambiguities, there is consensus that international competitiveness is a multi-faceted concept. While defining and measuring competitiveness is greatly debated, business and economic foundational literature suggests it is firms, not nations, that compete in the global marketplace (Porter, 1998). However, several composite indicator indices have been developed that are consistently utilized by policymakers to assess country performance that are applied to considering business competitiveness and degree of globalization (Vevere, Zvirgzdina & Linina, 2017; Freudenberg, 2003). The number of these country performance indices has grown from fewer than 10 in 1970 to over 120 by 2005 (Bandura, 2005). These tools are cited widely as useful tools for international comparisons of country performance (Hudrlikova, 2013).

This paper analyzed five country performance indices to consider the international business competitiveness of the USA: 1) The KOF Globalisation Index, 2) A.T. Kearney Foreign Direct Investment Confidence Index, 3) The World Bank's Doing Business Index, 4) Transparency International's Corruption Perception Index and 5) The World Economic Forum's Global Competitiveness Index.

DEFINING GLOBALISM, GLOBALIZATION AND NATIONALISM

Globalization is a process that eliminates national boundaries, integrates national economies, cultures, technologies, and governance, and produces complex relations of mutual interdependence (Dreher & Martens, 2008). Globalization creates business opportunities for trade, flow of capital, ideas, and people. To integrate into the global economy, countries tend to promote policies, which in turn, help to remove barriers to the flow of investment, goods, and services. As a process, it brings about economic, social, and political changes within a country and has impacted developed and developing economies. There is ongoing debate on the positive and negative implications resulting in some counties benefitting more than others from globalization (Gonzalez, 2016).

Fostering political and economic globalism in an increasingly nationalistic environment need not lead to a debate among ideological extremes. Political and economic globalism is not inherently at odds with nationalism. The discussion need not be a win/lose construct since one can craft an alliance between all three concepts and create a win/win outcome. However, as the economist, Sowell (2007) states that social visions differ in their basic conceptions of the nature of human beings. The question is as follows: are the social visions of political and economic globalism diametrically opposed to the social vision of nationalism?

Table 1. Differing Perspectives on Social Vision

Constrained Social Vision	Unconstrained Social Vision
Human nature is flawed and needs the external constraints including laws, institutions, nations, traditions, and religion, to behave well. Goal: Manage human beings.	Human nature is malleable, can be improved, and even perfected under the right conditions. Artificial constraints should be minimized. Goal: Free human beings.

Source: Sowell (2007)

As depicted above in Table 1, Sowell (2007) frames his discussion of social visions into two abstractions: unconstrained and constrained vision. The first step in the creation of an alliance between political and economic globalism and nationalism is defining each construct and building a bridge that will link them. In the bridge-building task, considerations for both the constrained and unconstrained social visions should guide the process.

Globalism and globalization are interconnected. Globalism is a philosophy and ideology leading to policies that frame the world and its global communities above individual countries. Al-Rodhan and Stoudmann (2006) present a comprehensive overview of 114 contending definitions of globalization since 1998. According to Nye (2002), it is characterized by networks of connections that span multi-continental distances.

According to Gygli, Haelg, Potrafke & Sturm (2019), "globalisation is the process of creating networks of connections among actors at intra- or multi-continental distances, mediated through a variety of flows including people, information, and ideas, capital, and goods. Globalisation is a process that erodes national boundaries, integrates national economies, cultures, technologies, and governance, and produces complex relations of mutual interdependence" (p. 546). Thus, the three variants of globalization include economic, political, and cultural.

The KOF Swiss Economic Institute has developed the KOF Globalisation Index (Konjunktuforschungsstelle, KOF Swiss Institute, 2019) which includes measures of economic, social, and political dimensions of globalization which is discussed in the following section. KOF defines globalization as a process of creating networks of connections among actors at intra-or multi-continental distances, mediated through a variety of flows including people, information and ideas, capital, and goods.

According to Sowell (2007), the second step connecting political and economic globalism and nationalism is to understand and connect the concepts of nationalism compared to globalization. There are many interpretations of the term nationalism, and it resists a simple definition. According to Sabanadze (2010), nationalism is often defined as advocating for the interests of a particular nation and its people, with the primary goal of gaining and maintaining the nation's interest and its sovereignty. However, Sabanadze (2010) posits that nationalism is about seeking the recognition of a culture and gaining acceptance from others. It is about a process of interaction not one of isolation. Twenty-first-century contemporary, or new nationalism, with its outward-looking aspects of nationalism, namely, its national security, accepts its interdependence within the international system.

Sowell (2007) asserts that a country's definition of its national interests is the third step in linking political and economic globalism, globalization, and nationalism to national security. National security issues could contain both constrained and unconstrained social views. It creates an opportunity for discussion among non-ideological minds. How best to define national interest is, however, a matter of considerable dispute. But, in this context, since 1986, each President is required by law to submit an annual National Security Strategy Report. This report defines national interest for the United States as interpreted by each President. For Presidents prior to 1986, their Inaugural Address served as the guide for national security using several indices.

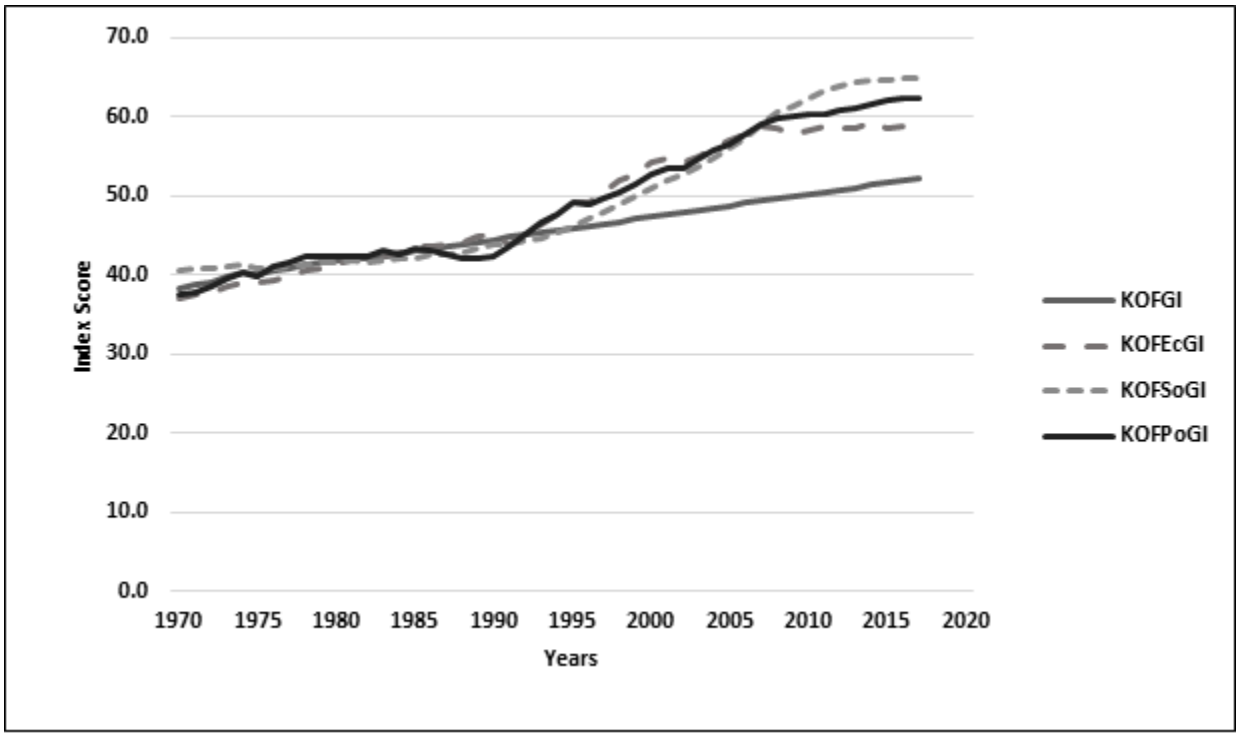
The next section will provide details of each of these selected indices utilized to provide a historical perspective of competitiveness of the USA.

KOF Globalisation Index

The KOF Swiss Economic Institute in Zurich, Switzerland, has become the most often cited source in addressing the status of worldwide globalization (Gygli, Haelg, Potrafke & Sturm, 2019). The index defines globalization as a process that creates connecting networks among and between countries and their businesses, which includes interactions of people, information and ideas, capital, and goods. The KOF index is available for the years 1970-2019 for 203 countries and is updated annually. The index is based on a scale of 100, the closer to 100 the more globalized a nation is purported to be. As with all indices, there are both positive and negative points with the KOF index. However, according to Potrafke (2015), "the KOF index successfully measures globalization and evaluates its consequences" (2015, p.530).

The KOF Globalisation Index measures three types of activity, including the economic, social and political dimensions. Economic globalization is characterized as long-distance flows of goods, capital, and services as well as information and perceptions that accompany market exchanges. This dimension measures the actual flows and the restriction to those flows. Social globalization reflects the sharing of ideas, information, images, and people. This part of the index focuses on measuring personal contacts among people living in different countries as well as looking at data on information flows and cultural proximity, often through the arts, movies, art exhibits, and food as examples. And finally, political globalization reflects the diffusion of government policies.

Figure 1. Worldwide Globalization Progress Slightly Climbs Since 1995



Source: KOF Globalisation Index, 2019

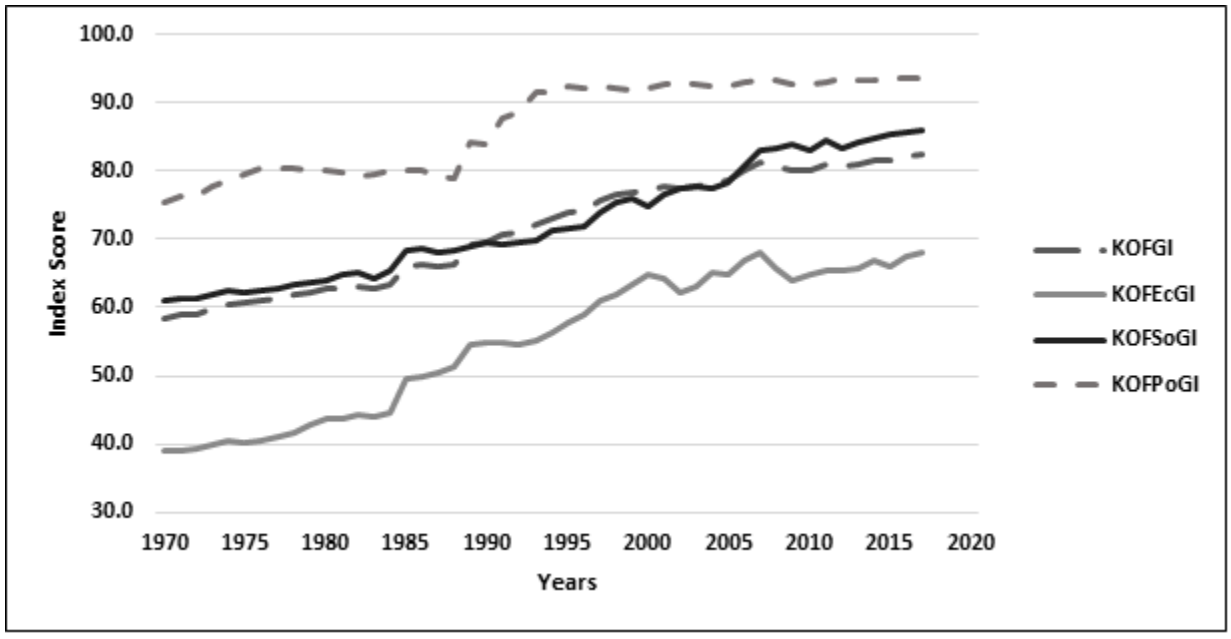
The individual country globalization ranking data reveal that the size of internal markets seems to be a variable. The large, internal market countries tend to rank lower on the KOF Globalization Index as do the less economically developed nations. The data also show that since 1970, when the KOF Globalization Index was initiated, there has been a small, but steady rise in the level of worldwide globalization as can be seen in Figure 1 (KOF Globalisation Index, 2019).

The small, but steady worldwide rise in globalization seen in Figure 1 is similar when looking at the USA's globalization landscape for all administrations over the past 40 years. All three globalization types of activity (economic, social, and political) steadily progressed since 1978. Compared to overall globalization around the world, the political dimension in the USA was almost double that of the world in 1970.

Figure 2 (KOF Globalisation Index, 2019) displays USA globalization measures noting overall globalization as KOFGI, the economic globalization as KOFEcGI, the social globalization as KOFSoGI, and the political globalization as KOFPoGI. While the USA's political globalization rating was nearly double that of its economic globalization in 1970, however the USA's globalization progressed steadily since 1970 in all categories.

A cursory review of each administration's trade policies over the past 40 years reveals that all Presidents of the USA were in support of open trade. Beginning in the late '70s there was more emphasis on pressing for the opening of foreign markets.

Figure 2: USA Globalization Progressed Steadily Since 1970



Source: (KOF Globalisation Index, 2019)

The Omnibus Trade and Competitive Act 1988 during the Reagan Administration initiated legislation to open markets not to close them (Destler, 1991). The Bush Administration led the initial talk for the North American Free Trade Agreement (NAFTA) and in 1992, President Bush visited Australia, Japan, Singapore, and South Korea in pursuit of opening markets for goods from

the USA. Presidents Clinton, Bush W., and Obama all supported open trade, albeit leveling the playing field.

Although the economic dimension score lowers the United States' global ranking, the US ranked 63rd in economic globalization, but 29th and 10th for social and political globalization, which reflects its large internal markets rather than its protectionists' policies (KOF Globalisation Index, 2017). The USA national self-interest included open trade from Presidents Carter through Obama administrations.

As displayed in Table 2, KOF globalisation ranking data for the United States over 40 years under six Presidents, the USA's pace of globalization had a slow, but steady rise. However, the USA's rank has declined in comparison to other countries' progressions.

Table 2. USA's KOF Globalisation Pace Rises While Rank Declined

KOF USA	**Carter**		**Reagan**		**Bush**		**Clinton**		**Bush W**		**Obama**	
	'77	'81	'81	'89	'89	'93	'93	'01	'01	'09	'09	'17
76.65											#26	#27
79.29									#24	#38		
79.28							#13	#20				
74.45					#14	#15						
70.22			#12	#15								
65.22	#14	#15										

Source: KOF Globalisation Index, 2017

Foreign Direct Investment

The next index considered in the analysis of the United States' business competitiveness is foreign direct investments (FDI). According to ATKearney (2017), FDI is defined as investments in fixed assets. Furthermore, the U.S. Department of Commerce (2017) in its definition of foreign investments includes establishing new operations, purchasing existing operations or another company, or adding capital to foreign pre-existing operations.

ATKearney in its seminal 1998 survey asked respondents which factors influenced their overseas investment. The leading factors were market size, political stability, regulatory environment, competitor presence. Nearly two decades later their concerns were similar and included domestic market size, cost of labor, regulatory transparency and lack of corruption, general security environment, and efficiency of legal and regulatory processes. This indicates that the availability

of raw materials and other inputs, land and real estate, quality of transportation infrastructure including, electricity and telecommunications were not priorities (ATKearney, 2017).

ATKearney has conducted an annual survey of corporate CEOs and CFOs and other top corporate leaders, from the world's largest one thousand firms, with a $500 million annual revenue. The survey includes 30 countries that receive more than 90 percent of global FDI flows based on the United Nations Conference on Trade and Development (UNCTAD). All major regions and sectors participate in this annual survey and include 45 percent of the respondents from the service sector, 40 percent from the industrial sector, and 15 percent from informational technology. The Index, a tool to measure the investment preferences over the next one to three years, serves as a barometer of global investor confidence in markets around the world (ATKearney, 2017).

The United States Department of Commerce (2020) seeks to consider foreign companies to invest in the United States. It reminds the potential foreign investors that the United States has the world's largest household spending market in the world. With a GDP of $18 trillion and 325 million people, household spending is the highest in the world, accounting for almost a third of global household consumption. Moreover, it promotes the USA as a nexus for innovation, with abundant resources, access to capital, workforce talent, and according to the World Bank, has consistently ranked among the best in the ease of doing business. Finally, the report mentions that for the fifth year in a row, the ATKearney FDI Index has rated the USA at the top of its FDI Confidence Index. The United States' record in attracting FDI is a strong one. Since the ATKearney survey began in 1998, the United States ranked first 59 percent of the time, second at 23 percent, third at 16 percent, and fourth at 6 percent. From 2012 to 2017, it was ranked first for those five consecutive years (ATKearney, 2017). FDI records are often reflective of national attractiveness resulting from the strength of the nations' attributes.

Table 3. Top 5 FDI Inflow to USA Over Four Decades Came From 9 Countries

Carter 1981	**Reagan 1989**	**Bush 1993**	**Clinton 2001**	**Bush W 2009**
Netherlands	UK	UK	UK	Canada
UK	Japan	Germany	Germany	France
Japan	Netherlands	France	Netherlands	Germany
Canada	Switzerland	Netherlands	France	Belgium
France	Germany	Canada	Canada	UK

Source: Bureau of Economic Analysis, 2018

Mundheim and Helenik (1979) described the attitudes of Americans in the USA towards FDI. The report explains that prior to the Carter Administration, there was a minimal flow of FDI into the United States. During the Carter presidency, 1978-1981, the USA experienced an acceleration of FDI inflows and FDI became a consistent factor in the creation of American jobs and USA's business competitiveness as can be seen in Table 3. It depicts the top five countries providing the highest inflows of FDI during multiple Presidential administrations. It also indicates the inflow of

FDI to the United States was from nine countries over four decades. The countries were predominantly from Europe and this pattern continued over five presidential administrations suggesting that the USA appears to be competitive to overseas investors.

It soon became apparent that the USA did not have the data to assess the impact of FDI on the USA's industry and economy. To bridge this information gap, the Congress enacted the Foreign Investment Study Act of 1974, commonly called FISA. It required the Government to conduct a survey at least every five years. Table 4 shows the increase in the inflow of FDI over six Presidents, 1978-2017. Table 4 further documents that the USA appears to be competitive to overseas investors.

Table 4: FDI into USA increased 97.5% in past 40 years

AT Kearney FDI Rankings	**Carter**	**Reagan**	**Bush**	**Clinton**	**Bush W**	**Obama**
2010-17						$2,278.5 T
2002-09					$1,687.7 T	
1994-2001				$1,286 T		
1990-93			$142,46 B			
1982-89		$287.6 B				
1978-81	$56.6 B					

Source: ATKearney, 2017

Table 4 indicates the growth of investments into the USA has been profound across these six Presidents over their 40 years of policies of their administrations. Therefore, utilizing FDI as a criterion for assessing USA business competitiveness (World Bank, 2019a; 2019b).

World Bank's Doing Business Index

The World Bank annually provides objective measures of business regulations for local businesses in 190 economies. The World Bank's "Doing Business Index" was established in 2003-2004 as a benchmark study of the global business regulatory environment. Its annual index was developed to measure regulations that directly impact starting and conducting business. The eleven processes are noted in Table 5. They include starting a business, labor market regulations, dealing with construction permits, getting electricity, registering property, getting credit, protecting minority investors, trading across borders, paying taxes, enforcing contracts, and resolving insolvency (World Bank, 2020a).

The process includes a study of laws, regulations, and publicly available information on business entry. A detailed list of procedures is developed, as well as costs, and time required to comply with each procedure. Information is also collected on the sequence of which procedures are to be completed and whether some may be completed simultaneously. Local incorporation lawyers, notaries, and government officials review and verify the data. If the local data is not reconciled with research data, the process continues until synchronization is achieved (World Bank, 2020a).

A review of Table 5 indicates the World Bank Doing Business (2020b) ranking scores in 2019, comparing the number one ranked country, New Zealand, with the United States, ranked at #6

Table 5. World Bank's Doing Business Compares #1 New Zealand and USA #6

Categories	**New Zealand**	**United States**
Starting a Business	1	55
Dealing with Construction Permits	7	24
Getting Electricity	48	64
Registering Property	2	39
Getting Credit	1	4
Protecting Minority Investors	3	36
Paying Taxes	9	25
Trading Across Borders	63	39
Enforcing Contracts	23	17
Resolving Insolvency	36	2

Source: World Bank Doing Business (2020b)

In 2019, New Zealand ranked higher than the USA in seven of the ten Doing Business categories with Starting a Business, Registering Property, Protecting Minority Investors in the top three. First, in the *Starting a Business* category, the USA's ranking of 55 is between the countries of the Democratic Republic of Congo and 54 and Niger at 56. In the category of *Registration of Property*, the USA ranked 39, which was comparable to Croatia at 38 and the Korean Republic at 40. Comparing the USA from a global perspective is this category, Malawi was at the mid-range (90th rank), and the lowest ranking of 187 was shared by Libya and Timor-Leste. In the category of Protecting Minority Investors, New Zealand ranked 3 while the USA ranked 36. There were multiple countries ranked at 37 which include Austria from Europe, Morocco from North Africa and Indonesia from the southeast Asian region. The country which ranked lowest was Somalia at 190. The categories where the USA ranked better than New Zealand were Resolving Insolvency, Trading Across Borders and Enforcing Contracts.

Overall, the United States is lagging in some practices described above compared to some of the more economically developed countries. However, when looking at the confidence of CEOs' and CFOs' perspectives of the ease of doing business in the USA, the Clinton Administration ranked number 1. In the subsequent administrations of Presidents Bush and Obama, the ranking ranged from 1 to 4 during those 15 years. This confidence supports the increasing inflow of FDI as shown in Table 4.

Transparency International Corruption Index

Transparency International, a non-governmental organization, has published the annual Corruption Perception Index (CPI) since 1995. The CPI is developed using information from multiple sources. It is a widely used indicator of corruption worldwide. It ranks countries and territories assessing how corrupt a country's public sector is perceived to be by experts and business executives. A composite index combining 13 surveys and assessments of corruption are collected by several reputable institutions (Transparency International, 2019). The CPI utilizes a scale of zero to 100, with zero being 'highly corrupt' and 100 denoting 'very clean,' and only measures corruption in the public sector. No country has achieved a perfect 100. Also, each country is ranked up from 1 to 180.

Transparency International (2019) defines corruption as "the abuse of entrusted power for private gain". It further classifies corruption depending on the amounts of money lost and the sector where it occurs. There are three categories of corruption. The first category is framed as grand corruption, which includes acts that are committed at high levels of government and consequently distort policies, and or affect the central functioning of the state, which enables individuals or organizations to benefit at the expense of the public good. The second category is labeled as petty corruption, which includes day-to-day abuses of entrusted power by low and mid-level public officials who are often trying to secure goods and services in their dealings with ordinary citizens. The third category is political corruption, which is defined as political decision-makers manipulating policies, institutions, and procedural rules in deciding on the allocation of financing and resources to benefit wealth, status, or power.

The G20 group of twenty nations make-up the international forum promoting international financial stability, for governments and central banks' governors. The Organization for Economic Co-operation and Development (OECD), with its thirty-five members, promotes the stimulation of economic progress and trade. Transparency International (2019), ranks 198 countries in terms of the perception of corruption in the respective country. The five least corrupt nations in 2019 were New Zealand and Denmark tied for the least corrupt at number 1 out of 100. Finland ranked next least corrupt. And Switzerland, Sweden and Singapore ranked as the next least corrupt. The United States was tied with France at ranking 23 out of 100.

A brief review of the rankings points to mediocre performance on the part of the United States. Since the CPI began, the USA has never been ranked above 14 in the year 2000 and slid down to its lowest ranking of 24th place in the year 2011. These scores are lower than many of the OECD, partners, and G20 members. In 2017, the United States trailed behind numerous partners including Canada, Germany, the United Kingdom, and Australia to name a few (Transparency International, 2017).

Gallup (2015) reported that 75 percent of the American public believed that there was widespread corruption in the government, up from 66 percent in 2009. Some key areas of concern have included the lack of transparency in campaign financing and high-profile state and local corruption. The CPI rankings coupled with the U.S respondents' perceptions of governmental corruption, indicates the level of mistrust of their elected representatives.

In 1972, Gallup's first surveyed residents of the USA on the level of trust and confidence in their government's handling of international and/or domestic problems. The scale had four categories: a great deal, a fair amount, not very much, or none. In 1972, 22 percent of respondents reported their confidence and trust in the federal government handling of international issues as not very much or none at all, compared to 2019 when it more than doubled to 50 percent (Gallup, 2019). In the same year, related to domestic issues, the lack of confidence and trust was reported at 29 percent compared to 60 percent in 2019. It is interesting to note that Gallup data supports the findings of the Transparency International data.

Global Competitiveness Index

The World Economic Forum (WEF) has been measuring competitiveness among nations since 1979 with its Global Competitiveness Index. The WEF defines economic competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country (World Economic Forum, 2019a). The WEF believes that a competitive economy is a productive one and that productivity is linked to growth. A growing economy leads to higher income levels and in the final analysis, leads to an increase in human welfare. It is important to understand the factors that contribute to this chain of events and how they are measured.

The WEF organizes a nation's competitiveness in twelve pillars, organized into three subindexes: First are basic requirements that include Institutions, Infrastructure, ICT Adoption, Macroeconomic Stability, and Health, Skills, Product Market, Labor Market, Financial System, Market Size, Business Dynamism and Innovation Capability (World Economic Forum, 2019a). Table 6 breaks down the United States' second position in the 2019 ranking and in each of these areas/pillars and compares them to WEF's number one nation, Singapore.

Table 6. World Economic Forum's 12 Pillars of Global Competitiveness Ranks US #2

(n=141)	**Overall US Ranking (2)**	**Overall Singapore Ranking (1)**
Pillars	**USA by Pillar**	**By Pillar ranked #1**
Institutions	20	Finland
Infrastructure	13	Singapore
Macroeconomic stability	37	Multiple
ICT adoption	27	Republic of Korea
Health	55	Multiple
Skills	9	Switzerland
Product Market	8	Hong Kong SAR
Labor market	4	Singapore
Financial system	3	Hong Kong SAR
Market size	2	China
Business dynamism	1	United States
Innovation capability	2	Germany

Source: World Economic Forum, 2019a

The USA led the world in 2018, but dropped to second place in 2019, remaining in a leading ranking among other developed economies, overall. As noted in Table 6 based on the World Economic Forum (2019b), seven of the 12 Pillars of global competitiveness as assessed by the World Economic Forum, the USA ranks in the top 9 of 141 reported countries. The USA ranks as number 1 in Business Dynamism and Skills at number 9. Overall, the USA ranked number 2, compared with first ranked Singapore

There are four areas where the gaps are widest from the top country: Health, Macroeconomic Environment, Information and Communication Technologies (ICT) adoption and institutions. In analyzing the first pillar, Health, representing life expectancy, which is the average number of years one is expected to live in good health. There are four countries in 2019 that tied for the number 1 ranking: Spain, Hong Kong SAR, Japan, and Singapore. The USA ranked at 55, compared with Poland at 54 and Algeria at 56. The Macroeconomic Environment assesses the level of inflation and fiscal policy sustainability. There are 33 countries tied at the rank of number 1. The USA is ranked at 37, with France at 36 and Singapore at 38. The ICT pillar assesses the level of access to ICT. South Korea is ranked at number 1. The USA is ranked at 27 while Brunei Darussalam is 26 and France at 28.

Even though the USA's performance dropped by one place from the former year, it remains one of the most competitive world economies given its first in class innovation capabilities, business dynamism, the world's second-largest market based on purchasing power, and the most dynamic financial system in the world (World Economic Forum, 2020).

CONSIDERING NATIONAL SECURITY/NATIONAL INTEREST PERSPECTIVES

Henry Kissinger articulated what he thought were the most important questions to be answered by the United States if it wanted to be involved in the evolution of the 21st Century world order (Kissinger, 2014). Kissinger believed that to thrive in the world order, all nations need to acquire a second culture that is global, structural, and juridical, a concept that transcends the perspective and ideals of any one region or nation.

The five questions included: 1) What do we seek, no matter how it happens, and if necessary alone, with the answer defining the minimum condition of survival of society. 2) What do we seek to achieve, even if not supported by any multilateral effort? These goals define the minimum objectives of the national strategy. 3) What do we seek to achieve, or prevent, only if supported by an alliance? This defines the outer limits of the country's strategic aspirations as part of a global system. 4) What should we not engage, even if urged by a multilateral group or alliance? This defines the limiting condition of the American participation in the world order. 5) What is the nature of the values that we seek to advance?

Kissinger's questions, if answered by each President of the USA, could eliminate, in large measure, the ambiguity surrounding questions of national interest and national security. Kissinger's questions provide the backdrop to answer our three inquiries: 1) How do the Presidents of the USA define national security and national interest? 2) Over the past 40 years, which Presidents have been globalists, nationalists, or both, based on our previous definitions? 3) How has each President supported American businesses to compete in the international marketplace?

The first and second questions are difficult to separate. Since 1986, the Goldwater-Nichols (Congress.gov, 1986) legislation required that each of the Presidents must submit a National Security Strategy Report (2020) describing the national security strategy of its administration to the United States Congress. And in the review of the American Presidency Project (2020) these documents since 1986, including pre-1986 documents, such as Inaugural Addresses, and major speeches, a pattern of thinking along the lines of globalism and globalization emerges. The third question is how did each President support American business competitiveness in the international Graphic News Marketplace. This can be related, in part, to specific policies that were initiated. Table 7 provides details for these efforts (National Security Strategy Archive, 2020).

Table 7. USA Presidential Pro-Business Initiatives Maximize International Competitiveness

President	**Initiative 1**	**Initiative 2**	**Initiative 3**
Carter	Deregulation of trucking and airline industries	Reformed civil service	Decreased o the budget deficit
Reagan	Overhauled the income tax code	Maintained free-flow of oil during Iran-Iraq war	Maintained prosperity without recession
H.W. Bush	Sent troops to the Panama Canal to keep it open	Rallied an international alliance to free Kuwait and spare Saudi Arabia	Contributed to the conclusion of GATT's Uruguay Round if Multilateral Trade Negotiations
Clinton	Signed NAFTA into law	Created USA's first national export strategy providing pathways from government to work with private sector to increase exports	Established computer export controls to protect American business
G.W. Bush	Increased federal investment in research and development by more than 50% to $137 billion	Implemented or completed negotiations for Free Trade Agreements (FTAs) with 14 countries on 5 continents; negotiating with 11 additional countries	Crafted a banking bailout and auto industry rescue plan
Obama	Continued a banking bailout and auto industry rescue	American Recovery and Reinvestment Act of 2009	Implemented National Export Initiative (NEI) to double exports in 4 years

Source: American Presidency Project (2020)

Based on the above policies, there were impacts on the increased number of jobs created and economic growth under each President from Carter to Obama. The Bureau of Labor Statistics (Graphic News, 2021) compiled the number and percentage of jobs increased by the Presidents under our review. Carter increased jobs 10.3 million (12.82%), Reagan grew 16.1million jobs (17.06%), H.W. Bush increased jobs by 2.6 million (2.46%), Clinton grew jobs by 22.9 million

(13.66%), G.W. Bush grew jobs by 1.35 million (1.02%), and Obama increased jobs by 11.5 million jobs (8.56%).These Presidents all increased economic growth: Carter 3.3%, Reagan 3.5%, G.H.W. Bush 1.7%, Clinton 4 %, W.H. Bush 1.5% and Obama 2.4% (Bloomberg.com, 2018).

This pattern is very much interconnected to the world outside the USA to secure its security and national interests. Waldman and Javidan (2020) describe globalization and economic interdependence among nations as a driver for GDP. Due to globalization, GDP grew from $50 trillion in 2000 to $75 trillion in 2016. Employment also grew beyond borders with migrant employees sending $466 billion to their families in their home countries. New nationalism is a process of interaction, not one of isolation. Waldman and Javidan (2020) purport that a global mindset of executives has promoted development, maturation, and growth across international businesses.

Since 1986, USA Presidents have been required to annually submit a N*ational Security Strategy Report* to Congress articulating a President's priorities of national security and national interests. In alignment with Kissenger's framework, the USA Presidents from Carter through Obama believed in a) Globalism, b) Implementing Global Policies, and c) Free Trade & Global Citizenship.

The National Security Strategy Archive (2020) summarizes the policy themes of each of the presidents' strategic approaches. They are: 1) Carter focused on international human rights; 2) Reagan focused on national security and solidarity with allies; 3) Bush Sr. focused on greater sharing of global leadership and responsibilities; 4) Clinton focused on international engagement and prosperity at home and abroad; 5) Bush Jr. focused on the balance of power favoring human freedom and spreading democracy, and 6) Obama focused on greater economic integration with the international community.

In review of these USA national security strategies, these six USA presidents embraced globalism and globalization. Therefore, all of these presidents were globalists, as well as nationalists. Their perspectives embraced globalization, leveraging it to advance national interests.

CONCLUSIONS

There are many internationally recognized indices that offer standard-based, objective perspectives on what constitutes national competitiveness within the international, comparative context. These approaches measure the dimensions of competitiveness related to economic, political, and social factors. Although nations may be ranked by these competitive indices, it is business firms that must compete in the world marketplace, both at their macro and micro levels of the firm, with or without the support provided by their governments.

The benefits of globalist and nationalist perspectives were analyzed in the context of the USA's global competitiveness over Presidents Carter through Obama's strategies to embrace and advance globalization. We purport that American international business competitiveness is measurable by considering the indices that have been presented in this paper. This paper utilizes the aforementioned indices to suggest answers to three questions: Is the USA competitive in the global business marketplace? Is there a link between American Presidents' policies and American international business competitiveness? Is there a difference in USA's global business outcomes

based on a President's perspective on globalism and nationalism over 40 years under Presidents Carter through Obama?

Based on the indices, we argue that the United States may be considered to be globally competitive in business based on three out of five indices. The KOF Globalization Index indicates that the United States progressed slowly, but steadily forward on the "Globalization Index". It appears to be at a standstill, while other peer countries have progressed. The United States' measures of its globalization were at higher levels than other countries when the KOF Globalization Index began in 1970. But its percentage gain overtime is slower than other emerging economies.

According to the ATKearney FDI Index, the USA has an exemplary record in attracting foreign direct investment. KOF says further Globalization in the economic, social, and political fields has been on the rise since the 1970s, receiving a particular boost after the end of the Cold War. Fundamentally, globalization is the exchange, movements, and interactions around the world of goods and services, people and cultural practices, and capital and technologies.

The USA has been in the top five of the World Economic Forum's "Global Competitiveness Index" during the last 40 years from 1979-2019. For 95% of the years, the USA ranked in the top five in the world. However, there are indications that the USA can improve in the macroeconomic environment.

There is room for improvement on two indices, the World Bank's "Doing Business" and the "Corruption Perception Index." Overall, the World Bank data indicate the USA was on a downward trend from 2004 through 2014. Further, the data suggest that the United States could benefit from a comprehensive review of its regulatory framework and tax structure.

Transparency International's "Corruption Index," demonstrates that the United States' scores are lower than many other countries; most often ranked at 16 out of 180 countries. The data suggest that the USA trails behind many OECD partners.

Our second question, which sought to know if there was a link between American Presidents' policies and American business competitiveness, is more difficult to answer. Our review of business advocacy and policies by Presidents were considered by analyzing all the National Security Strategy Reports for each year of each President for the 40 years of their presidential terms, from Carter to Obama.

This analysis did not reveal direct linkages. Since many of the initiatives are long-term strategies, crediting one President over another for a particular policy is somewhat arbitrary. For instance, President Reagan referred to the concept of a Free North American Trade Zone when he announced his presidential candidacy in 1979. The idea was then developed more fully under President Bush and enacted under President Clinton. Which administration gets credit or conversely, which gets the criticism? What is clear, however, is that each President, from Carter to Obama, advocated for free trade, for participation in international and regional organizations, and for collaboration with allies and partners.

The final question that this paper considered was whether there is a difference in business outcomes based on a President's perspective on globalism and nationalism. It appears that this is moot since Presidents Carter through Obama were both globalists and new nationalists. Whether their individual visions were driven by constrained or unconstrained views of human nature, they were nonetheless accepting of Nye's world characterized by networks of connections that span multi-continental distances. (Nye, 2002). Furthermore, all were seeking acceptance of American multicultural society and presented this society as an ideal worthy of protection at all costs. These presidents valued a process of interaction, not one of isolation. All of the presidents from Carter to Obama balanced the USA's national self-interest within an interdependent international environment.

Based on the evidence presented in this paper, the international business competitiveness of the United States of America is supported by both perspectives and actions of globalism, as well as nationalism with processes of interactions, not those of isolation. The indices referred to throughout this paper are valuable measures. They can also serve as guides to nations that strive to be internationally competitive using international norms, while also leveraging globalization to advance national interests.

The social, economic, and political variables impacting business competitiveness are dynamic, shifting and changing between and among developed and developing countries. The authors will continue further research and pursue subsequent USA administrations' data, as it becomes available, to compare to the former four decades of the county's globalist and nationalist strategies in support of USA businesses in the global marketplace.

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MOVIEPASSED OUT: LESSONS GLEANED FROM CORPORATE FAILURE

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ABSTRACT

It is often said that "Those who fail to learn from history are condemned to repeat it" (Churchill, 1948). For this reason, the practice of revisiting and dissecting past corporate failures can prove highly instructional. In fact, conducting such post-mortems might sometimes reveal not just past mistakes that should be avoided but also theoretically brilliant ideas that failed because they were either poorly-executed, insufficiently supported, or simply ahead of their time. This article presents a teaching case study of the theatrical film subscription service MoviePass's rise and fall and, in so doing, attempts to provide an interesting and provocative narrative for examination of a company that failed spectacularly. In its wake, MoviePass left a legacy of unrealized potential and innovative ideas that eluded MoviePass's leadership but that have percolated into other companies' offerings. This article aims to engender an appreciation for the value of analytically discussing failure and to promote an understanding of how engaging in such an exercise can help decision makers – here, within the context of the pandemic-ravaged movie industry, an examined market generalizable to countless other areas sorely affected throughout 2020 and beyond. This illustrative case study simultaneously helps to fill a gap in management literature by examining corporate failure through a strategic lens, thereby providing an effective instructional tool for management educators and facilitating a prime opportunity for discussion of one of the industries hit hardest by the COVID-19 pandemic.

Keywords: corporate failure, MoviePass, COVID-19, case study

INTRODUCTION

Cinema has considerably evolved, from the pre-World War I Silent Years, to the introduction of talkies and colorized film reels, through the Golden Era, and eventually to the modern movie-watching experience that we enjoy today (Sklar & Cook, 2020). With these shifts in the film industry have come notable changes to the business models that companies employ to attract and serve customers, generate revenue, and maintain sustainable operations. Such evolution is certainly not limited to the movie sector. In particular, entrepreneurial innovators of the 21st-century, frequently spurred on by the opportunities that advances in internet technology present, have successfully reimagined many traditional business models, tearing down the old guard and replacing it with radical new concepts. Uber and Lyft have disrupted taxi service, Bird scooters have afforded new freedom in personal transportation, and Airbnb has upended the lodging industry. Not every effort at breaking the established mold is successful, however, especially upon first attempt. Still, there exists much value in analyzing even the most disastrous of miscalculations, in dissecting what ideas were perhaps sound, which were flawed, and how the findings can benefit future actors. This manuscript presents the case of a company that attempted to shatter the dominant paradigm only to ultimately fall well short of the firm's ambitious goals.

This illustrative case study seeks to stimulate discussion about all that can be gleaned and learned from such a failure.

Ironically, failure often plays a key role in the innovation process. To best determine what works, one must first rule out what does not work; this process of elimination typically entails at least a few failures along the way (Coelho & McClure, 2005). Attempting to accomplish something that no one else has ever achieved carries with it a certain level of inherent risk, so the innovator must accept the fact that the first iteration of a plan may not necessarily live up to expectations (Coelho & McClure, 2005). Frequently, multiple attempts must be made to iron out the initial flaws; thus, successful entrepreneurs tend to view missteps as extremely valuable learning experiences that can be leveraged to improve successive efforts (Coelho & McClure, 2005). As a character on the HBO comedy series *Silicon Valley* once humorously, and so astutely, proclaimed in an effort to smooth over one of his company's failures, "What those in dying business sectors call failure, we in tech know to be pre-greatness" (Aniobi & Berg, 2015). Although this supposed maxim, within the show's context, was deployed in service of putting a positive spin on a catastrophe, the sentiment bears a kernel of truth. There is, in fact, very often a thin line between failure and success, with perceived missteps' many times actually serving as constructive stepping stones along the path to victory (Coelho & McClure, 2005).

RATIONALE FOR THE RESEARCH

Although managers may be encouraged to not fear failure – especially small mistakes – and to treat errors as learning opportunities, individuals do not always take the necessary steps to analyze failure in a manner that could prove constructive (Cannon & Edmondson, 2005). Corporate failure, defined as a significant negative organizational incongruity between desired outcomes and actual results, can prove edifying but only when the causes and factors surrounding the failure are sufficiently and thoughtfully scrutinized (Cannon & Edmondson, 2005). Companies can benefit not only from examination of their own failures but also from vicarious assessment of other entities' missteps (Bledow, Carette, Kuehnel, & Pittig, 2017). Some businesses are less risk-averse than are others, and the wagers that these organizations place can shape an industry and the players within it, regardless of how these bets pan out. While some companies are content to focus on capturing market share through incremental innovation, other firms strive for the radical reinvention of previously-established business models. An industry may persist largely unchanged for years simply because the existing paradigm goes unchallenged; then, in an instant, a single actor can upend the prevailing mindset by daring to innovate and rethink the framework that had, up until that point, been firmly entrenched. Whether the risk-taker succeeds or fails, these daring moves can help observers better understand market conditions and environmental factors so that they can strategize more effectively.

An entity that takes a first leap of faith stands to gain a first-mover advantage, capturing resources, capabilities, and customer demand before others even have a chance (Lieberman & Montgomery, 1998; Sofka & Schmidt, 2004). These ambitious actors, often dubbed prospectors, take on a great deal of risk in return for the promise of great reward (Miles & Snow, 1978). Sometimes, first-moving prospectors' aspirations yield highly fruitful results; other times, the prospectors' grand designs fail to take shape, leaving the door open to early followers and late movers (Lieberman & Montgomery, 1998). Entities that adopt a more cautious "wait-and-see" approach, frequently

referred to as analyzers, can benefit from the hard lessons that unsuccessful prospectors are forced to learn (Miles & Snow, 1978; Sofka & Schmidt, 2004). These analyzers, like generals surveying a battlefield as the first wave of troops fall prey to hidden traps, have the luxury of monitoring prospectors in order to ascertain the struggles that these rivals face. The analyzers can then use this information to follow in the first-mover's footsteps and dodge the metaphorical minefields encountered by prospectors.

Even when a prospector's goals do not come to fruition, lessons can still be learned (Pretorius, 2008). Too often failures are quickly swept under the proverbial rug, never to be spoken of again. Such a mindset seemingly prevails in the strategic management literature, evidenced by a paucity of research that should be examining failure as a means by which to glean valuable knowledge from what can be perceived as mistakes (Coelho & McClure, 2005; Pretorius, 2008). In fact, research supports the theory that, in both business and academia, examination of others' failures can prove even more instructive than can studying success stories (Bledow et al., 2017). As previously affirmed, these mistakes often serve as stepping stones on the journey to eventual success (Coelho & McClure, 2005). Furthermore, strategists should learn from the past but make a concerted effort to focus squarely on the future. What worked in the past may not necessarily work in the future; conversely, what did not work in the past may one day be worth revisiting. As a case in point, the example of Microsoft's failed WebTV platform is herein presented.

In 1996, Microsoft launched WebTV with the objective of delivering web-based content to users' televisions (Hill, 2020). At that time, the concept struggled to gain traction (Smith, 2016). Years later, however, internet speeds caught up to Microsoft's original vision, television set resolutions increased to enable greater clarity, and developers began designing custom-made web-based applications tailored specifically to televisions. The advent of these developments finally afforded Microsoft the ability to effectively integrate the software base that it had developed for WebTV into its Xbox line of videogame and entertainment systems – by 2012, a full web browser had even been added (Warren, 2012) – albeit after competitors had already started to emulate the idea (Breen, 2007; Dumas, 2008). The firm's 1996 brainchild had simply arrived ahead of its time, its value at last realized by both Microsoft's own repurposing of the technology and other firms' eagerness to infiltrate the internet-on-TV realm. One provider of content particularly well-suited to the television screen was a growing DVD-by-mail rental firm called Netflix. In 2007, the company began to diversify its offerings by streaming select movies and television shows via the internet (Anderson, 2007; Netflix, n.d.). Approximately one decade after Microsoft's first-mover attempts had fizzled, Netflix's efforts resulted in the culmination of fusing internet-based content with television. Today, Netflix streaming, the majority of which is viewed on televisions (Iqbal, 2020), accounts for more than twelve percent of downstream internet traffic (Cullen, 2019). Clearly, what some might initially dismiss as an ill-conceived flop can, over time, blossom into a fantastic and lucrative opportunity.

Netflix co-founder Mitch Lowe, intrigued by the prospect of a company's attempting to apply the Netflix model to theaters, fervently believed that the budding entrepreneurial venture MoviePass could decidedly disrupt the theater-going movie model in much the same way that Netflix had disrupted the home movie-viewing template (Gottlieb, 2017). Some media outlets even referred to MoviePass as "Netflix for cinemas" (Bramesco, 2018). Lowe was so impressed by the upstart that he decided to join the company. Unfortunately, the ambitious and innovative approaches that

MoviePass implemented during Lowe's 2016 to 2020 tenure as CEO of MoviePass led to the firm's demise. Although MoviePass suffered a calamitous collapse, scrutinizing the situation by means of an in-depth case study can reveal fascinating strategic insights.

CASE STUDY

The following case study presents a specific example of corporate failure in an effort to illustrate how a series of strategic management decisions can result in consequences that, although disastrous for the firm in question, serve to provide a cautionary tale and elucidation for management scholars and practitioners. Equipped with the understanding of corporate failure gained through investigation of the case presented, students may then begin to generalize about how the lessons gleaned apply in other instances. Illustrative teaching case studies are often effectively employed within university programs to enhance student learning and engagement through the linking of theoretical concepts with real-world events (McFarlane, 2015). While the introduction of case study exercises into the curriculum may necessitate additional research and preparation on the part of the professor, the value added for the students proves extremely worthwhile (McFarlane, 2015). This case study stimulates critical thinking and analysis as it traces the life cycle of MoviePass, from the company's humble origins to its tragic demise.

Development

Entrepreneurs Stacy Spikes and Hamet Watt believed that they could fundamentally change the way that people thought about going to the movies. In Spikes and Watt's vision for the future of theatrical experiences, moviegoers would have the option to pay a flat monthly fee to attend an unlimited number of theatrical movie screenings. The public had already shown an interest in this type of all-you-can-watch service, as Netflix and other at-home streaming video providers had grown exponentially by offering veritable buffets of content to users paying monthly subscription fees (Arango & Carr, 2010; Callahan, 2009). Those who had signed up for such offerings could then concentrate on deciding the entertainment that could potentially be worthy of their time rather than their having to deliberate over which would prove worthy of their money. Viewers could take a chance on an unknown property without fear of regret that they had "flushed their money down the drain." In this way, the barriers to trying something new lowered, and this novel approach afforded subscribers the opportunity to expand their viewing horizons. Should patrons be dissatisfied with or disappointed in their initial programming selection, qualms were few. Subscribers could easily switch to a different option without having incurred any real cost other than the time invested in assessing that their first choice was not to their liking.

Spikes and Watt hoped that a service presenting customers with similarly low barriers to taking a chance on theatrically-released content would encourage people to attend more movies in cinemas, a result that most film distributors would view quite favorably (Kay, 2019). In addition, MoviePass's co-founders envisioned a future in which movie studios could "'drive ancillary revenue through DVD, digital download and merchandise offers, and draw audiences to special screenings,'" with Spikes's promising "'Studios and distributors will receive an unparalleled marketing opportunity, with the application's ability to target movie lovers based on their movie viewing habits'" (Block, 2011). Indeed, the pitch caught the attention of those within the film industry who recognized the threat that the rise of at-home streaming options – particularly Netflix

– posed to the theater industry. In 2011, with theatrical movie ticket sales in deep decline – the worst sales in more than fifteen years (Tuttle, 2011; Verrier & Fritz, 2011) – conditions seemed ripe for MoviePass to test its innovative business model.

Pre-Production

MoviePass ran its first beta in June 2011, limiting its trial run to San Francisco Bay area residents (Chow, 2018). The company functioned as an intermediary, a ticket broker of sorts, purchasing large quantities of tickets and then distributing these tickets to paying subscribers in exchange for monthly dues (Block, 2011). For $50 a month, customers were entitled to attend one movie every single day of the month (Marshall, 2019). If someone attended 30 movies, that person would essentially have received, based on 2011's national average ticket price of $7.93, an approximate value of $238 for an upfront price of just $50 (NATO, n.d.). A planned $30 option would grant users up to four tickets a month (a far more modest value of $31.72), although both tiers required additional payment for special screenings, such as those shown in premium IMAX auditoriums or enhanced with 3D technology (Watercutter, 2011). MoviePass customers could easily use their smartphones to select the movie that they wished to see and then, upon reaching the venue, present their phones to ticket takers as proof of purchase (Dickey, 2011). Formidable demand for the service evidenced itself in the form of 19,000 individuals' quickly signing on for the private beta test (Chow, 2018). Spikes and Watt seemed to have a blockbuster-in-the-making on their hands. Almost immediately, however, their strategy hit a major snag.

In stark contrast to the enthusiasm expressed by some studio executives and movie distributors, theater owners such as AMC Theatres, one of North America's largest exhibitors, stood firmly opposed to the concept (Block, 2011). Despite being already engaged in relationships with MovieTickets.com (a web site owned by AOL, one of MoviePass's biggest investors) and Fandango.com, both of which employed more traditional à la carte models of selling movie tickets via the internet, AMC had entered into no such arrangement with MoviePass (Block, 2011; Dickey, 2011). Allegedly never having been approached by the MoviePass executives or having even been made aware of the service, AMC stated via a spokesperson "'We were surprised to see the press release and subsequent press coverage of MoviePass earlier this week as it included several of our San Francisco locations . . . It was news to us to see that we were participants and we will be communicating to those theatres they are not to accept MoviePass'" (Block, 2011; Dickey, 2011). The prospect of increased movie attendance, and the resultant spike in concession sales that the upsurge could instigate, was apparently not enough for many theater chains to cosign the idea. Lack of endorsement from cinema owners stopped MoviePass's beta test in its tracks. This type of standoff would present a significant impediment to MoviePass's proliferation and expansion efforts throughout the service's existence.

Reeling from the closed beta test failure, the MoviePass strategic leaders regrouped and fervently brainstormed to devise ways to address the issues that their first foray made abundantly apparent. The team came up with the idea of introducing a voucher system that would require subscribers to print out vouchers that they could then redeem at the theater box office (Marshall, 2019). Both customers and theaters complained that the voucher approach was in dire need of streamlining. Patrons felt constrained by the requirement of printing out vouchers before leaving home, and theaters did not appreciate the protracted redemption process (Marshall, 2019). In response,

MoviePass developed a rechargeable debit card system that allowed subscribers, through a smartphone app, to select a movie show time and, once having done so, have the ticket price deposited to the card (Marshall, 2019). Although this plan also faced heavy opposition from AMC and other cinemas, MoviePass moved forward, in October 2012, with a nationwide invite-only beta test of the new reloadable debit card method. During the beta test, MoviePass offered early adopters up to one movie a day in exchange for a subscription fee priced between $29 and $34 a month (pricing varied based on geographical region, as verified by phone GPS) with a one-year commitment (Fingas, 2012; Marshall, 2019; Zweig, 2012). The ire that MoviePass drew from exhibitors, AMC chief among them, definitely complicated the company's plans; however, it would not be long before theaters began to relent their steadfast anti-MoviePass positions.

As movie ticket sales continued to trend downward while business models employing subscription-based access to media (e.g. Netflix and music service Spotify) thrived, AMC finally abandoned its resistance in its battle against MoviePass. In the waning days of 2014, AMC announced its plan to launch, in association with MoviePass, a $30 to $45 version of the service bearing the slightly-adjusted, AMC-specific moniker MoviePass Premium (Lang, 2014). After battling MoviePass for three-and-a-half years, AMC was not necessarily thrilled to enter into a strategic alliance with its former nemesis, but the theater chain was shaken by sustained periods of lackluster movie attendance amid unsettling market trends toward more democratized accessibility evidenced in other media sectors. An AMC executive confessed, "'It frankly wouldn't be smart to ignore the success of subscription in other areas of media,'" evidence of the firm's feeling pressure to take into consideration less-conventional business models (France, 2014). Whether the result of AMC's acting out of optimism in adopting a new approach or out of a sense of survival-oriented desperation, MoviePass had finally gained a solid foothold. Unfortunately, it did not take long for the budding relationship to sour, as internal changes within MoviePass created a chain of catastrophic calamities.

Production

Mitch Lowe, former Netflix executive and Redbox (a DVD rental kiosk service) president, served as an advisor to the fledgling MoviePass venture until 2016. At this point, the company had solidified its core offering, and Lowe became MoviePass's Chief Executive Officer, an appointment that marked a definitive turning point for MoviePass (Marshall, 2019). Under Lowe's leadership, the company began its pattern of constantly tinkering, floating a wide variety of new plans including a two-movies-per-month tier priced between $15 and $21, a three-movies-per-month tier for $22 to $31, and a four-movies-per-month tier for $40 to $50 (Hardawar, 2016; Marshall, 2019). As the service evolved from its beta form, the organization, under Lowe's direction, tested $50 unlimited (standard 2D movies only) services in select markets, $50 six-movies-per-month (2D and 3D) offerings in others, $99 unlimited options that included access to 3D and IMAX screenings in certain cities, and multiple other permutations in focused segments of its user population (Hardawar, 2016; Sciretta, 2016). The scattershot pricing and constantly-shifting deals created a certain degree of market confusion and irritation, and continual adjustment of limitations. Certain theater chains only sometimes accepted MoviePass, others did not accept it at all; users could not secure tickets for a movie within 24 hours of their last ticket purchase, but then this restriction was lifted; reserved seating options were often not available; and some subscribers were suddenly, due to scammers' misusing the service, forced to snap photos of their

physical tickets and send the pictures to MoviePass as verification (Fink, 2017; Sciretta, 2016). MoviePass's erratic policies lessened the attractiveness of the service, but MoviePass boasted a customer base that had grown to 20,000 subscribers strong (Marshall, 2019). These impressive numbers led Studio Movie Grill, a cinema chain with a modest national reach – at the time, 24 U.S. locations in contrast to AMC's 661 U.S. locations (and another 244 international theaters) – to make an investment in MoviePass (Bond, 2016; Marshall, 2019; Szalai, 2016). The December 2016 announcement of Studio Movie Grill's new strategic partnership with MoviePass brought with it not only promise for the future but also an intriguing limited-time promotional offer.

By late 2016, MoviePass had, for the most part, established a monthly price point of roughly $50 for its unlimited tier (up to one 2D movie per day, no 24-hour waiting periods, show times selected on phone to generate deposit on debit card, and price dependent on location) (Bond, 2016; Fink, 2017). While a $50 price point might prove very steep for the nearly-ninety percent of North American moviegoers who see an average of fewer than one film per month in theaters, it would, in theory, still prove economically sound for most individuals who go to the movies more than five times a month (MPA, 2020). With such a narrow target market, however, the MoviePass model would likely prove unviable because the business's blueprint was, in part, contingent upon accumulating large quantities of customer data that could be sold to movie studios, distributors, and other interested parties (Sherry, 2019). Thus, with the announcement of the Studio Movie Grill alliance came a bold attempt at rapidly expanding MoviePass's user base – offering the unlimited service tier to Studio Movie Grill patrons for a special monthly rate of just under $9.95 (Bond, 2016; Robinson-Jacobs, 2017). The promotional price was offered only to a limited segment of consumers – those within the proximity of the Studio Movie Grill multiplexes – and was never promised to remain in effect indefinitely. Nevertheless, this $9.95 promotional offer opened a Pandora's Box that would eventually serve as a primary contributor to MoviePass's downfall and ultimate failure.

Soon after introducing this promotional offer exclusive to Studio Movie Grill patrons, MoviePass entered into serious negotiations with data analytics firm Helios and Matheson, a round of negotiations that culminated in Helios and Matheson's August 2017 purchase of a majority stake in MoviePass (Marshall, 2019). At this point, MoviePass then pivoted its strategy to more fully focus on accumulating customer data. To that end, the company drew inspiration from its Studio Movie Grill promotional offer and made the fateful decision to lower the price of its unlimited service from approximately $50 (varied by market) to a flat nationwide monthly rate of just $9.95 (Chow, 2018). Given that the price of a movie ticket in 2017 averaged $8.97, customers would almost break even after seeing just one film (NATO, n.d.). A subscriber who fully maximized the service by attending thirty movies in one month would receive a value of $269.10, meaning that that person would have saved $259.15 with a MoviePass subscription. Of course, this calculation depends on an individual's going to the movies every single day of the month, an improbable scenario given that, statistically, the majority of moviegoers were unlikely to visit theaters more than once a month (MPA, 2020). Still, film fanatics stood to come out ahead after seeing only two movies, with the savings' mounting with each additional viewing. Monetarily, the $9.95 price point proved most compelling, prompting people to sign up in such prodigious droves that these potential subscribers, in their zeal, actually crashed both MoviePass's app and web site (Chow, 2018).

The company's strategy, however, no longer hinged as intently on subscription fees as it once had. Instead, in conjunction with its majority shareholder Helios and Matheson, MoviePass predominantly concerned itself – at least in the short term – with collecting and selling customer data (Sherry, 2019). MoviePass's strategic leaders believed that the revenue generated from its valuable data would result in sustained growth and allow the company to undertake new opportunities down the line that would include lowering operating costs by negotiating discounted bulk ticket rates and establishing its own film production subsidiary (Sherry, 2019). MoviePass had essentially placed a huge bet on the future. If its gamble stood any chance of paying off, the company would need to "hit the jackpot" by having everything fall near perfectly into place. However, almost immediately, the firm's high-risk plans "went bust."

As soon as MoviePass slashed its subscription price to $9.95, AMC terminated the partnership it had (somewhat reluctantly) established with MoviePass, issuing a statement that read in part "AMC believes that holding out to consumers that first run movies can be watched in theatres at great quantities for a monthly price of $9.95 isn't doing moviegoers any favors. In AMC's view, that price level is unsustainable and only sets up consumers for ultimate disappointment down the road if or when the product can no longer be fulfilled" (AMC Entertainment Holdings, Inc., 2017). MoviePass's business model was banking on most customers' paying monthly subscription dues but not taking full advantage of the service. Ideally, subscribers would attend only a few movies, if any, each month, while MoviePass would generate supplemental revenue by continuing to harvest the data of both active and less-engaged users alike. At $50 a month, the strategy perhaps might have been feasible if enough users signed up; but, at $9.95 a month, AMC believed the profit equation to be entirely untenable.

AMC was not alone in its rationale; even MoviePass cofounder Stacy Spikes did not view $9.95 as a price point that could be maintained. The idea for the bargain rate came about, hot on the heels of the Studio Movie Grill limited-time offer, as a means to reach 100,000 subscribers in as short a period of time as possible (Guerrasio, 2019). Helios and Matheson actually included this as a contract provision when it purchased its majority stake in MoviePass (Guerrasio, 2019). The $9.95 price point was never meant to remain in place indefinitely; it was intended solely as a limited-time promotional offer designed to spur precipitous growth and help the firm more quickly achieve critical mass. The longer-term plan was that once the 100,000 subscriber target was reached, which materialized less than 48 hours after the offer went live, the price would revert to a more sustainable level (Guerrasio, 2019). In building the company, Spikes knew from experience that such a rock-bottom price could not remain in place, and he implored the executive team to discontinue the offer, especially once the goal was so rapidly – in fact almost immediately – achieved (Guerrasio, 2019). Recently-appointed MoviePass CEO Mitch Lowe, as well as new owners Helios and Matheson, did not share Spikes's stance that the deal should be halted (Guerrasio, 2019). Spikes clashed with these corporate decision makers until he was unceremoniously fired five months later, via an impersonal January 9, 2018 email, a curt missive from the company that Spikes had created and for which he had untiringly spent the last decade of his life cultivating (Guerrasio, 2019).

Dropping the price to $9.95, and keeping it there long after acquiring 100,000 customers, did lead to exponential growth, but this spike in subscriptions also meant that MoviePass was bleeding capital. Demand outpaced the company's capabilities. As MoviePass reached its 400,000-

subscriber milestone in August 2017, the company found itself unable to proficiently supply customers with the debit cards necessary for them to utilize the service, and customer service became overwhelmed with complaints, disgruntled patrons, etc. (Marshall, 2019). Despite the company's losing an average of $35 on each customer (given that a single movie ticket equated to approximately the same price of an entire month of the MoviePass service), MoviePass persisted in its pursuit of swift augmentation. Incredibly, the number of customers ballooned to one million in December of 2017, hit two million in February 2018, and reached nearly three million by April 2018 (Chow, 2018; Marshall, 2019; Rodriguez, 2018; Statt, 2019b). During the course of this rapid expansion, the firm actually went so far as to institute two additional temporary price drops – one in February to $96 for one year ($7.95 per month) and another in March to the staggeringly low price of $6.95 a month (Clark, 2018; Helios and Matheson Analytics Inc., 2018; Marshall, 2019). The strategy to expeditiously attract huge numbers of customers proved a resounding success, but whether this represented a sound approach is another matter entirely.

Wrap

While MoviePass touted its impressive subscription numbers, the firm faced immense internal challenges as a result of these very same membership figures. On August 14, 2018, parent firm Helios and Matheson, which now owned 92 percent of MoviePass and involved itself in little outside of MoviePass, reported a second-quarter loss of $126.6 million (Rodriguez, 2018). By offering millions of people, every month, goods worth up to $269.10 for only $9.95, MoviePass was bound to incur a steady stream of substantial monthly deficits. MoviePass's leadership and the firm's Helios and Matheson owners, however, wagered that it was worth continually sustaining mammoth losses as a means by which to build an impressive customer base. They anticipated that an assemblage of such magnitude would become so valuable and sought after that MoviePass's subscriber data would one day afford the company formidable bargaining power. The accrued bargaining power could provide the leverage necessary in negotiations with theaters for bulk ticket purchase discounts, profit-sharing plans for moviegoers' concession stand purchases (which reportedly drastically increased because of MoviePass), and other cost-saving / revenue-generating opportunities (Gessner, 2020; Statt, 2019b). From there, it was anticipated that additional advances could be made through integrating MoviePass capabilities with other services. For example, the firm could more fully capitalize on its trove of identifiable user data and direct connection to customers by incorporating tie-ins with restaurants and ride-sharing apps (Statt, 2019b). These grand plans, however, all hinged on MoviePass's ability to a) acquire a critical mass of subscribers from whom b) the company could harvest valuable data that would prove sufficiently enticing that c) studios, distributors, theaters, and other interested entities would want to partner with MoviePass, all while d) staving off bankruptcy long enough to achieve goals a, b, and c.

Unfortunately for MoviePass, outside parties were not as eager to enter into partnerships as MoviePass had hoped, and the organization was losing money at a prodigious rate. Prominent theater chains such as AMC Theatres had not only refused to do business with MoviePass but were actively opposed to the MoviePass business model (AMC Entertainment Holdings, Inc., 2017). Movie studios feared the danger of their content's being devalued, and customers were growing irritated with the toxic combination of the company's constant experimentation, ever-fluctuating offerings, poor communication, and abysmal customer service (Lang, 2018; Notopoulos, 2018).

Leadership knew, even prior to the public release of the exceedingly disquieting August 2018 earnings report, that the firm stood in urgent need of a course correction.

Desperate to stem the losses, MoviePass began engaging in what many believe qualified as anti-consumer, underhanded business tactics (e.g. Berger & Huddleston, 2018; Coldewey, 2018; D'Alessandro, 2018; Keck, 2019; Nordine, 2018; Wilkinson, 2018). First, MoviePass started restricting both the films and the show times for which subscribers could reserve tickets, often "blacking out" the most popular movies and times (D'Alessandro, 2018; Nordine, 2018). Alarmingly, in some cases, frequent MoviePass users' passwords were even intentionally changed (allegedly) by the firm so that these customers could not log in and procure tickets for extremely in-demand titles that were projected to enjoy blockbuster openings (Keck, 2019). Subsequently, CEO Mitch Lowe's words raised grave privacy concerns when he boasted, during his keynote speech at the Entertainment Finance Forum, about the company's ability to track users, creepily divulging "'We get an enormous amount of information.' 'We watch how you drive from home to the movies. We watch where you go afterwards'" (Coldewey, 2018). MoviePass claimed to purportedly be only in the exploration phase of exploiting this data, but the veracity of Lowe's assertion remains impossible to definitively ascertain (Coldewey, 2018). Next, the firm resolutely did away with the unlimited tier only to bring it back two weeks later (Plaugic, 2018), this time introducing Uber-style surge pricing – charging extra to procure in-demand tickets (i.e. opening weekends, box office blockbusters, etc.) – for all month-to-month subscribers (Hernandez, 2018). Soon after, the app began experiencing suspicious outages that the company first tried to blame on technical issues but later admitted were artificially created as a result of its having insufficient funds to pay for customers' tickets (Berger & Huddleston, 2018). Operations only managed to resume once Helios and Matheson borrowed five million dollars in the form of an emergency loan (Berger & Huddleston, 2018). Clearly, MoviePass was in dire straits.

On the day that it had filed its second-quarter earnings report (August 14, 2018), MoviePass yet again scrapped its unlimited plan, imposing a three-movie-per-month limit on its $9.95 subscription (Rodriguez, 2018). Shockingly, customers who had previously cancelled their MoviePass subscriptions but still had the MoviePass app installed on their phones were greeted with the news of MoviePass's new restrictions in an unavoidable message seemingly designed to dupe these former subscribers into accidentally renewing their subscriptions (Wilkinson, 2018). (The page was intentionally styled to resemble a standard terms of service update with users prompted to click a big, prominently-displayed ambiguously-worded "I Accept" button that would then reactivate their lapsed memberships.) Both customer trust and investor faith plummeted to the point that MoviePass's shareholders sued Helios and Matheson, alleging that the company's CEO and CFO defrauded stockholders by withholding and fabricating information in an effort to artificially inflate the share price; simultaneously, MoviePass's disillusioned users began organizing a class action lawsuit on the basis of deceptive trade practices (Berger, 2018; Garun, 2018; Lee, 2018; Maddaus, 2019). By this point, Helios and Matheson – and, by extension, MoviePass – faced myriad threats. Plagued by abysmal drops in customer satisfaction and by the prospect of being delisted from the NASDAQ stock exchange as a result of repeatedly flooding the market with shares, thus causing the stock price to plummet, the entire operation teetered on the brink of disaster (Lee, 2018).

It was only a matter of time before MoviePass met its ultimate demise. As MoviePass continued toward its tragic fate, in a desperate bid for survival, management unscrupulously continued to take advantage of consumers. The company reinstated lapsed subscribers by automatically enrolling former users, without their consent, into a (once again!) newly-revived version of the unlimited plan that again bore onerous restrictions (Statt, 2018). These unsuspecting former members would find their credit cards charged monthly unless, once aware, they explicitly opted out of the service (Statt, 2018). MoviePass had alienated so many of its customers through what many classified as deceptive practices and anti-consumer actions that former subscribers filed class-action lawsuits (Cooper, 2018; Crucchiola & Squires, 2019; Hughes, 2019a; Maddaus, 2019). In one case, the plaintiffs "allege that MoviePass Inc., its corporate parent Helios and Matheson Analytics Inc., and their officers conspired to breach its contracts with consumers and commit fraud through email in violation of the Racketeer Influenced and Corrupt Organizations Act" (Cooper, 2018). On the same day that MoviePass took out pricey ad space on Time Square billboards, a New York couple sued the company for allegedly engaging in a "deceptive and unfair bait-and-switch scheme," because MoviePass's numerous blackouts and restrictions resulted in their two $105.35 subscriptions' providing them with tickets to attend only three movies in a span of ten months (Crucchiola & Squires, 2019; Hughes, 2019a; Maddaus, 2019).

After destroying the stock price by oversaturating the market with shares, Helios and Matheson was delisted from the NASDAQ stock exchange on February 13, 2019 (Ellingson, 2019). The following month marked the impending termination of the MoviePass service, with the company's making a last ditch effort to, yet again, reinstate its unlimited service plan (this time with more plainly-stated but quite stringent restrictions) under the moniker MoviePass Uncapped (Porter, 2019a). Just over three months later, MoviePass effectively took its final bow with management's sudden removal of MoviePass's online presence during one of the biggest U.S. box office times, Fourth of July weekend (Hayden, 2019; Hughes, 2019b; Porter, 2019b). The company's cover story that the platform's operations had to be temporarily suspended for a few weeks to effect the implementation of mobile app upgrades – and that this maintenance period just happened to coincide with July 4th weekend – did not hold up to scrutiny. Mitch Lowe's claim "There's never a good time to have to do this" (Hayden, 2019; Hughes, 2019b; Porter, 2019b) did not ring true to those following the company's saga, as they saw through the ploy of painting the conspicuous timing as merely inconvenient; indeed, service was not restored to subscribers until late August – even then, some members could not log in – and MoviePass closed forever mere days later on September 13, 2019 (Spangler, 2019; Statt, 2019a). To make matters even worse, shortly before announcing the shuttering of all MoviePass operations, the company shared news that it had left thousands of its customers' personal "credit card numbers, expiration dates, billing addresses, and names" completely exposed in an unprotected online database (Statt, 2019a). The final chapter of the MoviePass story was written on January 28, 2020, when MoviePass's parent company Helios and Matheson filed for bankruptcy (Spangler, 2020).

Post-Production

Despite its making a big splash, especially with its $9.95 unlimited plan, MoviePass failed to truly disrupt the film industry as some had predicted it would. Little did anyone know that a bonafide disruption to the movie business – in particular to theaters – would occur in March of 2020. The global lockdown resulting from the COVID-19 pandemic effected massive disorder for almost

every industry and forced movie theaters around the world to close while nations attempted to lessen the devastating impact of the novel coronavirus (Rubin, 2020). In the wake of the disastrous outbreak, film distributors, theatrical exhibitors, and countless other movie industry participants were forced to rethink strategies that had remained in place for decades. Conventional approaches were discarded in favor of forward-thinking innovations, as previously risk-averse companies experimented with new, untested methods, sometimes, in the process, raising the ire of industry partners.

For example, Universal Pictures's decision to forego a theatrical release of *Trolls World Tour* in favor of distributing directly to consumers via at-home digital on-demand platforms was met with AMC Theatres's banning all future Universal releases from its establishments (Pallotta, 2020). When the reality of how much life had changed as a result of the coronavirus sank in, the two companies reached an agreement that lifted the ban; the new contract also significantly shortened the window during which AMC's theaters would have exclusive access to Universal films prior to the movies' video-on-demand (VOD) releases (Lang & Rubin, 2020). Agreements such as this continued to send shockwaves through the industry, as movie studios such as Disney shifted major releases away from theaters and toward streaming services and other direct-to-consumer distribution mechanisms (Solsman, 2020). Powerhouse studio Warner Bros. made the unprecedented decision to release its entire slate of 2021 films concurrently in theaters and on the WarnerMedia streaming platform HBO Max, thereby totally disrupting the industry's "business as usual" (Warner Bros., 2020). With all of the industry's players' working to find a new normal, perhaps there exist opportunities for MoviePass-like services to thrive in a marketplace struggling to rethink and rebuild, prospects that the discussion questions appended to this case explore.

Distribution

Oftentimes, innovators introduce ideas that, at first, may seem outlandish but later take hold within the mainstream either through these visionaries' own dogged efforts or as a result of subsequent entities' emulating the concept but putting their own spins on the initial design. At the height of MoviePass's notoriety, both theatrical exhibitors and direct MoviePass competitors began to entertain notions of how to offer moviegoers subscription services that would make fiscal and strategic sense for both the company offering the plan and the consumers enrolling in the program.

Table 1. Proliferation of the MoviePass Concept

Title of Service	Initial Wide Release	Price and Plan	Notable Benefits/Restrictions
Sinemia	2014 (Turkey) 2018 (US, Canada, UK, Australia) (shuttered early 2019)	$29.99/mo. for 30 movies/mo. $8.99/mo. for 3 movies/mo. $4.99/mo. for 1 movie/mo. + multiple additional fees	Unused tickets able to be rolled over to following month Usable at multiple locations
Cinemark Movie Club	December 2017	$8.99/mo. for 1 movie/mo.	Discounts on concessions Usable only at Cinemark locations
AMC Stubs A-List	June 2018	$19.95-$23.95/mo. for 3 movies/wk. (pricing varies by geographic location) (requires initial 3-month commitment)	Discounts on concessions Priority ticket lane access Usable only at AMC locations
Regal Unlimited	July 2019	$18/mo. for unlimited movies at 200+ locations $21/mo. for unlimited movies at 400+ locations $23.50/mo. for unlimited movies at all locations + $0.50/movie (requires initial 1-year commitment)	Discounts on concessions Usable only at Regal locations

Alamo Season Pass	March 2020 (almost immediately suspended due to pandemic)	$14.99/mo. for one movie per day/mo.	Usable only at Alamo Drafthouse locations

Some of the ideas that MoviePass attempted to bring to life have found their way into other companies' business models (see Table 1). An ambitious company called Sinemia tried to compete directly with MoviePass by offering its own theater-neutral subscription-based service but failed in the process almost as spectacularly as did MoviePass. In an attempt to improve upon the third-party models, exhibitors began fashioning their own proprietary takes on the concept first introduced by MoviePass. Cinemark created Movie Club, AMC launched Stubs A-List, Regal introduced Regal Unlimited, and Alamo Drafthouse began offering Alamo Season Pass. While MoviePass ultimately failed in its effort to transform the movie theater industry, the company's legacy lives on in the services that MoviePass's innovative approach inspired. As is often the case, one venture's failure does not necessarily mean the end of the story; other actors can iterate on the initial unsuccessful attempt and, with some serious tweaking, spin straw into gold.

CASE STUDY QUESTIONS FOR STUDENT DISCUSSION AND ANALYSIS

Ideas usually do not entirely disappear; they often lie dormant until such time that the environment changes and market forces become conducive to revisiting the concept. MoviePass fell far short of achieving its lofty ambitions, thereby embodying the very definition of corporate failure. However, in assessing MoviePass's fundamental missteps and subsequently devising strategies to circumvent such pitfalls, theater chains have experienced far greater success with their personalized spins on the MoviePass model than MoviePass ever did. Clear examples of learning from MoviePass's failure include Regal's offering of multiple pricing tiers to accommodate diverse customer segments while still retaining profitability and its application of ticket surcharges aimed at deterring excessive usage. By the end of 2019, the services that rose from the ashes of MoviePass's failure were gaining steady followings and began to thrive; few could have predicted the cataclysm to come.

The outbreak of the novel coronavirus that caused the COVID-19 global pandemic beginning in early 2020 fundamentally changed the landscape for countless industries. The theatrical film industry relies on patrons to venture out and sit shoulder-to-shoulder in an enclosed space for over two hours on chairs previously occupied by other attendees, all while munching snacks and sipping cola – activities difficult to perform while wearing facemasks designed to attenuate disease transmission. Suffice it to say, a wide-spread and highly-transmissible pathogen represents an incomparable existential threat to cinemas. It has been said that necessity is the mother of invention; perhaps this new age will require innovation in the form of a strategic approach once thought unfeasible but now suddenly within the realm of possibility. Keep this notion in mind as you respond to the following:

1. Can you think of any innovations (other than MoviePass) that were deemed ahead of their time and failed because the market was unprepared? How did subsequent products/services later incorporate these innovations successfully?
2. Explain the importance of studying corporate failures. What are the main lessons that a student of strategic management should take away from this case study?

3. What can be learned from MoviePass's continual mismanagement and mistreatment of its clientele? Identify what actions MoviePass took that would classify as anti-consumer. Comment on the ethicality of the company's decisions.
4. Why did MoviePass ultimately fail? What could MoviePass have done differently at certain stages that may have altered its fate? Is it possible to point to one specific strategic decision that led to MoviePass's downfall? Explain.
5. In the wake of MoviePass's slide into bankruptcy, several companies experienced success in providing similar subscription-based services. What factors allowed these other firms to succeed where MoviePass failed?
6. How has the movie industry changed since MoviePass ceased operation? Since that time, has the external environment become more or less conducive to a MoviePass-style service?
7. If a new entrant wished to introduce a service that offered subscribers the ability to watch movies in theaters for a flat rate, what type of strategies would you recommend that the company adopt, and what service offerings would you recommend that the company provide? What type of strategies and service offerings should the firm avoid?
8. Could a service similar to that of MoviePass succeed in today's environment? Why or why not? In particular, could such a service – or at least certain elements of such a service – survive or even thrive in a post-COVID world?
9. How can entities involved in the movie industry learn from the adjustments that companies were forced to make during the COVID-19 pandemic? In your response, consider how online video streaming services presented movie studios with new opportunities. Specifically, what can be learned from the way that companies pivoted as a result of a changed global environment, with Universal's shortening theatrical windows, Disney's launching Disney Premiere Access on its Disney+ streaming service, and Warner Bros.'s releasing its entire slate of 2021 films day-and-date on the HBO Max streaming service as well as in theaters?
10. What approaches, in general, might yield the best results in a movie industry that has been altered – perhaps irrevocably – by a pandemic that continues to threaten the very concept of going to the movies? Do you believe that theaters can survive in the long term? Why or why not? What strategic alterations must be made in order to afford theaters the best chance of a bright future? What role do you believe MoviePass-style subscription services will play in this altered future?

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EXPLAINING UTILITY TO INSURANCE CUSTOMERS: THE DOLLAR WEIGHTED UTILITY METHOD

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ABSTRACT

The purpose of this paper is to suggest a new method for presenting options to insurance customers by providing clarity in the process of evaluating risky decisions when purchasing insurance. A point of interest for the insurance industry is how customers consider the fairness of an insurance contract based on the probability of a claim and the certainty equivalent of paying a fixed amount up-front to mitigate uncertain losses. Insurance providers are better able to meet the needs of their customers when they are able to communicate the utility their policies provide. This paper extends formulas currently presented as prospect theory into a format available to the insurance industry in order to improve customer awareness of the value of any given insurance policy. The goal is to identify a single score that, presented in dollar amount, would offer equivalent utility to a customer regarding the risk being mitigated. A targeted advantage of the method of arriving at a single payout utility equivalent (SPUE) is that the approach can be generalized to apply to most types of insurance as well as other decisions based on risky outcomes, such as lotteries or gambles.

Keywords: expected utility, insurance, prospect theory, dollar weighted utility

INTRODUCTION

When an insurance company sells its products, it provides its buyers with a sense of confidence that the insurance contract offers value. Insurance companies also gain business by providing new customers assurance that paying their premium will provide the customer with some economic good. For contracts that never materialize in an insurance claim, the value provided is a peace of mind for the insured that a specific risk has been mitigated. That peace of mind, experienced as a sensibility about having the insurance contract, is not something insurance agents are used to quantifying. During the insurance buying process, the buyer is presented with proposed coverage amounts and corresponding premium rates, but the underlying probabilities on which the insurance prices are based are typically unavailable to the buyer or even to the agent.

In order to provide the insurance buyer with more information about the value of the contract to be purchased, this paper proposes an additional item of information to present to the buyer during the decision making process. The goal is to identify a single score that, presented as a dollar amount, would offer equivalent utility to a prospective customer for the risk being mitigated. A targeted advantage of the method of arriving at a single payout utility equivalent (SPUE) is that the approach can be generalized to use in most types of insurance as well as other decisions based on risky outcomes, such as lotteries or gambles.

A broad range of applications is appealing as it allows for a common index to build around the concept in multiple contexts and improve its accessibility similar to the consumer credit scores. Also, by following the formulas already developed by Kahneman and Tversky (1979, 1992) to predict human decision making in the realm of risky outcomes, the approach to calculate a SPUE for a specific insurance policy provides a unique and objectively identifiable solution for any given set of probabilities, payouts, and risk preference parameters. This model also aligns with an accepted theory on risk aversion and loss aversion as observed in decision making based on risky outcomes.

Confusion for the Insurance Customer

Insurance buyers typically face a challenge in reaching the conclusion that they are receiving fair value for the dollars of premium paid for insurance coverage. Questions arise as to what constitutes a fair value for mitigating liabilities whose payments are uncertain. Insurance customers can also experience confusion and frustration in the process of buying an insurance contract and maintain a level of skepticism about the insurance companies as the counterparty (Brown, 1977).

Customers purchasing insurance lack clarity on the many provisions that are standard for the contract forms that constitute the insurance agreement. When referring to the insurance buying process, Abraham notes, "[M]ost individuals know little about what they are purchasing…. For virtually all individuals, insurance policies are complex documents with terms they neither read nor understand" (2013, p.660). Consumers can be daunted by the task of identifying the appropriate level of coverage and gauging the value of insurance products offered at a given rate.

In order to mitigate the informational asymmetries inherent in the complicated insurance pricing process, which structurally favor insurers, premium rates traditionally require regulatory approval (Abraham, 2013). Measures are in place to protect the consumer from unfair practices by the insurer. However, there is no universal and intuitively understood signal currently in insurance that would allow for a comparison by the consumer to capture the value of the experience of having a risk covered.

The insurance premium offers a signal of market clearing price for a given type of insurance, but the price of a policy does not necessarily convey to the consumer a measure of the probability of the underlying event. Insurance prices are built from more information than just risk, including loading to cover expenses and profit as well as downward pressure from competition.

Further complicating the matter is the question of utility. Economic utility is the capacity of a good or service to satisfy the want of a consumer. The insurance buyer can benefit from knowing a measure of the utility provided by a given policy, besides the price, which may be intuitively compared to similar insurance policies or even other types of insurance.

Unlike material consumables or other experience goods, customers of insurance do not possess anything tangible upon the purchase of an insurance contract. Claims offer an opportunity for the policyholder to realize the value of an insurance contract at the instance of an unfortunate event, but for most policyholders, the nature of the contract is designed in such way that a claim and its corresponding payout are unlikely events such as an automobile accident or a weather event. A

challenge therefore exists for insurers to identify and communicate the value that will be subjectively perceived as economic utility for their customers.

The desire to understand the utility being purchased in an insurance contract goes beyond understanding the face amount covered by the contract. The insurance buyer needs some measure of the underlying probabilities that dictate the nature of the risk to be insured. The fact that the insurer possesses the advantaged position in an informational asymmetry constitutes a market failure. Here, the disadvantaged party, i.e. the insurance buyer, may not be able to gauge the fair value of an insurance contract that is offered. Lacking insight into the fair value, the buyer lacks a means of comparing policies with different features or coverage amounts. The buyer is forced to rely on the reputation of the insurer and the attitudes of other buyers to confirm that the insurance policy will fulfill the buyer's needs.

Even the concept of fair value comes into question as the buyer is unaware of the specific calculations used to price the product. Insurance companies possess experience tables which offer an ability to predict how a given block of insured policies' claims history will emerge over time. While individual policyholders may have better information than their insurers in the case of some specific risks (adverse selection), insurers usually possess superior information when it comes to general risk (Seog 2009).

With the knowledge of past experience and predictions about future claims, the insurer has the ability to calculate how much of an insurance policy's premium is allotted for claims and how much is designated as loading for expenses and profit. What the insurance buyer currently lacks is some representation of the measure of the underlying probabilities that go into the calculation of premium, as well as some recognition of the economic utility associated with the payouts.

This paper develops a method for arriving at such a score, which is denominated in dollars. The advantage of providing a single score, in terms of dollars, is that the consumer readily has a grasp of how dollars translate into utility. Except here, the dollars, instead of communicating the price, represent a value of money the utility models predict the customer would be indifferent toward either losing or facing the risk of loss unmitigated by insurance. The dollar amount represents the trade-off.

In the case of a positive payout, the dollar amount conveys how much a decision maker would be willing to accept to forgo an uncertain (and hence risky) option to earn a potentially higher amount, if the probabilities of obtaining such amount are established beforehand. In the case of a negative payout, the dollar amount conveys how much a decision maker would be willing to pay to forgo an uncertain option to avoid losing a potentially more unfavorable amount, again if the probabilities are established beforehand. An important aspect of the single score under discussion is that it is based on the principle that the underlying probabilities are identified *a priori*.

Another relevant issue in discussing how insurance companies present their products to consumers is to identify what motivates the buyer to enter the insurance market. The reasons for buying insurance can help identify how motivated customers will be able to shop around for competitive prices and how willing they are to forgo insurance if the price is higher than expected. For some types of insurance, coverage is mandated, either as part of a financial contract such as a mortgage

or loan, or required by the state as a prerequisite to a license or freedom. For insurance that is mandated, the provider does not necessarily find a need to justify the utility of its product in order to make sales to the public. Here brand recognition, convenience, and competitive price play the parts in deciding if the customer will buy.

For other types of insurance, such as product warranties or voluntary life insurance, where the customer has some option not to purchase coverage, the insurer must be capable of convincing customers that purchasing an insurance contract provides some economic good in exchange for the premiums paid. Presumably, when insurance is opted for, the utility gained from knowing their risk is mitigated compensates the insurance customer for the premium forgone up front.

Given that consumer sentiment affects sales of insurance in the voluntary market, insurance companies will find advantage in assessing the subjective experience of engaging in the insurance buying process. For the voluntary market, a single score that conveys the utility of the policy can serve as a selling feature. However, even when insurance is mandatory, conveying the utility of the policy about to be purchased may counter some of the unpleasantness of being required to buy insurance.

The problem with establishing the value of the insurance product purchased goes beyond the structural nature of the insurance transaction. Our hypothetical buyer looks for a normative rule he can follow that will tell him how much insurance he should buy at a given rate. In effect, our buyer is looking for a measure of whether or not his insurance purchase is rational.

In order to build an understanding of how one comes to make decisions about insurance, it is useful to review the approaches that have been taken to generalize how risky prospects are rated with respect to utility. After all, the decision to purchase insurance is just one way in which people consider among prospects with probabilistic outcomes. The following section will describe the expected utility theory which has served as both a descriptive and normative model of how decisions are made in a risky context.

THE EXPECTED UTILITY THEORY

To predict human behavior in face of risky choices, Friedman and Savage (1952) propose the Expected Utility Hypothesis as a descriptive model. The theory predicts that the certainty equivalent of the utility gained (or lost) from risky decisions which entail more than one possible outcome is equal to the sum of the utility of each outcome weighted by the probability of that given outcome.

Expected utility differs from the actuarial value in that the utility function is concave in the former. Actuarial value considers value of the payouts in each prospect, the time value of the money exchanged, and the probability of obtaining each outcome. It does not consider the change in preference of the individual for increasing payouts.

The Expected Utility Hypothesis predicts that a rational person will display risk aversion (a preference for certain gains over higher expected utility found in riskier outcomes) when selecting

from two or more risky choices (Friedman & Savage, 1952). The development of the concave utility function came about through considering a problem called the St. Petersburg paradox.

The hypothetical game begins with the winning stake set at 2. A coin is flipped. Each time the coin lands on heads, the winning stake is doubled. When the coin lands on tails, the game ends and the stake is paid out. The number of coin flips is not limited at the beginning of the game, so any number of consecutive heads are possible.

A breakdown of the first four possible stakes is listed in Table 1 below. Table 1 can be extended infinitely to the right to accommodate greater series of consecutive heads. The first row indicates the number of coin flips before the coin lands on tails and the stake is paid out. The second row indicates the series of coin flips achieved before the game pays out. The third row shows the probability of achieving the series of coin flips indicated in the second row. The fourth row indicates the payout of the game for the given set of coin flips indicated in the second row. The bottom row is the product of the third and fourth row. Summing the expected value of each individual coin flip (found on the bottom row of the table) across an infinite number of coin flips indicates the expected value of winning this game is infinite.

Table 1. St. Petersburg Payouts

Rounds	**1**	**2**	**3**	**4**
Coin Flips	T	HT	HHT	HHHT
Probability	0.50	0.25	0.125	0.0625
Payout	2	4	8	16
Probability times Payout	1	1	1	1

The problem introduced by the paradox is that most people would not be willing to wager a sizeable sum of money to play this game, even though it has an infinite expected value. As a solution, Bernoulli (1954) proposed a concave utility function such that marginal utility decreases as the value representing the final state of wealth increases. The intuitive interpretation of the concave utility function is that greater wealth values bring smaller marginal increases in utility. For example, an increase of 100 from a starting wealth of 100 is valued with higher utility than a similar increase of 100 from 10,000.

A concave utility function restores some sensibility to the St. Petersburg game and brings about a prediction of risk aversion. Bernoulli's modification to the payout line implies that even though the underlying value of the win increases in a doubling fashion indefinitely, the perceived utility of larger wins does not double correspondingly. Thus, while the probability of each successive coin flip diminishes by half, the corresponding change in utility is less than doubles. With a concave utility function, the sum of the bottom line converges to a finite value. As the sum of the expected values converges, risk aversion is observed such that players will settle for a single finite payout as a certainty equivalent to the prospect of playing the game.

Risk aversion serves as a tool in predicting what decisions people will make with regards to risky outcomes. Given two options, one certain and one based on a risky outcome, risk aversion predicts that if the actuarial value of both options is equivalent, people will choose the sure thing. Expected utility, including a concave utility function implying risk aversion, has been interpreted as a

normative indicator of rational behavior. The notion of utility as defined as expected utility serves as a backdrop for a discussion of the value a customer experiences through buying an insurance contract.

Buying insurance is in line with the way a gambler assesses the utility associated with risky prospects. The insurance buyer is motivated when purchasing a contract by the value the insurance will provide in covering risky outcomes. A major focus is placed on the benefit of coverage the buyer will receive. The ability of the interested buyer to gauge the value of insurance at the time of purchase is difficult to identify. Finding the right level of coverage at the right price is important for the average consumer, mainly to avoid the risk of substantial financial loss. However, where insurance costs may be high or prohibitive, the savvy buyer will be wary of spending more on a given policy than its worth.

Learning more about a method of measuring the value of an insurance policy for the buyer, to score the utility of a given choice based on risky outcomes, will aid in providing confidence to the customer throughout the insurance buying process as well as giving the insurance industry a tool to provide for the need of its market. For example, a customer interested in purchasing insurance may be able to obtain one or more quotes for the premium required to maintain a given policy but may lack the experience to evaluate the probability of experiencing a claim and the likely range of severity if such a claim occurs. The lack of experience or claims data can cause uncertainty and lead to apprehension about purchasing insurance. A possible outcome is that the potential buyer does not purchase insurance that they would have otherwise found valuable.

Another outcome could be that the buyer does purchase insurance, but at a coverage level below what they would have chosen if they had more information related to the economic value that specific insurance policy offered. Yet a third possibility is that the buyer does purchase an insurance contract but lack confidence that the insurance policy offers what the premium is worth, the buyer remains "in the market" for that same type of insurance with a willingness to change insurers when a different premium quote is made available.

However, if the insurance buyer has confidence that the insurance policy purchased provides some economic utility, then they may be more willing to purchase the full amount of insurance coverage to accommodate their risk profile and less likely to shop around for new insurance after the coverage is initially purchased. The ability to settle the value of insurance policies on the basis of the utility the customer experiences is a useful problem to solve for customers, agents, and insurance companies.

LITERATURE REVIEW

How people evaluate decisions based on risky outcomes has been a topic of interest for centuries. How these decisions are made affect the way people buy insurance, engage in gambles, or invest in variable rate securities.

One issue to be addressed is how insurance buyers' attitudes shape the decision making when purchasing an insurance contract. An area of interest for the investigation of insurance customer

sentiment is the degree to which the brand name of the company selling insurance affects the confidence the buyer has throughout the insurance buying process.

Taylor and Murrey (1982) observed that when less information is available to the customer, the perceived risk involved with the purchase of insurance increased. They concluded that respondents favored buying from a well-known company as a risk reliever (a device or action used to decrease the probability that a purchase will fail or shift the type of loss to one which the buyer has more tolerance). Their findings support the idea that an insurance company, by its very reputation, provides confidence in the insurance buying process. These findings support the notion that providing more information up front adds to the confidence the buyer experiences when purchasing insurance. This is consistent with the asymmetric information theory.

Bernoulli (1954) proposed what is known as expected utility theory which provides a basic understanding of how people make decisions under risk. In his discussion of decisions made under risky outcomes, Bernoulli identifies rules on what sorts of choices would be advised or ill-advised based on the values of the payouts and the underlying probabilities. His work focuses on the consideration of the utility of any given prospect as a determinant of the valid measurement of the value of a risk. Through a discussion on lotteries, Bernoulli identifies a feature of decision making where marginal increases in wealth offer diminished utility for higher base states of wealth. The lower marginal utility predicted by Bernoulli's expected utility theory is described as a concave utility function and provides the grounds for identifying risk aversion as a component of how people evaluate prospects. Bernoulli's observations of expected utility and risk aversion have aided the understanding of insurance purchases.

The idea of risk aversion contributes to the theory that actuarial fair value is not the only factor considered when it comes to making choices governing risky outcomes. Mossin (1968) has developed formulas that use principles of risk aversion to show the viability of insurance for the buyer. The advantage of insurance to a customer is found on the notion that a customer may pay a small premium up front to alleviate the risk of a larger loss at a later time.

The value of the insurance contract depends on whether the premium is commensurate with the actuarial fair value of the loss associated with the risk. The notion of risk aversion, which indicates that people will prefer a certain option over a risky one with the same actuarial value, establishes a basis of rationality, where predictability translates into reasonability, for the decision to purchase an insurance contract.

However, risk aversion does not adequately describe all consumer behavior when it comes to buying insurance. According to Schwarcz, "It has become increasingly clear in recent years that risk aversion is a remarkably poor explanation for how and why individuals purchase insurance" (2010, p. 557). Schwarcz describes several of what he terms "insurance demand anomalies," such as individuals displaying little interest in purchasing catastrophe insurance, willingness to purchase insurance against small financial risk, and preference for low deductibles.

One explanation for the insurance demand anomalies is that the observed decisions represent an error on the part of the buyer. As explained by Schwarcz, "According to the mistake hypothesis, consumer insurance decisions reflect the fact that time is scarce, cognitive resources are finite and

information limited" (2010, p. 562). Informational asymmetries between insurance companies and customers arise due to the level of expertise required to evaluate the risk and rating of insurance products. Insurers base their rates on experience tables, expense loading, and profit margins that are not publicly available to policyholders and applicants for new policies.

Schwarcz (2010) describes another way customers display decision making that deviates from choices made purely on actuarial fair value and expected utility as seen in how they make their decisions to select a deductible or to purchase an insurance contract at a set deductible. Classical theory predicts policyholders should favor higher deductibles as lower deductibles only serve to insure against small financial risks.

According to Schwarcz, higher deductibles disproportionately reduce the cost of insurance. Higher deductibles reduce moral hazard by requiring policyholders to pay the first dollars of a loss. They also reduce adverse selection since lower deductibles are disproportionately valuable to high-risk individuals. Due to disproportionality, the marginal cost of lower deductibles is up to four times higher than higher deductibles, yet a majority of consumers tend to select the lower deductibles.

In order to provide a standard to rate the rationality of customer behavior when setting an insurance deductible, it is worthwhile to identify what an optimal strategy would look like for selecting a deductible. Head (1965) provides a three-parameter model which offers an optimizing solution for the corporate buyer of insurance in the selection of an insurance deductible which may be used as a guide for identifying an optimal strategy for the individual.

According to his corporate buyer model, the basic rule is to choose that deductible which maximizes premium savings over loss assumption costs, provided that the deductible does not exceed the financial capacity of the firm. He notes that insurance buyers are not actuaries and that the relevant standard for predictability, which will guide the insurance buyer's confidence in the credibility of their own experience, is guided by what the buyer's nervous system is willing to take (Head, 1965). For an individual in the market for insurance, the insurance company will have its own company experience on which it bases its premium rates which may be more robust and credible than the buyer's personal experience. As a result, the insurance buyer and the insurance seller may have differing attitudes as to what constitutes an optimal solution based on the predictability of experience available.

The Prospect Theory

Ultimately the decision to purchase insurance and select the features of an insurance contract reflect decision making under risk. The insurance contract represents the transfer of a known payment in the present to mitigate probable losses in the future. The prospect theory presents a contemporary set of descriptions of how individuals make choices like purchasing an insurance contract (see Kahneman & Tversky, 1979; Tversky & Kahneman, 1992).

Offered as a solution to critiques of expected utility theory, prospect theory provides an alternative model of decision making under risk. It focuses on the fact that people perceive outcomes as a change in states (gain or loss) as opposed to evaluating the final position of welfare. A resonant observation of Kahneman and Tversky's prospect theory (1979) is that losses have a greater

negative impact than gains of equal measure in the way people experience situations. The phenomenon is known as loss aversion.

Kahneman and Tversky's paper includes an experiment where subjects are asked to choose between a payout of 6000 with probability 0.25 or 4000 with probability 0.25 and 2000 with probability 0.25. In their study, 82% of respondents chose the 4000 and 2000 option. In the same study, on a different question where signs were flipped, 70% of respondents chose -6000 with probability 0.25 over the combined choice of -4000 at probability 0.25 and -2000 at probability 0.25. The results led Kahneman and Tversky to conclude "These preferences are in accord with the hypothesis that the value function is concave for gains and convex for losses" (1979, p. 277).

The concave/convex curve implies risk-averse behavior in the realm of gains but risk-seeking in the realm of losses. Also, the value function for losses is observed to be steeper than it is for gains, implying loss aversion. Based on an observation of the value function for gains and losses, they concluded that "losses loom larger than gains" in the minds of people faced with risky decisions (Kahneman & Tversky, 1979).

The idea of loss aversion is an influential feature of the formulas developed in the cumulative prospect theory to evaluate the utility provided by any given prospect (Tversky & Kahneman, 1992). Loss aversion makes unique predictions for loss based models, such as insurance, as opposed to prospects with only positive outcomes such as lotteries.

The prospect theory identifies the effect where people underweight outcomes that are probable compared to outcomes that are obtained with certainty. The different treatments of uncertain prospects versus certain prospects are seen to contribute to risk aversion in choices involving sure gains and risk seeking in choices involving certain losses. Prospect theory develops a theory of choice where the value is assigned to gains and losses as opposed to the final welfare state. Features of the model include a value function that is steeper for losses than gains and decision weights that replace the underlying probabilities when evaluating a risky choice.

Their paper on prospect theory includes other examples of ways in which subjects responding to hypothetical questions provide answers that go against predictions made by expected utility. The authors refer to one example as the certainty effect, a phenomenon where people overweight outcomes that are considered certain over outcomes that are probabilistic (Kahneman & Tversky, 1979).

The difference in the weighting of probabilities by certainty is seen to contribute to risk aversion in choices involving sure gains and risk seeking in choices involving certain losses. Understanding the certainty effect is helpful in making comparisons between cash flows that are considered a sure thing, compared with those which are merely probabilistic. The SPUE model presented in this paper is supported by their work on the certainty effect. The model identifies a single payment, taken as a sure thing, and compares to risky prospects with probabilistic outcomes.

The prospect theory also replaces pure probabilities with decision weights which vary as the underlying probabilities approach zero or one. Kahneman and Tversky (1979) indicate decision weights are lower than their corresponding probabilities, except in very low probabilities.

Using Tversky and Kahneman's (1992) experimentally derived values, Bromiley (2010) has illustrated situations where prospect theory predicts risk aversive and risk-seeking behavior. For a series of payouts from -20 to 20, he calculates a subjective value, *v(x),* found in equation (1) below for a given payout and the value of a gamble calculated as the mean of the subjective values of the outcome increased and decreased by 5. For example, the value of a certain payout of 10 is compared to a risky option with an equal probability of obtaining 5 or 15. Where the value of the certain payout exceeds the value of the gamble, risk aversion is implied. Based on the parameters shown above, the certain choice is preferred to the risky choice for all payouts of -2 to 20. Only outcomes where the certain option incurs a loss lead to risk-seeking behavior. The highest degree of risk aversion is indicated when the certain option is 3 and the highest degree of risk-seeking occurs when the certain option is -5. As the payouts increase above 3 and decrease below -5 the risk premium implies greater risk neutrality.

The implication is that decision makers show risk aversion in the positive realm, and risk seeking in the negative realm, with a complex interaction for decisions involving mixed results (some positive and some negative outcomes).

Bromiley's approach provides the groundwork for comparing a single payout with multiple payouts where the single payout is considered certain and the other payouts have probabilities that are determined *a priori*. Bromiley's approach calculates a score without units for both certain and uncertain prospects. Prospects with higher scores are considered preferred over prospects with lower scores. This paper follows a similar methodology from the cumulative prospect theory.

Tversky and Kahneman's cumulative prospect theory (1992) indicates risk aversion for gains and risk seeking for losses of high probability with risk-seeking for gains and risk-aversion for losses of low probability. An advantage of aligning a method for summarizing the utility of insurance with the cumulative prospect theory is that the groundwork has been laid for analysis of losses with low probability.

SINGLE PAYOUT UTILITY EQUIVALENT

In order to judge the preference of one prospect over another, the cumulative prospect theory incorporates two functions which, when evaluated together, provide a numeric value that can be used to order prospects (see Tversky & Kahneman, 1992).

To evaluate a prospect, decision weights, symbolized by *w(p)* as a function of the underlying probability *p,* is multiplied by the subjective value, *v(x)*, of an outcome *x* to determine an overall value, *V(x),* of an edited prospect (one that has already been evaluated under certain constraints by the evaluator) to create a final ranking of choices available. Prospects with higher numeric values of *V(x)* are preferred to lower valued options.

They calculate a subjective value of payout, *x*, as follows:

$$v(x) = x^a \text{ if } x > 0, \text{ and } v(x) = -\lambda(-x)^\beta \; if \; x < 0 \ldots\ldots \quad (1)$$

The decision weights associated with each probabilistic outcome are identified by the function below.

$$w(p) = \frac{p^{\kappa}}{(p^{\kappa} + (1-p)^{\kappa})} \text{ if } x > 0, .w(p) = \frac{p^{\delta}}{(p^{\delta} + (1-p)^{\delta})} \text{ if } x < 0, \text{ and } w(0) = 0. \quad (2)$$

Tversky and Kahneman conducted an experiment in order to estimate the parameters in the value and weighting equations (1) and (2). Subjects were asked to rank their preferences for risky prospects. From their experiment, median values for the parameters were found. The median exponent for the value function was 0.88 for both α and β. The median λ was 2.25. The median κ and δ were 0.61 and 0.69 respectively (Tversky & Kahneman, 1992).

Though not focused on the specific quantitative effects, the authors used a nonlinear regression procedure to obtain values for the parameters of eq. (1) and (2). If a method is provided that can find appropriate values for the parameters α, β, λ, κ, and δ, the equations of cumulative prospect theory provide a sound basis for identifying an objective measure of utility experienced by a subject when faced with the opportunity to either accept or mitigate the gains and losses associated with a given prospect.

While the measure yielded by applying the equations of cumulative prospect theory does not translate directly into any currently observed units of measure, it does provide an indicator to compare two sets of choices based on differing risks and to identify which choice should be preferred by the subject. Additionally, for any single probability-payout combination there exists a unique payout S such that the utility measure of S for certainty (evaluated with $p = 1$) is equal to the valuation of the probabilistic choice. The value S represents a single payout utility equivalent (SPUE) which the subject would be indifferent to exchanging for the choice involving the probabilistic outcomes. The equation for finding a single payout S given a corresponding probabilistic payout x at probability p is shown in eq. (3).

$$v(S) = v(x) * w(p) \quad (3)$$

For example, if x is positive, the value of S may be calculated via eq. (4), as

$$S = e^{\frac{\ln v(x) * w(p)}{\alpha}} \quad (4)$$

By applying the principles of cumulative prospect theory, the concept of the SPUE can be expanded to include prospects with multiple possible payouts and different probabilities. Here an assumption is made that when two payouts are offered at different probabilities, the overall value of the prospect is calculated by combining like payouts across probabilities.

For example, if a prospect would pay out 200 at a probability of 0.30 and 450 at a probability of 0.5, the payout of 200 would be considered to occur at the combination of probabilities 0.3 and 0.5 and an additional 250 (calculated as 450 minus 200) would be observed to occur at probability 0.5. The value V would be evaluated by the following equation.

$$V = v(200) * w(0.80) + v(250) * w(0.5)$$

So, for a given set of payouts x_i with corresponding probabilities p_i the SPUE can be calculated as *S* in eq. (5).

$$v(S) = \sum_i v(x_i) * w(p_i) \quad (5)$$

The SPUE for a non-discounted cash flow is found by first applying the formulas for Tversky's and Kahneman's cumulative prospect theory across all outcomes and probabilities to arrive at a utility value *V(x)* of the expected cash flows. Then a single payment utility equivalent *S* is solved by using the same value function and substituting a probability 1 for the weighting function. The dollar amount obtained by solving for *S* represents the cash equivalent of the utility being purchased under the insurance contract.

Further, a SPUE can be calculated for a series of cash flows that take into account the time value of money for cash flows occurring in the future. For a discounted cash flow, first the value for each time period is calculated using Tversky and Kahneman's value function, then the value is discounted back to the time of purchase by the time value of money. Then for the valuation of the SPUE, the discounted values are replaced for v(x) in eq. (5).

For example, the SPUE of a 3 year warranty on a product sold for $1000, and a probability of failure of 0.005 in each year, covered for one full replacement in the three year warranty period (calculated as paid at the end of the year) with a 5% annual discount rate may be evaluated as follows. The probability of failure in a given year, and the discounting at the end of each year are shown in Table 2 below. The probability that the product will fail in a given year for the first three years is 0.005, 0.004975, and 0.00495. The discounted amount of the loss at the end of each of the first three years is -935.41, -890.82, and -848.39.

Table 2. Three Year Warranty

Year	**1**	**2**	**3**
Failure Probability	0.005	0.004975	0.00495
Discounted Loss	-935.41	-890.82	-848.39

The value of the utility of the warranty is summarized as the sum of the products of the discounted cash flows by the corresponding decision weights. The value of -848.39 is realized in all years where the product fails, thus it is calculated as the sum of the probabilities of each year which is 0.014925. The additional value of -42.43 (calculated as the difference -890.82 minus -848.39) is incurred when the product fails in the first or second year; the additional loss of -42.43 is calculated at the combined probability of failure in years one and two which is 0.009975. Finally, the additional loss of -44.59 (calculated as the difference of -935.41 minus -890.82) is incurred only if the product fails in the first year. A calculation of the SPUE for the illustrated warranty is shown in the following equation.

$$v(S) = v(-848.39) * w(0.014925) + v(-42.43) * w(0.009975) + v(-44.59) * w(.005)$$

Here, the single payment utility equivalent is -$47.84. On average a buyer would be indifferent to accepting a certain loss of around $48 or accepting the risk of loss at the given probabilities and discounting.

Note that the utility values calculated in the cumulative prospect theory serve as comparative values only, and are not formatted to any unit or denomination. The conversion of the measure of utility provided by the cumulative prospect theory's formulas to a SPUE is necessary to convey a dollar value of benefits incurred.

Also of note is that the parameters presented in Tversky and Kahneman's paper on cumulative prospect theory represent data derived from a survey conducted on a select group that may or may not fit well for any single individual. Where the means are available, the communication of a SPUE may be more individualized. It is anticipated that for any given insurance marketing where a SPUE is incorporated, the parameters of the prospect theory formulas will be recalibrated via a survey with hypothetical scenarios to best capture the idiosyncratic experience of the potential buyers of that type of insurance. By recalculating the parameters for each individual, the utility presented by a SPUE can be tailored to the risk attitudes of the specific person looking to purchase a specific type of insurance.

Who Should Calculate a Single Payout Utility Equivalent?

Who is best suited to perform the evaluation of the parameters involved in the cumulative prospect theory functions? A third party to the relationship between the insurance provider and the insurance buyer seems best suited to provide the means for calculating the measure of utility provided by an insurance contract without creating a conflict of interest. It is not difficult to see that an insurer will be motivated to persuade a potential customer that purchasing insurance is for their own economic interest.

It is foreseeable however that an insurance agent could administer a survey and submit the results to a third party software solution in order to provide the SPUE to the customer within the context of a real-time conversation about insurance options. The SPUE is proposed as more of a comparative tool, not so much for the purpose of securing a sale than for giving the potential customer a means to line up one insurance product or option against another. Using it merely to promote insurance sales misses the point. An insurer is a party on the side of the informational asymmetry who has data on the underlying probabilities of the risks being insured for. Since the insurer owns the tables identifying the risk on which the insurance premium is calculated, the insurer is the party in the relationship able to make meaningful evaluations of the likelihoods used in the prospect theory decision weighting functions.

Does the insurer have the capacity to present a measure of utility in such a way that the practice can benefit the customer and at the same time provide that potential buyer with a sense of confidence that conflicts of interest on the part of the insurer offering advice are minimized? If the insurer supplies the probability tables to a third party solution, such as a software arrangement that takes the calculation out of the insurer's hands, a degree of impartiality may be maintained. The following presents one approach that may be given to a customer some measure of the subjectively experienced value under consideration for purchase.

For a hypothetical scenario, imagine an insurance agent with multiple lines of product offerings home, auto, and life. After conducting a survey of three to five questions where the insurance customers indicate their preferences for selected prospects at known probabilities, through the use

of calculation tools provided by the third party regarding relative risk scores for the customer, the agent will be able to present the customer with single premium utility equivalents for each line as well as different levels of coverage.

Our agent may come to the buyer with a statement,

> "Given your responses to certain risk-based questions, and amounts that you have stated you would be indifferent between accepting a single payment or risky cash flows at a known probability of outcome, a risk profile has been generated to estimate the utility you receive from varying types of insurance. Coupled with company experience tables used in the pricing of insurance premiums, your risk profile indicates you will experience a level of utility commensurate with a single payout in dollars for the following selected insurance plans. Note the following Single Payment Utility Equivalents are not the premium being charged for the insurance policies, but rather a measure of these products' economic utility converted to equivalent dollars that they will bring to you. For a $150,000 accidental liability on your vehicle with the standard policy coverage details the SPUE is $645. A homeowner's policy with $400,000 accidental loss coverage has an SPUE of $1196. At your request provided are ratings for two 10 year term life insurance policies. The first for $500,000 coverage has an SPUE of $680. The second for $750,000 is $1019."

The agent could then engage in a discussion of premium rates and engage in a talk about the types of risk being covered for and the utility the agent can provide through the products offered.

Though it may be difficult to convince the customer that the agent presenting the SPUE is impartial to the decisions implied by the utility score, it may be possible to establish some standard of objectivity in the calculation and delivery of such a measure. If the concept is deemed to provide meaningful value to the insured, and possibly aid in the sale of insurance policies, players in the industry may desire to have a third party moderate the SPUE process. While the insurance industry is usually resistant toward government regulations, it is conceivable that a third party to the insurance company and customer relationship could be encouraged to oversee the administration of the SPUE process if it would add credibility and transparency to insurance buying.

Having established a method for communicating the utility of a given insurance product with high-value payouts and low probability, a similar approach may be considered for covering lower value losses such as is encompassed by product extended warranties. The first item of note is that the sale of most product extended warranties takes only a few seconds from the moment the warranty is offered to the moment of purchase, coinciding with the point of sale of the product to which the extended warranty is set to cover. Since the approach of surveying each customer to determine a personalized risk profile would likely lengthen the time required to sell any individual extended warranty without providing any additional value to the customer or seller, a more generalized approach to informing customers of the utility gained by purchasing a given extended warranty can be taken.

If the risk parameters for the cumulative prospect theory functions are assumed, the SPUE can be calculated for any given product provided the manufacturer has some expectation of that product's failure rates. Further, to provide a standardized measure of the value of all extended warranties across different products and values, a warranty utility factor, calculated by dividing the SPUE by the actual cost of the warranty, can be determined for each warranty.

Between two warranties, the product with the higher warranty utility factor can be said to provide greater financial utility per dollar cost of the extended warranty. The advantage of a standardized factor is that consumers may become familiar with the concept and acquire a sense of comparative value across all extended product warranties. A sense of understanding about the utility value of the extended warranty to be purchased can offer more confidence to the customer in the decision-making process of whether or not to opt for additional coverage on a given product being purchased. Without a standardized measure, the consumers find themselves uncertain as to how much the pricing of an extended warranty overstates or pads the risk of defect covered by the contract.

To ensure similar treatment for products from different manufacturers and sold through different outlets, the role of calculating and certifying the warranty utility factors is, similar to the insurance SPUE, best suited for a third party rating agency. Manufacturers may submit the failure rates of their products to the third party rating agency which would then be able to calculate a utility score for an extended warranty at a given duration and price. By subjecting all sellers of extended warranties to the same process, uniformity may be understood for all extended warranties across products and markets. At the point of sale, a seller need only state the duration, warranty utility factor, and price.

Application of SPUE

One test of the prospect theory model is to examine the empirically solved parameters in common risk decision scenarios to see if the model conforms to usual experience or if the parameters and model predict unexpected behavior. A way to conduct a sensibility test will be to plug in standard insurance values and risk probabilities to see if the utility of a certainty equivalent as predicted by the prospect theory lines up with the range of costs currently charged to insure against a specific risk.

A life insurance risk is considered here as an example. Considering a policy for a 50 year old is listed at a 0.00068 mortality risk for the first year by the Society of Actuaries 2017 Commissioner's Standard Ordinary Table, the expected converted utility from the prospect theory model following the established parameters to cover the risk of losing $500,000 yields the same converted utility as a certain payment of $1,494. In other words, the perceived utility at risk by the hypothetical individual captured by Tversky and Kahneman's parameters is roughly equivalent to $1,494 per year. The prediction is supported by the finding that the current online market quotes available for a 50-year-old 10 year $500,000 term policy are priced at $58-65 a month and further justifies the expectation that an insurer may expect to sell policies, with loading, at a price above the actuarially fair premium (no interest discounting) of $305 for one year of coverage.

For a second example, an auto insurance risk is considered. Using a rule of thumb that the average adult experiences an auto insurance claim once every 17 years, with an average claim severity of $10,000, the prospect theory model predicts a converted utility of the risky portion equivalent to the converted utility of a certain loss of $925 for one year. Compare $925 to an auto premium quote of $246-$459 per six months and the SPUE does not fail the sensibility test. Note that the premium quote range was obtained by querying multiple online insurers for a 2010 Kia Sedona with a 41 year old female driver.

Higher values in the Kahneman and Tversky model make sense, considering that the market price for financial products is expected to follow standard supply and demand dynamics. Competition among suppliers has lowered the market price for insurance below the dollar value that can be substituted for equivalent utility. The prediction is that where the insurance market has a large number of suppliers, the market value of insurance products will approach marginal cost or actuarial fair value.

Left with only market prices for insurance, the value of the utility of insurance products has been obscured by the insurance quoting process. The consumer, faced with substantial informational asymmetries, does not have an easy way to evaluate how much gain they are receiving from the insurance contract. The model presented in this paper provides a creative opportunity for the insurance seller to inform the buyer of how much value the product provides.

The contribution of this paper is to present a practical dollar based model that insurers, or some third party intermediary, can offer some information calculated from the prospect theory to inform insurance buyers of what experiential value they are earning by buying a given insurance product. For a given insurance product, the customer is presented with the SPUE to express a cash value of the experience a consumer would gain by purchasing this product. As indicated in the examples above, where the SPUE is greater than the market price, the insured is encouraged to buy. Also, when considering related products, this approach provides the buyer with some consistent method of comparison to assess the underlying benefits of each product as anticipated by the prospect theory. A key element of the SPUE is that it takes into account how the insurance buyer would evaluate the insurance policy if they had available the same data as the insurer.

SPUE and Deductibles

An aspect of establishing an insurance contract is to determine a deductible in the case of an insurance claim. Deductibles determine the amount of a claim a policyholder must cover before an insurer pays out on a claim. Higher deductibles reduce insurance premiums as the insurer has less exposure for any given incident that would qualify as a claim. Additionally, deductibles serve to reduce moral hazard in the insurance environment as policyholders are still liable to experience some level of loss when a claim occurs. Higher deductibles reduce moral hazard and hence premium compared to lower deductibles. An insurer will take interest in how customers make decisions to set the deductible when establishing an insurance contract. Demand for certain deductibles affects pricing and loss profiles.

Currently, deductible decisions are offered in different ways depending on the type of insurance coverage contracted. Auto and homeowner’s insurance frequently offer flexible options where the

policy applicant selects a deductible level from a menu and premiums are calculated based on the insurer's exposure. Health insurance deductibles are typically set on a per plan basis where the person to be insured either opts into a plan at the set deductible and pricing or finds an alternative plan. Health insurance customers do not typically have an option to tailor the deductible to their own individual needs. Life insurance does not by nature include deductibles as the contract is set at a specified death benefit which is paid out in the event of a claim without establishing loss severity.

As stated earlier, classical insurance theory predicts diminishing marginal utility for lowering deductibles which only cover small amounts of loss at low probabilities. According to classical insurance theory, insurance makes sense when it covers large losses for a low fixed premium. Yet field data shows that customers often opt for lower deductibles. One hypothesis for the anomaly in the behavior to opt for lower deductibles is that insurance buyers overestimate the likelihood of a claim when considering only the additional coverage provided by a lower deductible.

Also, the practice of settling on a deductible amount before quoting the premium on insurance may obscure from the customer how much the premium increases for a corresponding lowering of the deductible amount. One option which may provide more awareness for the insurance customer would be to provide the customer with an SPUE for an insurance policy at each level of deductible. The SPUE approach has the advantage of offering comparability across multiple lines of insurance and providing a single number measure of utility for the customer. In providing this information to the customer, the agent may be able to illustrate that lower deductibles do not offer a proportional increase in utility corresponding to an increase in premium. This would address certain insurance buying anomalies discussed by Schwarcz (2010) above.

Use of the SPUE may change insurance buying behavior to incorporate higher deductibles per policy in general. It may be argued that higher deductibles are better for the insurance market all around as they reduce moral hazard on the part of the insured but still allow for coverage of large or catastrophic loss in a risky environment. Insurance providers may offer insurance coverage for large losses while avoiding the costs associated with minor claims.

CONCLUSION

This paper considers ways in which people choose to purchase insurance policies to mitigate risk and proposes a new way of presenting the value of a policy that provides greater communication transparency. While insurers and agents are motivated to justify the prices of their policies as a good value for the customer, there are problems with how a customer may compare or evaluate the economic good received from a given policy.

We discuss the expected utility theory and the prospect theory which illustrate how models of decision making under risk have developed. Relying on Tversky and Kahneman's (1992) functions employed in the cumulative prospect theory, this paper proposes a method of calculating a dollar equivalent amount that represents the utility of any given insurance policy, the single payment utility equivalent (SPUE).

SPUE presents a new option for the agent selling an insurance policy to communicate to the customers. Given widespread use, SPUE may provide a commonsense approach to how willing the buyer would be to purchase an insurance policy if they are aware of the underlying probabilities that are used in the pricing of the policy's premium.

This paper also presents several examples of the applications of the SPUE across different types of insurance, at varying values of coverage including life, auto, and product warranties. Additionally, the SPUE concept can help insurance customers decide upon a deductible as a feature of their policy. In the end, the measure of the economic good described in this paper, the SPUE, when offered to potential customers, will make the insurance buying process more transparent.

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TEMPLATE FOR SUCCESS: TEACHING TECHNOLOGY AS A LIFE SKILL

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ABSTRACT

In response to the COVID pandemic, there has been a rush to get traditional classrooms pushed into online environments as a means of keeping students safe while moving forward with their educations. There is an exploding need for students to become technologically adept across platforms and devices toward fully understanding and applying high technology as a means of meeting daily operations requirements for employers. This paper presents the COVID-compliant redesign from a teaching team for students who are new to an Information Systems course requiring online interaction as well as competency with workflow product applications. We leveraged technology in a teaching environment to optimize student learning outcomes. The course described here incorporates andragogical best practices for rapid deployment and training transfer.

Keywords: information systems, teaching, life skills

INTRODUCTION

"I can see an application for this in my life! I have never thought about how Excel ties back to my life."
IS2241 Student, Spring, 2021

While the current generation of young college students is noted for being sophisticated about technology, most of the applications (apps) used by teens are not related to the work environment. Instead, teens are adept with apps that promote texting, live streaming/video, microblogs, photo sharing, chatting/dating, and secret chat/share (Common Sense Media, 2021; Pew Research Center, 2012). However, not all new college students are teens. Instead, the pandemic saw adults re-entering higher education to buffer the impact of furloughs and lost career opportunities. While often perceived as not as technologically sophisticated as younger app users, adults are, nonetheless, still well versed in how to use apps for the same reasons teens use them, i.e., to connect and play (Pew Research Center, 2011).

Notably missing from the technology repertoire of many first- and second-year college students is the use of workflow applications, apps that are often used to meet the demands of employment (Valet, 2020). Toward reducing this gap, universities have created information systems courses that are designed to prepare students for jobs that use workflow apps, i.e., Microsoft Word and Microsoft Excel (Longenecker, Feinstein, & Clark, 2013).

The course design being described here was presented by a major university which was an early mover in online education. The first university to provide a bachelor's degree online in 1989 was

a for-profit university. The university referenced in this piece is public and taught its first online class in the mid-1990s. Blackboard (https://www.blackboard.com/) learning management system began in 1997, and this university became one of the beta sites in 2001. The university has a 20+ year history of providing online classes with a substantial international presence. For in-residence classes, this university has a mask mandate for everyone on campus. Per the CDC guidelines, every student is masked during lectures as well as during lab participation and maintains a safe six-foot distance from all others. The course population is primarily freshmen (18-22 years old) for the in-residence environment and adult learners (18-65 years old) in the online environment.

The course has well-defined and assessed course goals and outcomes. The course stresses the importance of a "hands-on" instructional environment as students from various disciplines move through multiple platforms and devices to achieve competency in coursework. While accommodating touch free/social distancing necessities, the course has received substantial positive feedback from students and faculty members. Assessments indicate that a significant majority of all students in this course become competent at using work product software across multiple devices and show a high level of readiness for subsequent courses.

Throughout this article, the moniker IS 2241 is used to denote the course which adopted this pilot project. While the pilot covers multiple sections as well as multiple instructors across terms, the paper alludes to the entirety of the experience as a single event to foster clarity. This is a 16-week course taught on campus that is a requirement for all undergraduate business students. The class is also taught fully online during a 9-week term, and the online course is identical to the 16-week course content with respect to assignments and anticipated outcomes. The 16-week course is taught in a flipped (Nouri, 2016) classroom environment, engaging students to complete the assigned homework outside of class. The in-class work incorporates a hands-on kinesthetic learning environment with instructors and tutors. The nine-week course is taught solely online, incorporating self-study, video, and hands-on projects.

Currently, the pandemic has driven the need for enhanced use of workflow apps as millions of students and employees have moved out of classrooms and offices to work from quarantined quarters. College teachers have been pressed to leave classrooms (Bombardieri, 2021; Li and Lalani, 2020), sometimes over the span of just 3-4 days, to work in a more protected environment, often found online. This paper presents the COVID response for a class which serves hundreds of students each year. Students are new to required course assignments, including online interaction, as well as competency with work product applications.

LITERATURE REVIEW

Although hundreds of years old (Loeng, 2018), the use of andragogy as a teaching philosophy did not fully emerge until the early 1970s when Knowles (1970) made a direct comparison between andragogy, the art and science of teaching adults, and pedagogy, the art and science of teaching children. In citing Lindeman (1926), Knowles (1984) lays the foundation for andragogy. Lindeman's (1926) approach is predicated on five fundamental assumptions that include:

1) Adults are motivated to learn as they experience needs and interests that learning will satisfy; therefore, these are the appropriate starting points for organizing adult learning activities.
2) Adults' orientation to learning is life-centered; therefore, the appropriate units for organizing adult learning are life situations, not subjects.
3) Experience is the richest resource for adults' learning; therefore, the core methodology of adult education is the analysis of experience.
4) Adults have a deep need to be self-directing; therefore, the role of the teacher is to engage in a process of mutual inquiry with them rather than to transmit his or her knowledge to them and then evaluate their conformity to it.
5) Individual differences among people increase with age; therefore, adult education must make optimal provision for differences in style, time, place, and pace of learning (Lindeman (1926), as cited in Knowles, 1984, p. 31).

Knowles (1984) used Lindeman's work (1926) as the underpinning for his own set of assumptions for the andragogical model. The assumptions are:

1) Adults need to know why they need to learn something before undertaking it.
2) Adults have a self-concept of being responsible for their own decisions, their own lives.
3) Adults come into an educational activity with both a greater volume and a different quality of experience from youths.
4) Adults become ready to learn those things they need to know and be able to do in order to cope effectively with their real-life situations.
5) Adults are motivated to devote energy to learning something to the extent that they perceive that it will help them perform tasks or deal with problems that they confront in their life situations.
6) While adults are responsive to some external motivators, the most potent motivators are internal pressures (pp. 55-61).

Throughout his work, Knowles (1984) stresses the importance of teaching in a manner that uses the student's experience as part of the lesson, so the student will engage more readily with the information. For example, even if students have limited workflow app knowledge, they can build on knowledge from social and streaming apps to help them connect to the principles of workflow apps, often taught in IS courses, that are used in the workplace. Although Knowles (1970; 1984) has been criticized, because his work lacks an empirical base, his work has served as a foundation for adult learning since the 1980s.

One conspicuous difference between pedagogy and andragogy is the nature of the relationship between instructor and learner. With pedagogy, the instructor is often the center of the learner's activities and is a mature authority figure. This relationship is clearly demonstrated in classrooms full of children. Conversely, with andragogy, the instructor is often a subject matter expert (SME) who is sharing knowledge while relying on the learner to be self-directed and motivated. The SME instructor can often become a peer, particularly for mature adults completing graduate studies or continuing education.

McBride and Hackney (2003) believe that information systems (IS) teachers deal with several opposing forces found in the field that teachers are required to balance throughout coursework. The opposing forces are: 1) IS is both analytical and discursive, 2) IS is both certain and uncertain, 3) IS is both social and technical, and 4) IS is both specialist and public. They posit that these characteristics make IS an especially challenging field to teach and suggest that teachers have a set of principles to provide grounding for curricula. They offer a number of principles of teaching IS to support their perspective while also offering competing roles for the IS teacher to fulfill, i.e. teacher as counselor and teacher as theoretician. They emphasize that historically IS has been taught as formal methodology but has evolved to need students to learn soft personal skills as well as logic.

Case, Dick, Granger, and Akbulut (2019) argue that IS instruction should be centered on transformational business models, products, and services that result from the evolution of digitization. They believe that IS, as a field, suffers from an identity crisis that is often furthered by instructors' focus on new technologies as a direction for IS curricula. While trying to keep students abreast of the next new thing, instructors are contributing to the identity crisis that contributes to falling enrollments or to IS courses becoming associated with other programs, i.e., IS for Accountants or IS for Leaders. Further, they note that potential students often do not understand the differences among similar programs including computer science, information technology, and information science. They posit that this lack of identity contributes to courses that are, perhaps, "out of step with business needs" (p. 288) as well as misallocation of resources, because courses are developed hastily and without appropriate analysis of the company to discern needs. All of this serves to lower the profile of the IS courses/program within an institution.

As indicated by McBride and Hackney (2003) and Case et al. (2019), IS presents very real challenges for teachers, and there is no greater challenge than teaching ethics as they relate to IS. Stahl (2011) recommends a framework bounded by "moral intuition, explicit morality, ethical justification, and higher-level reflexivity" (p. 254) to create a foundation for teaching ethics in IS. He stresses the importance of awareness of potential for ethical dilemmas early in the life of information and communication technologies. His perspective posits that ethics are a matter of reflection and without guidance on the nature of ethical issues, it is easy to see how students can become overwhelmed, not to mention compromised, without an ethical framework. He believes that reflection begets reflection such that students will learn to become not only aware of their own ethical positions but also those of others.

Two notable omissions in Stahl's (2011) work must be considered. The first is that he does not make recommendations for how to teach the complex and emotionally laden topic of ethics. His work is positioned as a call for work on developing teaching methods to address ethics in IS classes. The second omission is the lack of consideration of personal values as primary predictors of any student's ethical position. Discussions of values are a cornerstone for ethics education.

Unlike Stahl (2011), Scialdone and Connolly (2020) prescribe a way for IS students to study "fit", the human-computer interaction (HCI), through the use of paper prototyping. Their experiential exercise, grounded in a Constructivist approach, uses common materials to teach students how to foster learning and practice in usability concepts. This exercise was deployed in an early HCI course but is applicable for all levels of IS education to address a shortage in HCI education. Their

exercise includes not only designing a check-in kiosk but also requires role-play between students working in teams of two. As with McBride and Hackney (2003), the focus on soft skills along with hard skills, was considered an important learning point. Role play was followed by discussion. Finally, a focus group was conducted by another professor whereby students were provided the opportunity to express honest feedback without the biasing effect of the classroom teacher. Through focus group feedback and course evaluations as well as personal reflection, the authors claim evidence, albeit anecdotal, supports the use of this exercise for an IS classroom.

Barber (2021) modified courses to address the distress suffered by her students as universities began to close in response to the pandemic. In addition to loss of the face-to-face learning environment, some students lost jobs, housing, and, sometimes, family members as the pandemic spread. Barber (2021) notes that stressors bearing on the problems continued to multiply, and she identifies some of the issues which she faced as an IS teacher:

- Creating a hands-on experience in an online environment
- Moving students beyond memorizing content to applying concepts in the online environment
- Making sure that students themselves (and not someone else) did work or completed an assignment, and
- Managing exams on online proctoring services for students who felt that having a stranger watch them online and see where they live violated their privacy. (p.17)

She cites three important learned points from her experience: 1) Students wanted to learn, regardless of delivery method, 2) Technology is not always going to work the way one needs it to work, and 3) Students have very real concerns about privacy, even with trusted others, e.g. proctoring services. This study is particularly germane to this paper, because we designed the course described here to address many of the issues encountered with IS students since March, 2020.

Taken together, this literature provides a theoretical underpinning for the current design of IS 2241, given that a pandemic forced many issues into the open. The literature tends to be descriptive rather than prescriptive, but worthy of deeper investigation that is beyond the scope of this paper.

COVID-COMPLIANT REDESIGN OF IS2241

IS 2241 is a kinesthetic course with continuous hands-on opportunities throughout class. The instructor lectures only for the first three weeks of the sixteen-week semester. The rest of the time in class is “flipped” and spent doing in-class, hands-on projects. The traditional format requires students to be passive acquirers/users of knowledge while the flipped format requires that students engage with the course for the duration of the course. To do otherwise results in poor course grades.

The move from the traditional class with the “sage on the stage” has been shown to provide a less positive experience for some students while many students report high satisfaction with the flipped format (Nouri, 2016). Nouri (2016) found that students were especially positive about the impact of videos used with the flipped format. Students are expected to complete chapter readings and out

of class assignments before attending the class where, generally, they receive a few minutes of instructions and then spend the rest of the class working in the software applications.

Because the course is normally taught in large sections of 60 to 100 students in computer labs, creating learning pods, e.g. peas in a pod, was necessary to limit class size at any given time to meet social distancing requirements. Each student is assigned into a smaller group that meets with the instructor once a week for the purpose of instruction, feedback, and support while working problems.

Each computer lab holds approximately 100 students; however, during the COVID pandemic the lab capacity is cut in half, such that the maximum capacity is 50 students. The students are divided into POD A and POD B, where each pod contains half the students. The lack of capacity has driven the need for technological interface with students. In the computer lab, each student has access to a computer using Windows 10 desktop, Word, Excel, PPT, Access, Teams, Canvas, and the Internet. Every student has access to OneDrive for online storage through their university accounts. These are all subjects taught during this course. The multiple software platforms required for students to navigate and succeed in the course are explained below.

Canvas

Canvas is the learning management system (LMS) used by the university. An LMS is the foundation or the backbone of a solid student communication system. An LMS contains learning tools that support instructor innovation and student engagement. *Canvas* is designed to be student oriented. The system contains Rubrics, Modules, Calendars, Email, Schedules, Quizzes, Syllabi, Analytics, Grade Predictor and a Speed-Grader. Students use a single sign-on to access Canvas for exams, projects, videos, and other tools. The Canvas Application Programming Interface (API) integrates seamlessly with tools like Google Classroom, MSTeams, MSBookings, Zoom, Adobe, McGraw-Hill Publishing and hundreds of other technology partners to deliver a centralized learning hub.

Microsoft Teams (MSTeams)

MSTeams facilitates the instructor's ability to teach and lecture to both PODs simultaneously. The instructor records the lecture and makes it available to POD members who have difficulty attending the class. POD A attends in person on Monday, and POD B attends on Wednesday. When not in the classroom, the POD has access using Teams concurrently with the in-class Pod. *MSTeams* was chosen, because it consistently rated as an excellent product that is customizable. Students have access to the *MSTeams* App via the university information technology network. *MSTeams* is included as part of the technology fee for all students and layered within Canvas which enables enhanced security.

Instructors use *MSTeams* to hold virtual meetings with students and faculty. Office hours are prominently displayed in the Syllabus, and students can call via MSTeams to initiate a meeting. Generally, students schedule conferences ahead of time using Canvas or Bookings.

MSTeams Chat

Students frequently use the *Chat* feature to communicate with each other and the instructor. Students with an urgent question can speak during class. We find it helpful when the students can stop the demonstration to request a particular task be repeated for clarification. *Chat* allows timely interaction between the student and instructor. Often, students who are struggling need immediate remediation. This feature takes away the frustration of questions being held to the end of a class demonstration.

Early in the move to the *MSTeams* lecture format, the authors discovered that students were logging into *MSTeams* but checking out of the class at the same time. To encourage students to be more engaged and attentive during class times, the authors use a variety of tools. Once the students log into *MSTeams* a list of students is generated to pull attendance. Only students who are scheduled into the POD remote learning or have a university valid excuse are counted in attendance. We use *Chat* with a lecture secret word to be typed in within a specific time frame to confirm attention. Mini quizzes, usually one to two questions on topic, are deployed in *Canvas* to confirm subject retention. Topic surveys with quick responses are also deployed in *Chat*. Students who pose substantive questions or respond to a question with a cogent response are awarded participation points.

The students attend three fifty-minute sessions on Monday, Wednesday, or Friday. Alternatively, the students attend two ninety-minute sessions on Tuesday and Thursday. However, this does not allow time for the students to have in-class testing. We prohibit the use of outside resources during an exam; therefore, a controlled environment is used to administer exams.

Eventbrite

Classroom occupancy restrictions prevent bringing all 100 students back together on Friday at their regular class time. Therefore, the instructors divided the classes into PODs, testing 50 students at a time only on Friday. The instructors use *Eventbrite* (Eventbrite, 2021) tools to create a ticketing system which allows students to choose a test time during the five Fridays designated for testing during the semester. Exams are administered 8:00 am to 3:00 pm, starting on the hour, every hour until 3:00 pm. Each testing period event ticket is broken down into an exam subject, date, and time. Students can register for any available time-period that best suits their schedule. E-tickets are sent to the student via email which serve as confirmation and entrance into the exam period. The exam schedule is published in the Syllabus, published in *Canvas*, announced during class, and appears as the exam due date within the LMS course shell. Students have responded positively to this exam scheduling system.

Students can register for the exams until 4:00 pm of the Thursday before the scheduled exam. This time frame gives the instructors time to produce attendee reports. Students who fail to schedule appropriately are given the Friday 3:00 pm time frame and have a 30% penalty assigned to the exam. Students who do not show for their registered exam time can take the exam during a make-up session with a 30% penalty for submitting the exam late. Make-up exams are not given during the Friday testing periods. Students with appropriate University excuses can schedule for a make-up session with no penalty assigned.

Bookings

Microsoft Bookings (Bookings) is a scheduling tool and is part of the Microsoft Office products. Generally released by Microsoft in March 2017, *Bookings* is an online mobile app. (Microsoft Support, n.d.) *Bookings* makes scheduling and managing appointments seamless, because it includes a web-based calendar that integrates with *Outlook.* There are four graduate assistants providing online tutoring for students. *Bookings* is also used to schedule a tutoring time. The software gives the students and graduate assistants (GA) flexibility in booking a convenient time. Students utilize this software to set up tutoring appointments and schedule make-up exams. GA availability is coded into the *Bookings* software by the administrator. *Bookings* sends the student an automatic email confirmation and a reminder.

Bookings also allows for re-scheduling and cancellations and keeps appointments history up to 120 days. During the COVID pandemic, the *MSTeams* app is used along with *Bookings* to maintain a safe distance during tutoring sessions. *MSTeams* allows for shared screens and provides a personalized experience. We use *Bookings* to provide office hours and schedule online meetings with students and colleagues. A link is embedded in each *Canvas* shell.

SIMNet

SIMNet (McGraw Hill, 2021) is an online training and assessment, auto grading software used with Microsoft Office. *SIMNet* provides students with *lifelong* access and unlimited practice with the Office 365.This platform provides a virtual Microsoft Office environment that is entirely available online using multiple Internet browsers. Students learn and practice Microsoft Word, Excel, Access and PowerPoint in addition to file management, and operating systems content (mheducation.com, n.d.) This gives students the opportunity to work in the actual Office application. This platform is easy to use, interactive, and available with deep LMS integration, and it also mobile friendly. An interactive textbook is paired with simulation activities. Together, these integrate interactive "Teach Me", "Show Me", "Guide Me", and "Let Me Try" exercises that help students with different learning styles to practice and master the Office skills. (SIMNet, n.d.)

These exercises allow the student to work within the applications to create and edit documents. The Teach Me is the content of the page that the student needs to read. If students do not know how to complete steps pertaining to projects, the student can use the "Show Me or Guide Me" to obtain step by step instructions for completing the exercise. The Show Me is a video demonstrates to the student how to accomplish the task and Guide Me is interactive with the instructions.

SIMNet was chosen because of the breakdown of subject matter by task. Kinesthetic learning is incorporated when a student reads a section and then completes a "Try-it" for that small task. Also included are videos for students who are visual learners using the "Show-Me" application. "Guide-Me" breaks down the task and the student must follow the step by step-by-step instructions along with the presenter. The authors only require the "try-it" for a grade therefore students who already know the material can progress quickly through the assignments. Immediate feedback is provided by the software.

Because *SIMNet* is an online tool, students can study and practice from almost anywhere on any device. The instructors focus on working within the application during class time and allowing the students to demonstrate what they learned from class preparation in SIMNet. During the COVID19 pandemic, *SIMNet* has allowed students to continue learning with virtually no interruptions. Students were accustomed to working with an online software, and they progressed seamlessly with their assignments. Through the use of this software, remediation is provided immediately upon submission of an assignment. Students are not waiting for an instructor to grade up to 100 students' projects before getting feedback.

This software provides instructors with quantitative reports for measuring students learning outcomes as well as access data on the cumulative time students have spent on task categories and which areas need more focus. This information gives instructors a snapshot of how much time each student has spent in *SIMNet* practicing and completing individual assignments. The software allows for the creation of exams that can target concepts, as well as exhibit the actual applications. The instructors have created up to five exams for each subject for each semester. The exams administered are rotated each semester, one exam is administered on the regularly scheduled exam date and the second exam is used as a make-up exam. At the beginning of the semester these authors decide on which exams to use. One becomes the regular exam and the second exam become the make-up exam. This keeps students from conferring about what is contained on each exam.

The instructors have received numerous testimonies from students, whereby they attest to being better prepared for other classes and jobs because of the training they received from the class and *SIMNet.* See below:

I'm not too sure if you remember me, but I just wanted to say that I am more than glad that I took your class because it has honestly helped me so much in my Intro to Spreadsheets class!
And

I wanted you to know that because of the tools I learned in this course, especially in Excel, I received a promotion.

Connect

Connect (McGraw Hill, 2021) is a publisher-supplied software used for the introduction of technology concepts. Connect provides a platform for students to read, make mistakes and remediate. The software is a digital version of the course textbook and is accessed online through a laptop or tablet.

Connect works by allowing students to access different topics within their e-text. Once an assignment has been launched, *Connect* shows an estimated time for completing the assignment and the number of questions that is contains, this allows the student to allocate proper time to study. Students read the material within the topic; then, students answer questions. If the student answers incorrectly, *Connect* will remediate the student and then go forward with the next question until they have completed the topic question set.

The instructors encourage the students to move directly to the question instead of reading the entire text. Student come to the class with some technology experience; however, the technology experience varies with each student. Therefore, topic remediation differs for each student. The question section for the text is divided by subject topic for example "Networking and connecting to the Internet". The software is intuitive, and if a student missed a topic question phrased three different ways, the software facilitates learning by remediating the student on that topic only. If the student gets the answer correct three times, the software moves on to the next topic question. All topics are included for all students. The system is using an adaptive technology, which enables students to retain the concepts they know and identify the concepts they do not know.

Connect enables instructors to develop course curriculum from a library of resources prepared by subject matter experts and academic researchers. Instructors can access reports and insights to understand the learning curve of their classes and students. The toolkit allows them to share course content and assignments with their colleagues. The shell provided to all instructors for IS 2241 is developed by a committee which determined the technology terms which must be included per the student learning objectives (SLO) for the course. The common course shell in the LMS enables educators to modify content promoting consistency across all sections and classes. (McGrawHill Education, 2021.) *Connect* was implemented in the summer of 2020 to online students in seven different sections (40-70 students in each sections). The student's reviews were extremely positive. Students found it very easy to use, and the instructors also took special note of exam scores. Exam scores were significantly higher than before using the Connect software. Pre-implementation exam scores averaged 74% while post implementation of scores averaged 84%. This software is now being implemented in the flipped classroom setting. During lectures, students are more engaged and understand how the material is applied into the workplace.

DISCUSSION

The promise of improved outcomes that results from using an andragogical approach is found in the flipped design of this course and its heavy reliance on technology to keep the instructors and students in touch with each other while accomplishing coursework, a system that mimics many modern workplaces. In particular, this system helps students step into real world responsibilities with respect to making appointments, keeping appointments, building competency and comfort with online work systems, penalties for failure to meet time constraints, and asking for help from experts.

We contend that students are capable of so much more than what is minimally acceptable for many college courses. Our students are intelligent adults making the transition from high school to college and mature adults who are returning to higher education to improve career opportunities. Part of the job of higher education is to take students to the next level of learning where they are self-motivated and self-aware. In this course, there is no hand holding. The students are required to function as adults by completing assignments by due date and time, being held responsible for initiating tutoring sessions, scheduling appointments for conference, and scheduling exams. While technology laden, IS 2241 allows instructors more free time to mentor students who struggle with concepts. Instructors use teaching techniques that allow them freedom to move from student to student, when necessary, because routinized functions are addressed through technology.

Historically, on-campus students have not been required to have a personal computer which is compliant with all technology deployed in the learning environment. Computer labs are provided by the University for on-campus students. With the move online in Spring 2020, the computer labs were closed. Students were forced to quickly acquire technology that was compatible with the software they needed to complete the spring semester. Students who did not have a background in technology faced difficulties in making the appropriate choices. Six students dropped the class in Spring 2020. Guidance was provided to students, Fall, 2020, on computer system requirements necessary to successfully complete the course. The pandemic necessitated the inclusion of system requirements in the Syllabus, Fall, 2020, with the caveat that students would be expected to have appropriate systems to complete all required class assignments should the class move online. The course shell (LMS) included instructions on how to download, install and access all the software necessary for the course.

Student procrastination and poor scheduling skills impact the student's ability to successfully complete the assignments and, subsequently, the class. Assignments are opened a minimum of two weeks before the due date. Consequently, instructors do not accept late assignments. Students coming from a high school environment where assignments can be submitted late without penalty, or even with a penalty, requires a quick adjustment for everyone. The concept of being responsible for a deliverable by an enforced due date is an andragogical best practice.

Class size limits the engagement from students. Some students will not speak or answer questions, because they are intimidated by the large class size. This is addressed by the mentoring relationship between instructor and student. We often give credit to students not for having the accepted "correct answer" without explanation but, instead, award credit for being able to give a cogent response.

PODding decreased student network ability. One of the benefits of a college education is the network of classmates and the formation of lifelong connections. The adage of "it is not what you know but who you know" is very true, at least in the acquisition of a first job. Years 2020 and 2021 are lost years for networking with class peers for the junior and senior college students. Freshmen and sophomores (FS) have a two-year opportunity to make-up for the lost networking chances, but they, too will, be affected. The FS students will need to put more effort into in-person and online professional and social networking.

Any course can duplicate the technology add-ons described in this paper. Some of the technology relied upon is supplied by the University i.e., LMS and Office software provide license. However, Eventbrite and cloud storage (OneDrive or Google Drive) is available free. The course instructors made sure that the free software provided a safe and protected environment to the student by enforcing privacy settings. Students were scrambling to procure the necessary hardware while stores were shutting down and online suppliers were struggling to meet demand. The university technology department supplied downloadable software for students; however, the installation for non- technical students was difficult.

LIMITATIONS

Because there is heavy emphasis on layering additional software into the course as a response to COVID, the possibility of student software fatigue was a real concern. However, we have had good success with the layered approach with students. They are adept with moving quickly between software applications. Initially, we faced push back from students, for the first two weeks, but have not faced resistance since.

Many instructors faced the pandemic ill trained for the technological hurdles. Instructors faced not only learning to teach online but learning new technology themselves, all within a two-day time frame. Faculty frustration and fatigue during simultaneous implementation of multiple pieces of software in the online environment was common. Anecdotally, instructors are reporting technology fatigue, because there is an extensive learning curve for instructors.

We acknowledge that incorporating andragogical learning is difficult, because each student comes to class from a different background, age, and work experience. The andragogical approach requires more time and effort to have on hand examples from a wider range of possibilities to facilitate interest by the students.

Lessons Learned from the Teaching Team

- How business is conducted has changed and will not go back to exactly how it was prior to the COVID 19 pandemic.
- Teaching will not go back to the way it was prior to COVID-19. More technology will be incorporated into classrooms both on campus and online.
- Students need to know what technology to purchase to be compliant with the technology being used in the classroom.
- Universities cannot assume students have a sufficient technology background; instead, universities must provide written instructions on what to purchase, what is provided by the institution, and how-to set-up the necessary tools.
- With the changes in the learning environment and job environment, adding remote communication tools to an IS course will make the students more job ready.
- Student buy-in to the technology is important. Begin building buy-in from the outset by explaining why they need each piece of soft- or hardware.
- Students who are held to a higher standard deliver a product comparable to the standard and makes them more job ready.
- The younger generation is adaptable to moving from platform to platform. However, they are not fluent with workflow products.
- The process of becoming an adult is difficult. The process of moving from a pedagogical to andragogical method of learning is also difficult. These authors maintain that the process is worth the effort to acquire the life skills necessary for success in life.

CONCLUSION

Pandemics along with rapid technology implementation in the classroom demonstrate why students must be prepared to excel in a technological environment, regardless of career field. Learning and adapting to new technology allows students to bring well developed skill sets and confidence to industry and enables their employers to compete locally and globally. With the added access provided through mobile computing, students enjoy enhanced student access to remote education, so they can remain in touch with a rapidly evolving environment.

Students have been forced online, whether they want to be there or not. Jobs have been forced online, whether they want to be there or not. Ubiquitous technology has changed the way an education is obtained, has changed the way we buy and sell goods/services, has changed communication patterns, and has changed the way we maintain personal relationships. 2020 was the year our students jumpstarted their work lives into the realities of technology as a way of life. Technology has changed the way we live and do business, placing amplified emphasis on technology being integrated into the everyone's life; therefore, technology competency must be viewed as a life skill.

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