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Global Collaborations in Science, Technology, Education, Mathematics & Humanities (STEM) to Advance the Frontiers of Knowledge & Innovation

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PREFACE

India is a country of varied diversity; race, language, religion and caste etc. which represent and constitute the various forms of diversity in India. Not only do groups of people differ physically, or in demographic characteristics but also do, in distinctive patterns of behaviour. These patterns of behaviour vary and are determined by social and cultural factors like language and region.

Today we are facing the global problem of Covid-19 which has directly impacted all, across every aspect of life. India has many existing problems such as homeless people, migrants, poverty, over population, inequality, social and economic exclusion, discrimination, and unemployment. In the contemporary environment of 2021, here is a dire need to minimize these problems with various efforts, using science and technology for sustainable development. In this conference, the overall discussion about the current situation have been disused with potential solutions.Access to existing knowledge fuels basic scientific progress and is key to the development of new technologies and innovations. The application and sharing of international knowledge contribute to positively beneficial societal development.

Utilizing knowledge from current trends is useful and conducive to the elimination and eradication of existing problems in society. This conference was an interdisciplinary approach to seek and explore knowledge, involve experts and young researchers, academicians, educators, practitioners, research scholars and students to exchange and share their experiences, and come up with new ideas about all aspects of science, technology, humanities and management to advance frontiers of knowledge and innovations,which will contribute to nation development.

INDEX:

STRATEGIC COMPETENCIES IN SCIENCE AND TECHNOLOGY IN THE MIDDLE EAST DURING THE PANDEMIC AND BEYOND

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Abstract

This study is a review of current and ancient texts in the arts, science, and culture, from an exhaustive and analytical perusal of literature. In the era of the disruptive technologies, some current statistics have revealed that number of internet users in 2021 reached 4.4 billion which is 59.5% of the global population (Miles, S. 2021). From a business and educational standpoint, the development and application of disruptive technologies have had a significant effect on the universal scientific and technological revolution and industrial transformation. The over-reliance on digital age and many of these disruptive technologies have also changed human behaviors and perhaps constrained the ability of people to exercise their own brains (Zhigang, 2021). This study introduces the importance and progress of Science, Technology, Engineering, and Math (STEM) in the era of disruptive technology and the global collaboration between the countries in the Middle East (MEA) and other nations. Our study shows the pioneering place for Middle Eastern countries, in the application and transformation of STEM in the "Golden Islamic Age" to the newest anticipated and potential accomplishment in "Arab to Mars". Some important progress and accomplishments in STEM collaborations between the MEA region and several countries in different domains,are presented to reflect the constant and unrelenting quest for innovation, which should serve humankind.

Keywords: Middle East, STEM collaboration, Islamic Golden Age, Arab to Mars, Technical Skills, Workforce Skills, Higher Education strategies.

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Natural Resources in the MEA.

The Middle East is a trans-continental region centered in Western Asia, Turkey, and Egypt and consist of 17 countries. Saudi Arabia is geographically the largest Middle Eastern nation, while Bahrain is the smallest (Al Najashi et al., 2021). The Middle East is at the center of everything and is home to many ethnic groups, which is unfortunately do not always get along. The MEA is a geographical region that has been of great importance in history since ancient times. The region has a strategic location, in that it is a natural land bridge, connecting of Asia, Africa, and Europe and the birthplace of three great religions—Judaism, Christianity, and Islam.

In the current and last century, the vast reserves of oil and gas have made the region more important than ever. Today, the region is one of the richest regions in the world in terms of natural resources. The wealth is that it holds more than 60% of the world's proven oil reserves, which are largely located in the Gulf region, and nearly half of global gas reserves. We can classify MEA countries into four groups. First is the GCC (Gulf Cooperation Council) group, which is composed of natural resource–rich, labor-importing countries that are Bahrain, Kuwait, Oman, Saudi Arabia, United Arab Emirates, and Qatar. Second, the non-GCC group comprises they are rich in natural resource and the labor-abundant countries such as Lebanon, Iraq, and Syria. Third, the emerging group comprising of the comparatively less well-endowed countries in terms of natural resources, such as Egypt, Jordan, and the non-Arab group is also included, to account for other natural resource rich countries, notably, the Republic of comprising Iran (Belouafi, 2021).

The region has in addition to Oil and Gas, is rich in Iron and Copper. In 2020 the production volume of copper mines was around 500,000 metric tons (Romero, Padilla, Contreras, & López-Delgado, 2021). The MEA region on the other hand, has a vast pool of human resources where in the Levant cluster, Iraq, Iran, and Turkey, there is a significant number of researchers and advanced skilled workers, including engineers, physicians, lawyers, and other professionals.

The Scientific and Innovative Revolution during the Islamic Golden Age.

The MEA region was the center of science since long time. The Islamic Golden Age between 8th and 14 centuries was a period of great cultural, economic, and scientific discovery, culture, and trade. In this era, the region flourished and enriched with world in culture, arts and sciences, as is documented eident in the history of the MEA region (Simonton, 2018). Arab scholars, well studied themselves, were well aware of the richness of knowledge from the many books written, not only by ancient Greek and Roman writers, but by Persian, Indian and Chinese writers too. Al-Khwarizmi was a famous mathematician during this period where he helped to introduce from the Vedic Age, the decimal system to the Arab world, which was subsequently adopted in Europe, this is because the numerals (1, 2, 3, 4) used in the Arab world were much easier to use than Roman numerals (I, II, III, IV). Using a number system that goes from 0 to 9, Al-Khwarizmi was able to develop fields such as algebra, which he initially used to calculate Muslim inheritance, consistent with laws and developed the basic ideas many high school math students can recognize today (Muhtar, 2014).

The study of astronomy was well established before this period, however the Arabs in the region further developed knowledge in this field. The names we now use for over a hundred stars in the sky are originally Arabic. Also, they improved instruments of navigation, in particular the astrolabe. In the medical field, the Islamic world housed some of the first and most advanced hospitals from the 8th century. During this period, doctors translated the books of Greek and Roman physicians at a time when these ideas had been forgotten in Western Europe. Ibn Sina (also known as Avicenna) wrote a huge medical encyclopedia known as the "Canon of Medicine" (Falagas, Zarkadoulia, & Samonis, 2006).

International STEM Collaboration in the MEA region.

Global STEM collaborations between nations enhance the quality of the education and create an environment of innovation and creativity (Kim, & al. 2019). From this perspective, many countries in the region dedicated their natural and financial resources to enhance education and life qualities and unleash many projects in collaboration with international companies in

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different sectors such as healthcare, construction, artificial intelligence (AI), astronomy and many other disciplines.

In February 2021, we have witnessed the first Arabian rocket reach Mars. This rocket was called “Hope Probe” and the mission called "Arab to Mars". This mission was a collaboration between the UAE space agency and many other stakeholders around the world. The Hope probe was a collaboration between Mitsubishi heavy industries in Japan that provided all the services related to the spacecraft and the launching operation at Tanegashima space center and under the supervision of the Japan Aerospace Exploration Agency (JAXA) (UAESA, 2021).

Another collaboration for this mission was between the Mission Operation Center based in Dubai at the UAE Space Agency and Communication Setwork station in the USA, and with the Mission Support facility located at the Laboratory for Atmospheric and Space Physics (LASP) at the University of Colorado. The Science Data Centre (SDC) located at MBRSC was responsible for collecting and distributing science data to the entire team and the science community, facilitating thereby, the discovery, warehousing, to facilitate retrieval of science data, for the duration of the mission, and creating an archive for research beyond the end of the project (UAESA, 2021).

Another mega project which represents the international STEM collaboration between the MEA and many countries around the world, is the NEOM project. NEOM is the prestigious project of the Kingdom of Saudi Arabia (KSA) to build a mega city along the northern Red Sea coast bordering Jordan and Egypt. NEOM is a proposed megacity with an estimated cost of $500 billion to offer world-class education, healthcare, and culture by making use of advanced, automated, zero-carbon infrastructure and forward-thinking, business-friendly governance (Farag, 2019).

Within the NEOM project, the KSA launched a new project called THE LINE. This ambitious project known as THE LINE is a 170-kilometer (106 mile) belt of communities connected, which will be without the need for cars or roads. THE LINE will be completely free of cars and streets, with residents given access to nature and all their daily needs within a walking distance of five minutes (Obaid, 2021). The project is envisioned to be founded on the principles of global humanity, economic diversity, with the suitable invocation of artificial intelligence, which would spell potential enhancement of research and innovation opportunities for the future industry, (Gulf Business. 2020). To effectively implement this project, The Saudi Arabia has commenced collaborations with some of the largest companies around the world especially from UK, USA, China, and many others who are experts in the evolution and development of smart cities, AI, and renewable source of energy (Arman el al., 2020).

Lessons Learned for Students from STEM Collaborations.

In the current decade of 2021, the era is clearly on the exponential emergence of disruptive technologies, in its many forms and manifestations, while many new discoveries and emerging technologies are also anticipated. These rapidly emerging and disruptive technologies have changed our behaviors and our awareness and appreciation for STEM awareness. The development of any society is perhaps directly proportional to STEM awareness. An inference may well be, that countries who are going to have SMART CITIES, must have SMART PEOPLE. Focusing on the future, to leverage and optimize current and future discovery, many countries in the Middle East region are giving their attention to creating collaborations in different sectors and industries as the emphasis on in increasing international STEM collaborations.

Systematic Connectivity.

Some countries in the MEA region have realized the importance of the STEM collaboration not only in a global context, but also with local and internal stakeholders such as companies, colleges, and universities. These strategies have manifested in more systematic collaborations and connectivity between higher education, employers and other entities in the region (Hrabowski III, 2014). Since 2010, we witnessed a successful relationship between the private sector, universities, and colleges to work together and define specific local problems, with the crafting and implementation of innovative solutions to address them. For example, the planning is on advance skills and competency development for the future, with forecasts for the type of engineers needed now and projected to be needed 5 and 10 years in the future, their required skill sets currently and looking ahead, in terms of the total numbers of such employees projected and to be needed. These observations are consistent with several prior efforts that have assessed STEM workforce development partnerships in the MEA.

 ISBN: 978-81-948301-9-1

Technical Skills.

The difficulties associated with assessing shortages of STEM skills in the labor force are compounded by the generalization of occupations within broad disciplines (Siekmann, & Korbel, 2016). Businesses hiring STEM-competent students also seek a great diversity of technical skills, and higher education has a fundamental role to play in developing these skills and competencies. Companies described the need for workers who have the necessary technical skills, and who can transfer these skills to new technical areas, with the knowledge on how to understand and apply them in ways that contribute to a company's mission and goals (Kulturel-Konak, Konak, Esparragoza, & Kremer, 2013). There are initiatives and grants in the MEA specifically for the recruitment of students, to increase exposure and spark interest in STEM. As the workforce grows increasingly diverse, perhaps much more infusion of incentives and will be required to enhance and drive the aptitudes and interest in STEM to encourage them to major and persevere in the field (Bybee, 2010).

Workforce-Ready Skills.

Business leaders and policy makers are increasingly asking colleges and universities to ensure that graduates possess skills like problem solving, critical thinking, communication, teamwork, conscientiousness, and professionalism. Although there is disagreement on how to describe and classify these skills, numerous employer and advocacy organizations have developed and circulated different lists of skills (Ross, & Pagano, 2014). These nontechnical skills are important especially with the globalization and the trend of virtual businesses where people now working with different people from different region, values, cultures and beliefs. In the era of the globalization, management skills will be critical as well. It is a multicultural society, and therefore much will hinge on the skills of management to harness and optimize the talent of a diverse workplace, in producing high organizational performance and delivering results in an increasingly challenging and competitive working environments (Fisher, 2011).

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From research on understanding the focus in academic and professional world, by educators, the importance of interdisciplinary STEM collaborations and teaching practices in the MEA, three components were identified. First, that business development, teaching objective, and collaboration structure greatly affect a successful interdisciplinary STEM collaboration model in higher education settings. Second, many STEM researchers led studies have revealed that improved student performance aids in being better prepared for advanced education, or jobs in STEM fields when there is increasing math and science requirements and emphasis in universities, especially when the curriculum is blended and infused with technology and engineering concepts. The lasting result of such an approach of grounding in STEM in formative student years in school and prior to study specialization, may likely to pay dividends and help the MEA region to occupy a solid position among the leading countries and institution, therefore among international rankings (Brown, Brown, Reardon, & Merrill, 2011). The STEM initiative in several countries in the MEA, offers students more than high-tech skills. Investment in students with such foundational skills in STEM, will in the future, serve with further specializations, to perhaps lead to the design of complex systems, wherein solutions are also conceptualized. The advancement of a country may in conclusion rest on the knowledge and skills of its workforce, developed through STEM education (Land, 2013).

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EMERGING TRENDS IMPACTING DISTANCE LEARNING IN COLLEGE STUDENTS DURING THE COVID-19 PANDEMIC

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Abstract

Distance learning has been a significant game-changer for some college students because of massive school closures brought on by the world-wide COVID-19 Pandemic, declared in March of 2020. Included in this paradigm shift was the stark reality that face-to-face learning for college students could very well be a thing of the past. In this research, examining this disruption indicated, that it not only brought with it an overarching concern for the health and welfare of the public, but also created barriers to learning within an online environment. Numerous advantages and limitations surfaced throughout the recently conducted research, which prompted this presentation, as holds potential relevance throughout all disciplines for institutions of higher learning. The research of this population elucidated a better understanding and heightened awareness of the educational, social, technological, and relational needs of college students dealing with the impact of this pandemic, correlating to social distancing, online learning, and mandatory shelter and stay orders while matriculating E-platform academic curriculums. This presentation includes a description of the emerging trends brought on by state-mandated distance learning in Southern California affecting the educational trajectories of college students as they endeavored to establish and maintain some sense of normalcy while struggling in with the 'new normal' brought on by the COVID-19 Pandemic.

Keywords: College students; COVID-19 Pandemic; Distance learning; Emerging trends; Emerging Trends Impacting Distance Learning in College Students During the COVID-19 Pandemic

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Introduction

Distant learning though involuntarily imposed upon school districts and institutions of higher learning in an effort of ensuring the overall health and safety of college students and their families while mitigating the spread of the novel Coronavirus, brought additional obstacles. Some of the obstacles that have come to light in recent research include pedagogical, technical, financial, and organizational (Lassoued, Alhendawi and Bashitialshaaer, 2020). The World Health Organization (WHO) declared COVID-19 in March 2020 a world-wide pandemic forcing educators, students, and parents to shift to some form of E-learning (Lassoued, et al., 2020). This shift brought an involuntary end to face-to-face learning for students worldwide while plunging them into an on-line environment, hitherto and formerly reserved for voluntary adult learners.

Prevalence of Trends

This involuntary shift to an on-line learning environment weighed heavily on college students. Current research highlighted the prevalence of significant trends identified as ***pedagogical*** (how would educators employ varying teaching methods to teach), ***technological*** (what E-platform would be most effective in an online learning environment) ***relational*** (how would college students and professors relate to each other) and ***psychological*** (how would this shift be perceived and would it affect the student's ability to learn via distance learning). These trends introduced dormant obstacles that college students faced with heightened stress which has been correlated to their ability to learn (Lassoued, et al., 2020).The psychological stress contagions identified for some students by Liu and Doan were "spillover and crossover effect" (2020, p. 853). As a result of this paradigm shift, a vast majority of educational systems and universities were not prepared to foster a distance learning environment. This environment introduced salient obstacles that included a lack of internet connectivity, ill-prepared teachers, students, insufficient technology infrastructure, and a lack of computers, tablets, chrome books, or smartphones for students to utilize in the home. The realization of these problems brought on heightened stress for educators, health officials, students, and their families. According to these researchers "spillover occurred when the exposure or experience of stress in one domain influences one's ability to function optimally in another domain" (Liu & Doan, 2020, p. 853).

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This occurrence materialized once the parent's work demands "spillover" into the day-to-day responsibilities of providing care and support for their home-bound students caused increased stress on the family (Liu & Doan, 2020). Conversely, the stress imposed upon the students often "spillover" into their interaction with teachers and siblings because of the change in their normal routine and being at home instead of at school (Liu & Doan, 2020). The spilling over of these stressors from educators to students, students to siblings, and parents to students have hurt the psychological, and social well-being of students during the COVID-19 Pandemic according to Liu and Doan (2020).

Liu and Doan asserted that "crossover referred to how stress experienced by one family member leads to increased stress for another family member" (2020, p. 853). This crossover occurrence may transpire when a family member experienced a conflict at work then carried the stress home affecting another family member. The COVID-19 Pandemic not only caused massive school closures but the loss of employment for countless families increasing stressors in the home while negatively affecting some students' ability to be successful in a distance learning environment. These researchers further asserted that health officials must "consider stress contagion as a way to conceptualize the secondary contagion of stress due to the COVID-19 Pandemic and to offer behavioral health guidance that can promote family relationships" (Liu & Doan, 2020, p. 854). The presence of stress in the home negatively affected the social interaction of students in the home and impacted the learning environment inhibiting their ability to grasp pedagogical concepts needed for the attainment of a level of learning that would positively change their trajectory while matriculating their academic curriculum.

COVID-19 Impact on Education

In Italy, this pandemic had a direct effect on the didactics and learning growth processes of students while illuminating the social inequalities and differences in their educational processes. The inequalities examined within the research were the massive lockdown, self-isolation, and the suspension of productive, economic, and relational activities which highlighted inequalities in training processes, and access to educational resources according to Coppola, Senatore, and Masullo (2020). The inequities limited access and caused a "pedagogical and didactic divide between poorer families and those in higher social classes" (Coppola, et al., 2020,

 ISBN: 978-81-948301-9-1

p. 110). These same reverberations were felt throughout the Unites States where distance learning as a teaching method was imposed to ensure a continuance of an educational system whose purpose was to guarantee the continuity of the 2019-2020 school year throughout the US and abroad (Coppola, et al., 2020).

An emotional component was identified that had perhaps gone unnoticed in the previous face-to-face, onsite learning environment. The emotions exhibited by students included fear, anxiety, disorientation, anger, and resignation. These emotions and stressors were brought on by the perceptions of students regarding schools not being equipped enough for distance learning and their inability to access the technology needed for distance learning (Coppola, et al., 2020). All these variables played a significant role in the perception, productivity and progress of college students and their ability to adjust and navigate these unchartered waters.

One lens in recent research purported while mitigating the spread of COVID-19, the process created a “parallel pandemic” (Cardenas, Bustos, & Chakraborty, 2020, p.1). This parallelism surfaced as healthcare providers and education administrators worked tirelessly to combat the spread of the novel coronavirus while developing a didactic pedagogical methodology for educating students worldwide, which was not an easy task. Included in this “parallel pandemic” was increased anxieties brought on by the global economic downturn coupled with distance learning and the fear of spreading the virus through social interaction. Overcoming these challenges required establishing well-resourced, mental health service providers with accessible E-platform allowing college students to access for needed services (Cardenas, et al., 2020). Further examination reported the need for effective utilization of accessible and economical networks that efficiently coordinate, collaborate, and communicate with college students virtually while re-establishing some form of social interaction among peers, colleagues, and educators. Finally, much thought was given to decreasing social isolation which was correlated with negatively impacting the mental health and wellbeing of most college students according to Wdowiak (2020).

Benefits of Distance Learning

Several views found in current literature, have highlighted the pros and cons of distance learning. Enumerated are some advantages of E-learning in post-secondary education extrapolated from a review of historical and current literature (Sadeghi, 2019):

1. A distance education degree has been reported to be cost-effective, there is no associated travel or lodging cost and students do not have to live in the same city, state, or country to attend a learning institution of their choice.
2. Students have the flexibility to choose their course of learning and set their schedule per their convenience and have access to a wealth of knowledge via the internet.
3. Distance learning eliminates wasted time in commuting and students can better manage their time from the comforts of their home.
4. Some students increase their ability to earn while they learn by choosing a flexible schedule that allows them to maintain their current employment while improving, increasing, or enhancing their education.
5. Distance learning in an E-learning platform allows students to maximize their learning differences allowing students to focus on certain parts of the course while others may prepare to review the entire course.
6. Self-pacing allows students to work in both synchronous and asynchronous manner. Synchronous ways of learning allow students to engage with other students and the professor within a specified time slot within the online environment. Asynchronous ways of studying allow students to study at their own pace and speed which historical research has determined increases satisfaction and decreases stress (Arkorful, and Abaidoo, 2015).
7. In California, some internet providers have voluntarily offered little or no-cost internet service to homes affected by the economic downturn brought on by the COVID-19 Pandemic. This provision of services alleviated a disruption in students' studies by enabling them to continue their education within the comforts of their home.

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8. At the University of Redlands, students can receive funding to assist through the Coronavirus Relief and Response Supplemental Appropriations Act (CRRSAA) signed into law on December 27, 2020. CRRSAA specified that a portion of the disbursed funds should be used to assist students with "emergency costs that arise due to the coronavirus." Legislation limits eligibility for funds only to students eligible to receive federal financial aid, excluding assistance to non-U.S. citizens. CRRSAA requires institutions to prioritize students with exceptional needs, such as students who receive Pell Grants, in awarding financial aid grants to students. Eligible expenses for CRRSAA funding include tuition, technology, food, housing, health care (including mental health care), or childcare (University of Redlands, 2021).

Limitations of Distance Learning

Despite the numerous advantages of E-learning adopted in education, included in this presentation was an exploration of the limitations of distance learning highlighted in several studies (Arkorful, and Abaidoo, 2015):

1. E-learning platforms produce a complete absence of vital personal interactions, for both the learners and the instructors.
2. Distractions are more prevalent in an online environment and may pose more challenges relative to clarifications, explanations, and interpretations.
3. The complexity of computer technology poses some difficulty for some students in online education, specifically for those students who are not computer astute or tech savvy.
4. Online learning may increase the opportunity for students to cheat and cut corners while not exhibiting effective academic scholarship, requiring professors to employ effective methods needed to ensure and maintain academic rigor.
5. An increase in plagiarism forces professors to utilize various online Plagiarism checker tools, i.e., Grammarly, Turnitin, Plagiarism Checker X, Copyscape, CopyLeaks, etc. If a student is found to have plagiarized an assignment, academic consequences may ensue up

to and including expulsion from the institution, which damages the student's educational career.

6. An increase in online users can inundate or overload websites, causing congestion and delays in retrieving valuable information and data.
7. Distance learning often highlights distance in communication making it difficult for students to maintain contact with professors which can "negatively impact socialization skills and limit the role of instructors as directors of the educational process" (Arkorful, and Abaidoo, 2015. P. 36).

Another distinction made within the research was that as a society we don't simply use technology, we live it according to Laura & Chapman (2007). With this dependence on technology comes a diminishing or devaluing of our educational paradigm as posted by Laura & Chapman (2007). Research findings suggested that technology further marginalize and comprises the foundational value of fact-to-face interchange that existed and flourished in educational systems before to the COVID-19 Pandemic (Laura & Chapman, 2007). Historically, traditional face-to-face educational settings have promoted a sense of well-being among students and teachers forming a bond of trust and loyalty while enhancing educational achievement and student satisfaction (Laura & Chapman, 2007).

Coupled with distance learning, parents are often left in dismay not knowing how to help their students navigate an array of technological systems. Some parents lack the educational fortitude needed to assist their students in moving forward while others are bogged down with the reality of unemployment or a demanding occupation. All these constructs weigh heavily on the mental health, physical well-being, and psychosocial needs of college students. Historical data is limited on the long-term mental health effects of large-scale disease outbreaks like the COVID-19 Pandemic not only on children and adolescents but also on college students relative to distance learning identifying an important gap for future research (Lee, 2020).

As this pandemic progress health officials and educators must monitor the health and social wellbeing of college students as they encounter bereavement, prolonged school closures, and strict social distancing guidelines while being educated in a distance learning environment. It is also important to support these students during this pandemic through constant

 ISBN: 978-81-948301-9-1

communication, collaboration, and coordination of community efforts. Other efforts for consideration include the development of E-platforms for college students needing to access support services, otherwise offered during face-to-face educational settings. These programs should address the basic needs of students while supporting their psychosocial needs with the expectation of promoting and maintain health and wellness while encompassing their educational needs.

While understanding remote measures adopted by universities, colleges, primary and secondary school districts worldwide, the social distance measures implemented have rendered both positive and negative effects. Most of the measures have succeeded in reducing the spread of COVID-19 through social distancing. However, these same measures have led to adverse psychological effects on many students according to Wdowiak (2020). The social isolation brought on by social distancing has weighed heavily while negatively impacting the mental health and social well-being of adolescents and college-age students (Wdowiak, 2020). Since the mandatory lockdown of institutions of higher learning, many "students have reported experiencing heightened feelings of anxiety and depression" (Wdowiak, 2020, p. 1). This heightened psychological awareness was brought on by their decreased social interaction with their peers and instructors which yielded increased stress levels. Other stressors shown to have negative effects on the human body are loneliness and anxiety. However, researchers emphasized ways of combatting the "adverse psycho-social effects of social distancing by staying connected, staying occupied, and staying active" (Wdowiak, 2020, p. 2). With the uncertainty of schools reopening, these suggestions have proven difficult for most students during the mandatory school closures, distance learning, and shelter and stay orders.

Relevance Throughout Disciplines

College and university professors can mitigate the isolation and disengagement of college students by making initial contact with each student via email, or a short video introducing themselves before the beginning of the course. Professors can create simple exercises via Blackboard, Moodle, Canvas, or whatever the specific E-platform being used. Learner interaction can be further enhanced through discussion forums, Voice Thread, Google Hangout that feeds into the Blackboard course if permitted by the learning institution, can be utilized

 ISBN: 978-81-948301-9-1

throughout disciplines (Briggs, 2015). Other measures professors can employ include but are not limited to:

1. Establishing effective ways of communicating with students by providing their email address or phone number, to include best days and times they can be reached. Professors should make every effort to respond to students within 24 hours.
2. Ensuring communication is clear, concise, constant, and conveyed to all students.
3. Establishing and maintaining an active presence within the discussion forum through early interventions, i.e., early alerts, and individual progress reports that are ongoing.
4. *Chunking* course contents by breaking down the information into smaller pieces that are easily brain digestible (Briggs, 2015).
5. Populating course calendar with pertinent deadlines, distribute friendly reminders to students, and maintain consistency with deadlines to ensure students remain on track.
6. Employing a variety of multimedia modalities to cover course content. Include images, graphs, and videos if course is text-based to clarify concepts.
7. Students must exercise diligence by establishing and maintaining active attendance, participation, engagement, timely completion, and submission of all course assignments, while adhering to course syllabus.

Conclusion

When considering life after COVID-19, college and university administrators, healthcare providers, and politicians must review the ethics of mandatory school closures. To mitigate the negative effects of distance learning, educators must employ effective ***Communication*** that is *Clear, Concise, Constant,* and easily *Conveyed* to all students, including those who are visually and hearing impaired. A review of the current ***Culture*** must take into consideration perhaps changing the rules of engagement to one that is specific for an online environment. A collective ***Coordination*** of efforts where college students are given support at every stage of their academic experience to ensure successful matriculation and completion of their educational program. A

 ISBN: 978-81-948301-9-1

Collaborative effort must be established to ensure that all the pertinent pieces of the puzzle come together thereby deploying a blueprint for success for each college student in an online environment and one that guarantees a smooth transition back to face-to-face learning at the end of this world-wide COVID-19 Pandemic.

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BUSINESS SUSTAINABILITY STRATEGIES OF SMALL TECHNOLOGY COMPANIES

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Abstract

Each year, almost 12% of small technology companies in the United States fail to survive. The risks associated with high-tech startups are high and account or business failure, is frequently attributed to the evolution of technology, increasing competition, and the short product life cycle of new products.The purpose of this multiple case study was to explore the business sustainability strategies of successful small technology companies, which have been instrumental in overcoming the crucial first 5 years of operations. The population for the study was the owners of 5 small technology companies located in the southeast region of the United States. Grounded in the general systems theory, the conceptual framework served as underlying lens for deeper analysis. Data were collected through semistructured interviews, while a review of company documents, 10K reports, cash flow, and profit and loss statements aided in holistic analysis of the phenomenon. Methodological triangulation and member checking were used to help ensure reliability of the study. The data analysis included a process of constant comparison of the interview transcripts, which facilitated the emergence of minor and major themes. Four themes emerged during the research: prior serial entrepreneurial success, willingness to stay the course, ability to raise sufficient capital to meet obligations and driven and passionate owners. The study findings may contribute to positive social change and improving business practices. The knowledge from this study may serve to advance the opportunities and sustainability of small business owners of all sizes,minority and women entrepreneurs, governments, and small business incubators and thereby aid in entrepreneurial development in local communities.

Keywords: Business sustainability, emergent themes, entrepreneurship, general systems theory, Southeast United States,

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Introduction and Background to Small Business

Companies with a business sustainability strategy as a core competency before the 2009 Great Recession, usually gained the opportunity to increase market performance and workforce while several other enterprises failed with deficient strategic capabilities, and or mismanagement (SBA, 2013). Although, new small business launches increased in the United States, the staggering reality is that 50% of new businesses have failed within the first five years (Wagner, 2013). In the realm of technology companies, 90% of startups fail (Patel, 2015). There are more than 13,000 technology companies in Southern region of the United States, which is also the home to 25 of America's largest corporations (Metro Atlanta Chamber, 2016). As cited by the United States Small Business Administration (SBA). Office of Advocacy, 80% of the small businesses in the State of Georgia employ less than 20 employees (U.S. Small Business Administration, 2014).

The Problem of Business Sustainability

Each year, almost 12% of new companies fail to survive (Mousa, Bierly & Wales, 2014; Office of Advocacy, 2014). The risks associated with high-tech startups is high, and account for the business failure rate, with the principal and attributing factors being new technology, the exponential increase in competitors, and the short product life cycle of new products. Some startup technology company owners are penchant to perhaps inadvertently, or carelessly overlook a focus on sustainability steps in the initial stages of the company, which may contribute to business failure (Salamzadeh & Kirby, 2017). Evident from an exhausitive analyses of small businesses analyis in this domain, is that small business owners frequently lack sustainability strategies to ensure business survival, which often jeopardizes longevity beyond five years from business formation. The specific business problem is some owners of small technology companies lack business sustainability strategies to remain in businesssustainability strategies to remain in business beyond five years. The purpose of this qualitative multiple case study was to explore the strategies the owners of select small technology companies have used and demonstrated profitability and the abilities in overcoming the tenuous period of vulnerability of the first five years. The population for this multiple case study were owners of five small

 ISBN: 978-81-948301-9-1

technology companieslocated in the Southeast region of the United States, who displayed profitable business operations, and surpassed the period of five years from the commencement of business operations.

Methodology and Design Rationale

A qualitative research methodology is useful in exploring a phenomenon in depth from the personal experiences of participants in the experience (Bernard, 2013). Uutilizing a qualitative multiple case study invoking methodological triangulation served to fulfill the study objectives. To achieve data triangulation, the data collection sources for this study included semistructured interviews, supplemented with a review of company-related documents. Qualitative research served to understand and explore the central research question of the reasons and strategies of the sample of small technology companies' business achieved sustainability strategies beyond five years. The qualitative research method is a means for discovering and attaining a better understanding of experiences (Yin, 2014). Researchers use case study approaches to explore complex issues of businesses or events and to gain understanding through contextual analysis (Yin, 2014).

Research Question: The overarching research question was: What business sustainability strategies do some owners of small technology companies use to remain profitable beyond five years?

Potential Significance of Study and Contribution to Business Practice

The findings from a qualitative multiple case study could be of value to business owners considering the high rate of business failure rate of small businesses in the United States (Frazer, 2015). Since the decisions that owners of small technology companies aid in establishing a business sustainability strategy, some long-term strategies could provide solutions for companies that currently struggle to remain relevant. The small business owners' strategies gleaned could hold best practices, transferable to other small business owners resulting in improvements in business practices. Additionally, this multiple case study potentially may have participants' insights that could fill the knowledge void in formulating strategies for business sustainability.

 ISBN: 978-81-948301-9-1

Perspective on Competitive Advantage

A company's sustainability strategy invariably links to its competitive advantage as the unique quality that sets the company apart from all others in the same industry. Porter (1985) defined competitive advantage as the deliberate procurement of a distinctive capabilities and positioning that manifests in improved and superior performance over rivals and often confers the advantages of sales, profits, and influence in its sphere of scope and operations. These competencies yield better market performance, than where there is lack of such a focus in development and emphasis. Porter (1985) contended, competition often stimulates the level of performance required to capitalize on opportunities, and the degree and extent of such commitment by a firm determines whether a firm is outperforming or underperforming when compared to others in the industry. It must be said however, that not every company operates in a way that results in longevity and posterity, as making strategic choices and ingraining astute practices is often predicated by deftly leveraging internal and external resources. Several business owners launch companies, start organizations and create new entities to generate profits that provide a competitive advantage in the marketplace for an extended period of time. Porter (1985) suggested, that competitive advantage takes on two distinct forms: low-cost competitive advantage and differentiation. While business owners in different industries may operate using different approaches, differentiation is the key to distinguishing one business from the other. Prudent and successful business owners usually achieve a unique positioning through offering higher quality at a lower price or a niche product, and other such forms of differentiation, that competitors often cannot easily imitate.

Capo et al. (2014) suggested that geographical concentration, technological advancement, and regulatory constraints have caused some companies to complement each other even though each company occupies a different space along the development and implantation spectrum. Competition causes adaptation in companies relentlessly seeking for competitive ways to increase market space and innovative business practices (Capo et al., 2014). With an increase in international and domestic competition, organizations need to achieve and earn competitive advantage, which delivers sustainability and stability during turbulent times. Small and large entities face the prospect of business failure, and the imperatives of innovative strategies may be the most significant source of acquiring competitive gains for businesses of all dimensions.

 ISBN: 978-81-948301-9-1

Chawinga and Chipeta (2017) found corporations facing a higher intensity of competition and survival in the business market demands changing the internal strategy of all business activities while incorporating complex external activities. The knowledge management and competitive intelligence of a company provide a competitive advantage. Matejun (2014) noted that an organizations flexibility in change implementation and rapid assimilation to internal and external constraints provide a strategic framework for competitive advantage. Some companies are slow to respond to the rapidly changing external business environment. When companies can exploit short planning horizons that result in promptly reacting to satisfy client expectations or introduce an advanced delivery method increases an entities competitiveness (Matejun, 2014). It is not always evident that a strategy will have the outcomes that are necessary for sustained growth; however, actions taken that meet or exceed the expectations of customers have the potential to keep customers loyal (Matejun, 2014).

Competitive advantage usually determines survival or failure for some industries, and the choices that decision makers make affect some companies more favorable than others. Where a company has been in the past can often provide a blueprint for future opportunities without having to merge with other entities. Aaltonen et al. (2015) argued that sustainable competitive advantage derives from enterprise cultural heritage, which often builds upon past victories and achievements to create innovation and creative ways to reinvent the company from the inside out. Histories for companies provide a wealth of opportunity to exploit tangible and intangible assets of the company for future ventures, innovations and creative concepts (Aaltonen et al., 2015). While Bilgihan and Wang (2016) expounded that companies that are early adopters of new technologies, do so to exploit strategic opportunities to differentiate between competitors thus reaping competitive advantage. The acquiring of sustainable competitive advantages often requires a strategy that incorporates unique positioning based upon the will and grit to outperform competitors at every turn using IT-enabled strategies (Bilgihan & Wang, 2016). Conversely, slow adopters limit the opportunity to derive and earn competitive advantage, as a reactive propensity does not yield strategic gains. A competitive advantage only exists in a company outperforms expectations and other business entities (Bilgihan & Wang, 2016).

Inclusionary Criteria for Participation in Study

A qualitative multiple case study served to explore the business sustainability strategies of how successful small business owners of technology companies have been able to create strategies to ensure profitability beyond the first five years after commencement. Yin (2014) suggested that qualitative case studies require participants with experience of the phenomenon of interest. Marshall et al. (2013) determined that for case studies effectiveness, researchers should have a minimum of three interviewees based upon the data saturation principle. The purposeful sampling approach is conducive for researchers to have the flexibility of selecting study participants that meet the inclusionary parameters of the study (Leedy & Ormrod, 2013). A purposeful sampling approach often is useful in selecting a sample from a population, with hopes of yielding information pertinent to the research question (Sokolowski, 2008). Prendergast and Maggie (2013) supported the use of purposeful sampling as an approach to understanding the experiences that participants have a subject matter.

The population for this multiple case study was small business owners of technology companies located in the Southeast region of the United States that are profitable, with business extending beyond five years, considered a period where many are prone to failure. A purposeful participant selection for this qualitative study was necessary to explore the strategies some owners of small technology company's use for business sustainability and profitability beyond five years. The Belmont Report (1979) contains guidance for selecting participants and ethically collecting data. The demographic eligibility criteria for selecting participants must exist for remaining eligible for the study (a) a small business owner as stipulated by the SBA; (b) the small business should be a technology or innovative enterprise (c) and profitable beyond five years of business; (e) the small business location is in the Southeast region of the United States.

Data Collection

In the qualitative case study, I elected to use a descriptive case study design for this qualitative research study because the design is amenable for the investigation of contemporary events in the context of real-life occurrences (Leedy & Ormrod, 2013; Cronin, 2014; Dasgupta, 2015). Interviews are conducive for an efficient data collection technique in qualitative research (Moustakas, 1994). The participant in the semi structured interview is an owner of a small technology company located in the Southeast region of the United States that is profitable in their business beyond five years. I asked the study participant the research questions. Upon approval, I recorded the interview utilizing a digital recording device and took notes throughout the interview. Taking notes is a method to accurately record the answers that participants provide

 ISBN: 978-81-948301-9-1

for future recollection purposes (Christie et al., 2015). I also requested financial and archival company documents to facilitate triangulation of the data from the interviews.

Data Organization

The widely accepted use of coding as a data organization technique in qualitative data analysis provides structure and clarity (Glaser & Laudel, 2013). I interviewed participants using detailed semi structured questions to capture raw data. The semi structured interview provides the means of comparable qualitative data and facilitates a two-way conversation with the interviewee, which constitutes an advantage of semistructured interviews (Broadhurst, 2015). I assigned alphanumeric codes to each participant consisting of letters and numbers (e.g., T1, T2, T3) to protect the identity of each participant and provide confidentiality. The use of coding allows the participant identity in the research to remain shielded for privacy (Banfield et al., 2013).

A comparison of the responses is possible when the digital recordings and verbatim transcripts are compiled and analyzed by using software to increase reliability and accuracy (Patton, 2015). Al Yahmady and Al Abri (2013) used (CAQDA) NVivo® as the software for data analysis and organizational support to discover similar and different response themes from interviews. I transcribed the interview of each study participant. Thereafter, each participant was sent the transcripts via email to provide the opportunity for confirmation of the accuracy of the transcription. Once the participants confirmed the correct responses, I uploaded the data to the qualitative data analytical software NVivo®, the web-based platform application, to support the coding of the data analysis procedures. Bekhet and Zauszniewski (2012) concluded that member checking is a validation technique, which can serve to improve the accuracy, reliability, and validity of the study. Participation in this study was voluntary. At the completion of the study, I secured and stored all data, field notes of company 10K report, cash flow and profit and loss statements, consent forms, and recordings and will continue to secure for five years and afterward destroyed to ensure the confidentiality of all participants and the information provided. Morse and Coulehan (2014) recommended that after a 5-year period, all study data and corresponding notes can be destroyed as a safeguard and measure that would ensure the confidentiality of study participants.

 ISBN: 978-81-948301-9-1

Data Analysis

Data analysis is the means of analyzing the responses to the semistructured questions and understanding the data about the experiences of the small business owners of technology companies. At the beginning of the data analysis process, I reviewed the full transcripts of the interviews to gain an understanding of the interview responses in context. Researchers use methodological triangulation to anchor and validate studies using multiple data sources (Bekhet & Zauszniewshi, 2012). The data obtained for this study included the responses from the semistructured interview, interview notes, and was supplemented with secondary and archival data in the form of company 10K report, cash flows, and profit and loss statements sourced, and also requested from the interviewees.

The first step in the data analysis process was analysis and examination of the data to scrutinize the data for common themes, trends, redundancy and other frequently occurring denominators in the data. I used the computer-assisted qualitative data analysis software (CAQDA) NVivo software as the instrument for analyzing the interview transcripts and management of data. The features of NVivo can be a valuable tool for researchers. Zamawe (2015) endorsed the value of NVivo as a credible data management tool that confirms qualitative research data through categorizing themes.

The second step of the data analysis involved evaluating the field notes of company 10K report, cash flow and profit and loss statements documentation. Using triangulation, Bekhet and Zauszniewshi, (2012) suggested, that multiple sources provide validity and complement other data. Using a process of constant comparison, helped the important themes to emerge, and this systematic approached also served to potentially mitigate possible researcher bias. The last step involved combining the data and preparing a narrative of the research findings in answering the primary research question.

 ISBN: 978-81-948301-9-1

Presentation of the Findings

The overarching research question of this study was: What business sustainability strategies do some owners of small technology companies use to remain profitability beyond five years? While business sustainability strategies can have different levels and forms of understandings and applications, not all companies are the same, so not all results are the same. Of all the themes that emerged, the prior entrepreneurial experience was the most frequently discussed during the interviews. The experience that a business owner brings to their organization can position a company for future success as compared to owners that have had limited, to no prior experience. Staying persistent and having a willingness to stay the course is directly linked to the prior experience of a business owner. The technology industry is highly competitive, and it is relatively easy for companies to falter, or close. Those owners that display the ability to negotiate the difficult business terrain and remain in business beyond five years have ostensibly learned to balance the challenges that a company faces with the risk of not merely mimicking competitors, but also taking initiatives, measured risks, and opting to be innovative, within the constraints of finances and maintaining business prudence.

Conversely, the success of tech companies' is usually linked directly to the ability to raise capital to not only bring their technology to the fore, but also to find investment for future discoveries and technological advances. Some companies fold because their technology becomes obsolete by the time it comes to market. An experienced entrepreneur should have already acquired the skills necessary to pitch new research and development ideas and must have the tenacity to remain focused on raising enough capital not only for research but also for daily operations. All the themes are rooted in the passion of the business owner. Those owners that invest in their product, as well as their people, can have a significant sustainability advantage over those who invest only in the product or only in the people.

The research findings of this study aligned in great measure with the conceptual framework, which was grounded in the general systems theory. Von Bertalanffy (2009) determined that the use of a system to illustrate the connections and exchanges between its mechanisms and workings, as well as the nonlinearity of the interactions and exchanges is useful in understanding cycles and relationships. The term *generalsystems theory* (GST) is a useful lens in understanding how systems, processes, cross interactions and functions aid in the growth and maintenance of business sustainability strategy. Drawing from the postulations of the general systems, small technology company owners can use the interrelationships of the themes simultaneously as a business sustainability strategy for remaining in business. Systems infer controllability, continuity, pattern interaction or exchange of information that is traceable and rely on the opportunity and more often those business owners that recognize the importance of opportunity capitalize for business sustainability (Block et al., 2017).

The themes emerging from the analysis of collected data, also largely aligned with the literature on effective business practices and strategies. While each participant discussed personally favored strategies for business sustainability over competitors, each took an approach that was specific to business needs, and this helped create a unique business niche' that conferred stability and sustainability. A company's sustainability strategy is the unique quality, founded on diligence and business prudence that sets the company apart from all other companies in the same industry. Undertaking the literature review, was rewarding and revealing, as from it, it was apparent that while businesses are formed to remain in operation for a long time, some companies are prone to do a better job in daily practices that arise as a business sustainability strategy. Porter (1985) advised that competition makes business firms vie for advantage, which thereby often fosters superior outcomes and determines whether a firm is outperforming or underperforming when compared to the industry average. Importance themes in the literature reviewed, indicated, that when an entrepreneur has prior experience in owning a business, prior planning for contingencies can serve as a guide for new small business owners' success. Chwolka and Raith (2012) suggested that an entrepreneur who identifies with societal needs and personal results such as creativity, high self-worth, and ingenuity often take the opportunity to plan for success beyond the initial launch of their company. This strategy links to the second theme which emerged in this study, notably, that of displaying a willingness to stay the course, demonstrating the determination and mindset to remain profitable in business for prolonged engagement, from the inception of the business. Cordeiro (2013) observed that successful companies planned for the change in the market environment and failed when the business plan did not take into consideration the change that the business would have to face brought on by increased competition. The theme of having a driven and passionate owner as a sustainability strategy resonated, as found extensively expressed in the literature reviewed. Riain (2013)

 ISBN: 978-81-948301-9-1

explained that the software technology industry is highly volatile and attractive to entrepreneurs, designers, and coders who share above average aspirations of success.

The first theme that emerged from the analysis of the interview transcripts in this study, was that a small technology business owners' prior serial entrepreneurial success is a business sustainability strategy. The second emergent theme centered on the owner's willingness to stay on course. The third theme involved the need to raise enough capital to conduct R&D and meet other obligations. The fourth emergent theme denoted, that owners are impact driven and passionate about their companies. These 4 identified emergent themes aligned with the conceptual framework of general systems theory and are perhaps relevant and applicable, as was found in the discovery in this study, in exploring the business sustainability strategies of the interviewed small technology company owners use to remain profitable beyond five years. Table 1 (Frequency Business Owners Mentioned Emergent Themes) shows the frequency in which the owners mentioned emergent themes in answering the interview questions.

Table 1

Frequency Business Owners Mentioned and the Emergent Themes

Themes	# of Response	% of Respondent
Serial Entrepreneur	3	60%
Focus on Course	5	100%
Capital for R&D	4	80%
Passion Driven	3	60%

Emergent Theme 1: Prior Serial Entrepreneurial Experience

The first theme that emerged from the analysis of interview transcripts in this study, using a process of constant comparison, was that a small technology business owners' prior entrepreneurial experience is a business sustainability strategy. Some entrepreneurs attributed personal success from learning essential lessons from failing in previous business ventures. Some others attributed success to acquiring the business knowledge and insight necessary to

 ISBN: 978-81-948301-9-1

make prudent decisions that served in good stead to be successful and overcome the challenges in a competitive market landscape. The theme of prior serial entrepreneurial experience aligns with the general systems theory because each participant mentioned that it was the lessons that learned from prior business ventures, which aided in developing competencies and the business savviness to run a successful technology company. Brnjas (2014) opined, that the general systems theory provides a framework to recognize the systems that are in operation around specific events and acknowledge that there is a correlation that exists between achieving goals and the degree that a user of an entity prepares for competition. A small technology business owner can utilize prior entrepreneurial experiences to harness business and professional relationships without starting afresh in developing these for the first time, unlike startup owners, who have to, since without prior experience.

When asked questions 1, 2, and 9; P1, P2, and P5 identified prior entrepreneurial experience as a critical element to the business sustainability strategy. P1 stated "the failure at the first tech company was costly, but there were valuable lessons learned from the business failure provided preparation for the next business." P2 confirmed prior entrepreneurial experience strategy was helpful by stating, "after the partners of the company launched our third successful tech company the process of creating more businesses seemed easier and easier." P5 also stated, "Medical device tech companies such as ours rely on gains in designs made through previous experiences to compete with larger medical tech companies that have more funding options and professional resources at their disposal. Medical device companies not only have to get the tech correct, but we also go through lengthy regulations that often requires many changes." The theme of prior entrepreneurial experience aligns with general systems theory through the cultural heritage that builds upon past victories as a strategy for sustaining in business beyond five years. Trevor (2014) also suggested that business owners who have already been in business startups, the business is more likely to survive based on previous experience. Singh et al. (2015) put forth the notion that the efficacy of serial entrepreneurship if modeled correctly increases the success rates for new businesses.

If a small technology business owner knows how to utilize past successes to create a business sustainability strategy that leads to continued success, the results will likely engender both tangible and intangible opportunities. An example of the tangible results could be in the

 ISBN: 978-81-948301-9-1

form of the mitigation against some risks that new startup businesses incur early in the startup phase, and an intangible result might be the reputation that the smart business ideas are the result of a robust business model. Table 2 shows the frequency of 60% at which business owners mentioned prior entrepreneurial experience through starting and stopping businesses in the past have contributed to the success of their current company in answering the case study interview questions. The data indicated that it is often also all about timing, and that starting the right company at the right time can contribute to business success.

Table 2

Number of responses related to IQ 1,3,9 for Prior Serial Entrepreneurial Experience

Participant	Interview Questions Responses Related to	% of Responses
P1	IQ1, 3, 9	30
P2	IQ 3, 5, 9	20
P3	IQ 2,8,9	10
P4	IQ 1,8,9	20
P5	IQ 1,3,9	30

Just as the proponents of the GST had suggested, each theme displayed in an orchestrated manner for the concerted business sustainability strategy of small technology business owners for profitability beyond five years. Each participant mentioned how having a prior entrepreneurial experience was beneficial in the quest for sustainability and to remain profitable for extended lengths of time, and specifically in overcoming the five year threshold, a period vulnerability, which many businesses are unable to g o beyond. Even if the previous business was a failure, the knowledge gained from experience could lead to future success in business.

Implications of Study to Professional Practice

The applicability of prior entrepreneurial experience, willingness to stay the course, raising enough capital to meet obligations, driven and passionate owners provide a business sustainability strategy for small technology businesses. Technology companies have influenced strategies, practices, and tactics that some companies utilize in the marketplace. When owners of small technology companies operate with a business sustainability strategy, the company has industry characteristics that do not appear in the operations of competitors, that allows the business owner to operate in a better manner than other industry participants (Lasalewo et al., 2016). While most recent research suggests that 10% of small businesses fail within the first year of operation, for small technology companies that number grows to 20% by the end of the first year and 50% of small technology companies have failed by year five (SBA, 2015). The data from the participant interviews and company documents contains business sustainability strategies for small technology companies. The findings of this research study have the potential to improve business practices for small technology companies, with the knowledge potentially useful in educating existing and future owners of small technology businesses on sustainability strategies for remaining in business. The findings acquired from the study may thus have further applicability to improve business practice by educating future and current small business owners on business sustainability strategies.

Conclusion and Recommendations

The purpose of this qualitative multiple case study was to explore the strategies some owners of small technology companies use for business sustainability and profitability beyond five years. While there were several strategies that each of the interviewees offered, there were 4 emergent themes that I identified that provided strategies that owners could use to increase their business sustainability and profitability. Of all the themes that emerged, the prior serial entrepreneurial experience was the most frequently discussed. The experience that a business owner brings to their organization can position a company for future success. Staying persistent and having a willingness to stay the course is directly linked to the prior experience of a business owner. The technology industry is highly competitive, and it is relatively easy for companies to merge or close for business. A tech companies’ success is directly linked to the ability to raise capital to not only bring their technology to fruition but also to find investment for future

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discoveries and technological advances. Experienced entrepreneurs have acquired the skills necessary to pitch new research and development ideas and for raising enough capital for research and daily operations.

The findings and knowledge from this study could be of value to owners of small technology companies who are plagued by the low survival rate of small businesses. The need to offer solutions is solve the dilemma of the poor outlook of small business beyond the five year vulnerability threshold is compelling(Frazer, 2015). The results of this multiple case study included participant insights that may also offer provided strategies for the transformation of communities and bringing about sustainable social change. I recommend that the Technology Association of Georgia and the SBA Georgia District branch should consider the results of this study and share the sustainability strategies with current and future small technology business owners. I recommend that potential and current small technology business owners review the results and findings of this study for possibly ideas on increasing business longevity, and long-term business sustainability strategies could provide solutions for companies that currently struggle to remain relevant. The small business owners' strategies contained best practices transferable to other small business owners resulting in improvements in business practices. I suggest the dissemination of the results through tech startup incubators, chamber of commerce meetings, entrepreneurship conferences, small business seminars, and other nonprofit community development initiatives.

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IMPROVING ENGAGEMENT THROUGH A PLAYPOSIT GUIDED COURSE PROJECT

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Abstract

One of the challenges of online teaching is limited engagement with the professor and the course content and fewer interactions among students. The teaching method, assessment tools, and course design can impact student engagement and student outcomes in the online environment. Research shows that group projects can help students stay engaged with the course content and learn from each-other. Additionally, relevant short videos and associated interactive activities are important tools of engaging students in the online learning environment. PlayPosit is a relatively new teaching tool that combines short video explanations of important concepts with short quizzes. Course projects are traditional tools used for deep learning and assessment. When relevant and constructed well, they can play an important role in student engagement. Course projects are meant to bring together multiple concepts learned in the course. PlayPosit multimedia activities can be helpful in highlighting those key concepts as well as serving as an assessment tool. PlayPosit activities help students master the important concepts and the group project provides an opportunity for the application of such concepts. By implementing this teaching method, we aim to: (1) increase interaction with the course content through inclusion of PlayPosit activities; (2) increase the social presence of the professor through a combination of videos, live sessions, virtual office hours, and timely feedback; (3) increase interaction among students through small group project; (4) increase the interaction of students with the professor through live sessions and virtual office hours; (5) improve process engagement and result engagement in the course; (6) examine students' perceptions about whether the teaching strategies help student learning; and (7) explore multiple ways to evaluate student engagement in the online learning setting. We anticipate that PlayPosit activities associated with an overarching, complex, problem-based group project will lead students to utilize the course content, inquire further, think critically, and solve problems, throughout the semester, thus improve their overall engagement with the course content and their peers.

Keywords: Student engagement; online engagement; online group project; PlayPosit; assessing online engagement; flipped classroom

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Improving engagement through a PlayPosit guided course project

A Chinese proverb says, "Tell me and I forget. Teach me and I remember. Engage me and I learn." Student engagement is defined in various ways but there is agreement in associating it with students being actively involved in thinking, talking, and interacting with the course content, their classmates, and the instructor, as well as completing required deliverables (performing) (Dixscon et al., 2017; Kehrwald, 2008; Kuh, 2003; Tsay, Kofinas, & Luo, 2018).

Online student engagement

Research shows that online students have fewer ways to engage with university activities and services, tend to have reduced interactions with peers and the professor (Platt, Raile& Yu, 2014), and feel isolated and disconnected (Baranik, Wright & Reburn, 2017). Similar behaviors are noted among students in the health information management program. Health information professors are currently using Canvas as a teaching platform and have provided a variety of learning resources for students including readings, videos and PowerPoint recordings; however, Canvas analytics and student-professor conversations reveal that many students have not taken advantage of such resources and are not connected with their classmates.

Given the importance of engagement and the engagement deficiency for online students, improving student engagement becomes critical. Course design (including new tools and technologies) and requirements should play a positive role in student engagement. According to Aiken, Heinze, Meuter, and Chapman (2016), the "electronics-driven era of intensive informational competition" makes it even more important that the course design is effective in keeping students focused on the course objectives and directing them to reliable sources of information. In the online environment, the course content becomes the driving force in student learning, as well as the primary medium for instructor-student and student-student communication. Use of effective multimedia is considered to impact students' engagement with the course and learning outcomes (Angel, 2015; Varonis & Varonis, 2015). Methods that combine a mix of learner autonomy, interactivity, and real-world focus (such as projects) are also highly recommended, given that online students are mostly adults (Allen, 2016).

PlayPosit as Online Teaching Method

The teaching method and course design can impact student engagement and student outcomes in the online environment (Angel, 2015). One of the tools available for online teaching is PlayPosit, a short interactive video that explains content and provides an opportunity to stop and embed assessment questions into any points of the video. Students would be required to watch the video and answer the questions. The professor can choose to allow or not allow skipping the content and/or the questions. PlayPosit assessments can be transferred into the grade book. Group projects are a traditional learning and assessment tools but have taken a back seat in the online environment, sometimes due to the lack of structural support in the online platform and sometimes due to student complaints about the difficulty of connecting with each-other in the online environment. COVID-19 has highlighted the importance of connecting in a virtual world more than ever. It is important to reconsider and bring back more group projects in the online teaching and learning environment.

The proposed teaching method capitalizes on the use of PlayPosit multimedia activities and group work tools embedded in Canvas to effectively combine the flipped classroom model with the inquiry-based learning. It is anticipated that PlayPosit activities associated with an overarching, complex, problem-based group project will lead students to utilize the course content, inquire further, think critically, and solve problems, throughout the semester, thus improve their overall engagement with the course.

The overall goal of implementing this teaching method is to increase student engagement in the online courses by improving the course design through use of PlayPosit (a multimedia tool) and an overarching problem-based group project. By implementing this teaching method, the goals are to:(1) increase interaction with the course content through inclusion of PlayPosit activities; (2) increase the social presence of the professor through a combination of videos, live sessions, virtual office hours, and timely feedback; (3)increase interaction among students through small groupproject; (4) increase the interaction of students with the professor through live sessions and virtual office hours; (5) improve process engagement and result engagement in the course;(6) examine students’ perceptions about whether the teaching strategies help student learning; and (7) explore multiple ways to evaluate student engagement in the online learning setting.

The individual components of the proposed teaching method, PlayPosit, small group work, and complex course projects are not new teaching methods or tools. In fact, there are a number of studies that have shown their effectiveness in engaging students in online or in-person environment. However, there is no research that demonstrates their combined use or assesses their combined impact on student engagement in online courses.

PlayPosit is an interactive video tool that combines professor's explanations on key content areas and questions that assess students' comprehension. Research shows that videos can be effective for visual and audio learners, especially when sharing small chunks of information (also known as microlearning) (Winger, 2018). Students have become used to this type of learning given the popularity of similar tools used by various social media outlets. Most research pertaining to PlayPosit has addressed how this tool can be used for the elementary and middle school students, for teacher in-service and education sessions, and for teaching technical courses (Kleftodimos&Evangelidis, 2016). There is limited research on the use of PlayPosit as an assessment tool(Moran, 2018). Video-based teaching seems to be preferred and more satisfying that some traditional teaching approaches (Arslan, Ozden, Goktuna, &Ayik, 2018). Use of videos as part of the course can reduce course dropout rates (Brecht, 2012) and improve comprehension of content (Gunawardhana&Palaniappan, 2016). Additionally, quizzes that accompany text and videos have been found to help enhance student learning, improve the self-regulation of learning, and increase comprehension (Li, 2016).

Online Group Projects

Group-based or team-based learning is a popular teaching tool as it provides greater opportunities for students to discuss and learn from each-other, in addition to learning from the professor and the course content. Pal et al. (2012) tried various forms of small group teaching, which were valued positively by students in terms of their learning experience and were considered as a comprehensive tool for in-depth teacher-student interaction. Group work has been used to enhance learning in online classrooms and it has been found to create a sense of community and engagement (Williams, Cameron, and Morgan, 2012). Group work is also considered the hallmark of adult learning (Scherling, 2011). Group or collaborative work often lends itself to projects that are problem-based and complex in nature. Well-designed, meaningful course project have been proven to be effective in distance education courses (Chang &Hannafin, 2015; Smallwood & Brunner, 2017.

Study Design

This teaching method capitalizes on the integration of tools and technologies such as Zoom, Kaltura, PlayPosit, Groups, and Collaborations. The framework for this study is the Community of Inquiry (COI) which considers teaching presence, social presence, and cognitive presence as key to students learning (Garrison, Anderson, & Archer, 2000). Teaching presence is established through instructor's selected content and the overall climate of the course. In this case, the professor will design a complex, problem-based course project that extends throughout the semester and create a series of videos that focus on key content areas and their applicability in the course project. Social presence is established when the instructor becomes available to students via live sessions, announcements, and discussions. For this teaching pilot, the professor will provide a live Zoom session at the beginning of the course to explain the course design and expectations, as well as create an opportunity for the students to know each-other and the professor. Cognitive presence is reached when the students are able to construct meaning through multiple reflections and interactions with the class, which in our case is expected to be achieved through student's interactions, discussion, and course project deliverables.

Specifically, the proposed teaching method includes a number of sequential activities, involving the professor and students. The main professor activities include:

- Creating an overarching, complex, problem-based course project that addresses the course objectives and lends itself to multiple deliverables and small group work.
- Preparing a series of short videos (10-12 minutes long) that address key concepts, their application to the course project, connection among concepts, tips or guidelines on the project deliverables.

- Adding questions at key points and turning the videos into interactive learning and assessment tool by using the PlayPosit assignment option.
- Offering a “Meet and Greet” live Zoom session during the first week of class, sharing the course expectations, requirements, and layout, as well as providing the students with a platform to introduce themselves and share some details about their background, experience, communication preferences, etc. Recording will be made available for students who do not attend the live session.
- Creating an online “Introductions or Class Café” discussion in the first Canvas module and requiring students to introduce themselves and share some details about themselves and communication preferences. Students will be encouraged to interact with each-other in an effort to learn more about each-other and select two to three group members.
- Creating the group spaces in Canvas and allowing self-sign up for groups of two to three students.
- Holding virtual weekly office hours, publish them in Canvas, and encourage students to join individually or as a group to discuss any ideas or questions.
- Providing detailed feedback on the course project deliverables within four days of due date and/or submission.

Students will also be required to complete a number of activities. The ones pertaining to PlayPosit and course project requirements include:

- Attending the live session at the beginning of the course or watching its recording.
- Choosing two to three classmates they would like to work with for the purpose of completing the course project and create their groups by the end of the first week.
- Completing the PlayPosit assignments in the designated weeks. Upon watching the video, students will answer questions to assure they understand key concepts and are prepared to work on the project deliverables.
- Collaborating as a group by using the Canvas designated group space to discuss and share documents. Google Docs may be incorporated in their group space, as well. If groups prefer to use a platform different from Canvas and Google Docs for their collaboration, they need to

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share it with the professor and add a report to their course project deliverable explaining the tools used and individual contributions.

- Completing engagement survey and reflection discussions at the end of the course.

This teaching method lends itself best in upper-level courses, such as management principles for health information management, finance concepts for health information management, electronic health records, or performance improvement, which require students to utilize knowledge acquired in prior courses in conjunction with new concepts learned in that particular course.

Expected Outcomes

The main outcome expected by implementing this teaching method is increased student engagement. Based on the framework for A Community of Inquiry created by Vaughan, Cleveland-Innes, and Garrison (2013), two types of assessments will be used to measure student engagement: formative and summative. Formative assessments include activities that are not graded but are important in understanding whether students are acquiring specific skills (Conrad & Jason, 2018). In this study, formative assessments include: completion of PlayPosit assignments, student attendance of live events or recordings, number and frequency of student interactions in the Canvas group space, Google Docs, or other collaborative tool. Summative assessments are graded, allow students to engage intensively with the course material, and demonstrate skills and knowledge acquired, such as completion and quality of course project deliverables. Those measures along with data on completion of live events offered by the professor and feedback for project deliverables will be used as measures for goals 1-5.

In order to fulfill the sixth goal (6) examine students' perceptions about whether the teaching strategies help student learning, three measurements will be used: the end-of-course evaluations administered by the university, a reflection discussion in which students are asked to participate at the end of the course, and a focus group interview. The last goal (7) explore multiple ways to evaluate student engagement in the online learning setting, will be achieved by incorporating

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objective data, such Canvas log data and PlayPosit analytics, in addition to the student engagement surveys that already exist.

In addition to improving student engagement, it is expected that students will develop better communication, team-work, critical thinking, and problem-solving skills, as well as plant the seeds for life-long learning. Last, in an environment of increased online teaching, this teaching method may help differentiate the health information program from other universities who offer similar content in the online modality.

Other Considerations

The implementation of this teaching method can be time-consuming, given that it requires alignment among objectives, reading content, video content, video quiz assessments, course project. Selecting existing reliable videos, preparing content, recording new videos, and creating assessment questions are also demanding in terms of time requirements. For example, in order to produce a 7-10 minute video, the instructor will need to select the desired concept for explanation, prepare content in the format of a PowerPoint presentation, Prezzi, or some other type of visual. Once satisfied with the quality of the video (which could require 2-3 takes), the professor will upload the video in the course, add it a form of PlayPosit assignment, select the proper moments to add an assessment questions, add the questions along with the answering options. Last, viewing options and opportunities for retake are selected and the assignment is published for students. During each week, there may be a need to review and identify opportunities for improvement, based on the students' inquiries and performance. This will serve as a learning experience for the professor, as well as students. Additional time will also be spent in gathering and analyzing the data.

The implementation of this project requires meticulous work and follow up throughout the semester. However, the potential impact is to improve student learning experience and plant the seeds for them to be life-long learners. From a teaching perspective, it is also valuable to explore innovative ways to evaluate student engagement in the online setting. Last, exploring best practices for teaching online courses contributes to a program's quality and uniqueness.

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While educators, in general, find interest in using new teaching tools, it is important to consider the time-commitment for using them. For this particular method, if a professor continues to teach the same course for a period of time, it may be worth the initial time investment. While updates and modifications may be needed in the future, the professor is not expected to spend as much time when teaching the same content. This teaching method has the potential to be extended to other courses, depending on the resulting student engagement and outcomes. Creating a number of PlayPosit activities at the beginning will contribute to greater familiarity with the tool and the process, and improve efficiency in the future. Furthermore, PlayPosit activities may also be used independently of the group course project. If the content is carefully selected and contributes to the overall course objectives, PlayPosit activities would provide the professor with a valuable pool of teaching resources. For example, the professor could require that students complete such activities prior to joining a live session. Come to the live sessions with greater knowledge provides an opportunity for greater engagement during the live session. Also, the course project storyline may change because it may become irrelevant; however, the applicable concepts may not; thus, extending the life of PlayPosit activities and lessening the burden in terms of professor's preparation for the class.

Conclusion

Educators around the globe have been faced with multiple challenges in the world of online teaching, from reliable internet access to student engagement and outcomes. Using a PlayPosit guided group project promises to be one way to address some of the engagement challenges. It provides short video content (the go-to form of learning for the young generation), interactive assessments, an opportunity to connect with peers, and an opportunity to connect the dots and demonstrate knowledge by applying key concepts to a course project. It is expected that results of this study will show an improvement in student engagement for the course in which the tool is implemented. If the improvement demonstrated is significant, there is an opportunity for further implementation in the same course and/or other courses.

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THE DYNAMICS OF CUSTOMER ACQUISITION, RETENTION AND STRATEGY DEVELOPMENT IN USA: TELECOMMUNICATIONS

by

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Abstract

The United States telecommunication industry is competitive with many different companies vying for leadership.From a strategic marketing perspective, there is limited leadership understanding of the relationship between the customer choice variables of gender, age, income, and ethnicity in selecting telecommunication services.Grounded in the transformational leadership theory, the purpose of this quantitative study with a regression and correlation design, was to analyze secondary consumer data and thereby uncover prudent business strategies in customer acquisition and retention. The aim was understanding business and leadership strategic imperatives in the wake of the current and anticipated market evolution.The findings of this study indicated high customer preferences for speed, convenience, and affordability. The findings of the study from examining customer choice for smartphones, different Apps, and service features, indicatedthat the most advance technological features scored high in favorability. The recommendations, arethat in achieving vital competitive business differentiation, formulating, and implementing innovative sales strategies and communicating value propositions by skilled and trained marketers is critical. Customers gravitate to attractive service pricing, and bundled value propositions, for which sales competencies appear as vital marketing success factors. The business intelligence from this studymay be valuable to telecommunication leadership in inspiring sales personnel, who are key differentiators in achieving business success.

Keywords: Customer choice behavior,Data mining, Quantitative methodology, Secondary data, Telecommunication services,

Introduction

The business of telecommunication carriers is competitive with different players vying for leadership and a dominant market position. In the United States, there has been rivalry in the telecommunications industry. Wang et al. (2014) have recommended that with the intense competition, elevating quality in the delivery of efficient services is paramount for U.S. telecommunications companies. The key differentiators in increasing market share and gaining competitive advantage arethe ability of telecommunication firms to convince customers on the service offering attributes related to network quality, customer support, and pricing (Shafei & Tabaa, 2016).

Telecommunication carriers, who have a proven track record of success, are often aware that internal communication strengths and competencies are an indicator of good engagement with customers. The development of internal strengths predicates the needs for transformational leadership, to possibly inspire within organizational ranks and ensure a firm is superior in its business outreach and customer service, when compared to rivals. The extensive transformation of the telecommunications industry in the last few years suggests that the industry is near mature status and customer retention a critical business success factor (Shafei & Tabaa, 2016). Customer satisfaction, winning new clients, and the retention of the existing customer base constitute important challenges for telecommunication companies to ensure sustainability, in the face of intense competition and a changing operating landscape (Alqahtani&Farraj, 2016). Sustaining customer loyalty in the telecommunications industry is difficult as subscribers switch providers frequently and with little hesitation. Even with contract obligations and relationships, this lack of loyalty to a carrier represents challenges in customer retention, as well as generating new clients (Karjaluoto et al., 2012). Telecommunication carriers, and specific personnel with strategic sales and business development responsibilities within these organizations entrust sales managers with the development of communications skills and the selling competencies of their teams to convincingly convey company offerings and service plans. Shiraishi and Iijima (2010) noted that quality engagement is achieved by developing customer relationships, which may lead to improving the firm's competitive position, increasing profitability, and gaining bonds of loyalty with new and existing stakeholders. Rao and Abdul (2015) found that transformational leadership had a significant positive impact on team performance.

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The leading telecommunication firms offer multiple package options, often referred to as a bundle, or bundle deals, which are often combinations of a mix of video programming, telephone, and Internet service offering. The bundles provide customers with an opportunity to choose from various packages to meet personal entertainment and communication needs (Dekleva&Zadony, 2015). The dominant industry providers are Verizon,AT&T, Sprint, and T-Mobile (Forbes Contributors, 2014).

The success of telecommunication companies revolves around winning and retaining customers through the efforts of a dedicated professional sales team, focused on customer retention and acquisition, executed though astute business development and marketing outreach. The challenges however of managers supervising the sales team lies in professional sales skill development, in conveying the importance of communication and imparting sales training. Sales employees are often overwhelmed with challenges and pressured to demonstrate business growth in an environment beset with equally strong competitors. The primary challenge of managers supervising sales teams, remains in the skill development of sales teams to effectively generate new sales and retain existing clients. Managers must train salespeople on the implementation of sales strategy, as they more successful when strategic in their approach to selling (Inyang et al., 2018)

Data mining of customer information from leading providers of telecommunication data collected through surveys, interviews, from consumers and panels across the country served for a deeper understanding of choice behavior. Advanced data mining analytics from this telecommunication data also aidedin the formulation and development of customer acquisition and retention strategies.Data mining facilitates knowledge-discovery with the invocation and application of automated methods and statistical knowledge, and serves to discover potential relationships between variables (Xianget al., 2019)

The challenges managers face in developing employee sales and communication skills is not fully understood with the evolving nature of the industry, and a multiplicity of service provider options, therefore customer loyalty is not always assured. The important positive consequences of customer loyalty are improved revenues to the business, and lower costs associated with retention and acquisition of current and future individual and business accounts (Lam et al., 2004). Most customers seeking a range of telecommunication product/serviceoptionsare educated, informed and savvy. Sales personnel within telecommunication service providers must constantly innovate to overcome the challenges faced in achieving sales targets. The formulation of appropriate customer-centric strategies requires a competent sales force, and quality data to make informed decisionsin efforts to generate the revenues necessary to achieve organizational growth and business sustainability. Hayati,et al.(2018) lamented the failure of many new marketing strategies are when managers fail to make frontline employees adequately committed to implementing existing and new initiatives. The need for transformational leadership is therefore vital in developing sales team skills, specifically in presenting a company's value propositions to discerning and informed customers in the telecommunication industry. Rao and Abdul (2015) supported the contention, that team mechanisms are positively inspired and influenced by transformational leadership, which manifested in business success and organizational performance.

Although there are extensive research studies related to the telecom industry, and about customer acquisition and retention, from the extensive research undertaken, an apparent paucity of information of the business strategies and managers in respect of developing employee sales and communications skills seemed evident. The knowledge deficit and need for a deeper understanding represents a gap in current knowledge and merits further study using an exhaustive review and analysis of secondary data from credible vendors and providers of telecommunication information. The problem statement, as denoted, reflectsthe current knowledge deficit, and the efforts, in furthering the aim to undertake a research study with the development of an explicit research objective. The articulation of the problem statement from extensive research and a critical review of literature follows under the statement of the problem section.

Statement of the Problem

Customer acquisition and retention in a rapidly changing telecommunication service industry is never assured, as companies must acquire customers, otherwise risk business sustainability and face threats to survivability. In an industry, mired in a constantly changing environment, customer loyalty is often fleeting, customer loyalty and retention often represents a challenging sales endeavor (Ng & Chung, 2012). Retaining existing customers is paramount as

 ISBN: 978-81-948301-9-1

the cost of the cost of maintaining an existing customer is one-fifth the cost of acquiring a new one (Baum, 2013). Communicating attractive pricing and value propositions to customers is critical and requires specific transformational skills and training of employees in customer sales efforts to keep abreast of a shifting marketplace and customer idiosyncrasies (Sharma, 2015). The sales force represents the face of an organization, in implementing business and marketing strategies of the telecommunication organization. Understanding and developing sales capabilities based on a market information process can lead to better customer and financial performance. Increasing market share and gaining competitive advantage is therefore a leadership challenge in a mature telecommunication market. The general business problem is that in a rapidly evolving industry, telecommunication firms have experienced tremendous growth, however with increased competition and a mature market, recruiting and retaining customers is challenging (Seo et al., 2008; Shafei & Tabaa, 2016). The specific business problem is that there is often limited leadership understanding of the relationship between the customer choice variables of gender, age, income, and ethnicity in selecting the variety of telecommunication services available.

Purpose of the Study

The purpose of this study is to contribute to overcoming the often-limited leadership understanding of the relationship between the customer choice (dependent variable) and independent variables of gender, age, income, and ethnicityin selecting telecommunication services. A quantitative study, with a regression and correlation research design was used to review and analyze secondary data on telecommunication customer service and choice behavior, and examine the potential association if any, the degree and strength, or lack thereof, between the variables of gender, age, income, and ethnicity.The intent of the study was therefore to uncover potentially new and undiscovered knowledge from the mining of secondary data. Data mining can reveal unexpected stories, beyond financial transactions, in the areas of telecommunications, email, internet and other customer usages (Christopher & Hao, 2019). The expected knowledge in achieving this may contribute to leadership transformational strategies and thereby also aid in sales and business training efforts to acquire and retain customers. As stated, the sales force is the face of the business organization, in the interface with customers.

 ISBN: 978-81-948301-9-1

Research Question

Quality research requires the development of specific questions that aided in gaining detailed insight, pursuant to an exhaustive analysis of secondary datasets, with the aim of fulfilling the research objectives of a study. The Transformational Leadership theory, served as the selected and appropriate theoretical underpinning of this study. An exhaustive review of telecommunication industry information, with an extensive review of pertinent literature aidedin the framing of the following overarching research question for this study and the hypotheses:

RQ1:What is the relationship between the dependent variable of customer choice behavior (expected sales) and the independent variables of gender, age, income, and ethnicity in customer choice in selecting and purchasing telecommunication products/services?

Hypotheses

$H1_0$. Gender has effect on Expected Sales

$H1_a$. Gender has no effect on Expected Sales

$H2_0$. Age has effect on Expected Sales

$H2_a$. Age has no effect on Expected Sales

$H3_0$. Income has effect on Expected Sales

$H3_a$. Income has no effect on Expected Sales

$H4_0$. Ethnicity has effect on Expected Sales

$H4_a$. Ethnicity has no effect on Expected Sales

In hypothesis testing, a critical value which predicated decisions on accepting or failing to accept the Null hypothesis, is a point on the test distribution that is compared to the test statistic, which serves to determine whether to reject the null hypothesis or fail to reject it. If the absolute value of the test statistic is greater than the critical value, declaring statistical significance and rejecting the null hypothesis are appropriate.

In Table 1 below, the calculated value for the independent variables of Gender, Age, Ethnicity, and Income, all apart from Ethnicity, influenceExpected Sales(customer choice behavior), which is the dependent variable. The most significant of the Independent variables is Income (132.056) in respect of Calculated Value with a P-Value of .001. The P-Value being less than .05, it is appropriate to reject the Null Hypothesis for the Independent variable of Income.

 ISBN: 978-81-948301-9-1

The inference is that higher income drives purchase of telecommunication services in the different service offering of phones, internet, and packages in single or bundled forms. To clarify, purchase and sales are two sides of the same coin, However, arguably, purchases may not always reflect as sales, as could be on credit and other terms, whereas sales are the final, and on record of the purchase, translated into revenues and earnings from that transaction. Age is also a key determinant of purchases and sales, as indicated in Table 1, because Calculated Value of 77.977, is significantly higher than the corresponding Critical Value of 62.487, the P-Value of for Age is .00. Again, it is essential to reject the Null Hypothesis. The other Independent Variable of Gender, as presented in Table 1 hasless of a bearing on Expected sales, however we still will reject the Null Hypothesis since the P-Value is .001 which is less than .05. The Independent Variable of Ethnicity has a Critical Value of 57.157, Calculated Value of 51.92 and a P-Value of .975. Hence, it is important to fail to reject the Null Hypothesis here as the P-Value is greater than .05.

The accepted premise in hypothesis testing, is that with the critical value denoting relevance to the test distribution, when compared to the test statistic, is critical in deciding in rejecting the null hypothesis. The rule is that if the P-value of the test statistic is lessthan .05, it connotes statistical significance and rejecting the null hypothesis would be appropriate. In all instances in Table 1, the Null Hypothesis can therefore be rejected insofar as the Independent Variables shows the calculated value of the corresponding test statistic as lessthan the critical value, denoting statistical significance

In Table 1 below, it is evident that customers with income greater than $99,999 per year chose the most expensive operating systems. Customers who earned$99,999 and up accounted for 63.1% of overall cellphone sales, while 4.3% did not answer and customersmaking up to $49,999 only accounted for 32.6% of sales.

To further support the analysis and interpretation would also require referring to Table 3, shows that customers from the analyzed sample between the age of 30-59 accounted for 56% of which 48% have a smartphone. From the analysis, it may be concluded that this age group would normally be more settled in their jobs and have more disposable income. From the analysis, it could also be concluded that the add-ins may be required for work usage.

 ISBN: 978-81-948301-9-1

Table: 1

Expected Sales Compared to Independent Variables

Dependent Variable	Independent Variables							
	Gender		Age		Ethnicity		Income	
	Critical Value	Cal. Value	Critical Value	Cal. Value	Critical Value	Cal. Value	Critical Value	Cal. Value
Expected Sales	39.252	41.803	62.487	77.977	57.157	51.92	84.037	132.056
	P-Value >.001		P-Value >.001		P-Value 0.975		P-Value >.001	

Analyzing the data for the choice behavioral trend manifestations for Operating System, as portrayed in Table 2, and the choice made by subscribers at different income levels, the analysis of the data indicated that income This also shows that the Android is the System of choice over Apple for the income range of under 100K. Thereafter, at the income level of $100,000 or more, the gap between Android and Apple significantly narrows to a 1% difference between the two. The disparity in these choices could be due to these customers having a greater level of disposable income. A review of a leading smart phone indicated that the price range of these phones start at $449 to $1099, with the high cost this could possibly hinder many customers from buying these types of phones, presumably with the income constraints. *Table 2* The Influence of Income on Customers Choices for Operating Systems.

Operating System	Income			
	up to $49,999	up to $99,999	$100,000 and more	no answer
Android OS	200	238	93	18
iOS (Apple)	77	141	81	17
BlackBerry OS	1	3	0	1
Firefox OS	0	1	0	0
Symbian OS	0	0	0	0
Windows (Windows Phone)	6	6	1	0
don't know	6	0	1	2
no answer	2	1	0	1

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Smartphone penetration has increased significantly over the years. Between 2011 and 2018 smartphone penetration has increased 39.8% in 7 years, with the largest increase between 2011 and 2012. From the data, it may be worthy of mention, that 76% of this increase manifested between the years 2011 and 2015. The data explicitly shows the demographics of the primary smartphone customers to be white males, who live in an urban area, and have an income of between $50,000 to $74,999 a year. This information could be useful to cell phone providers for branding as well as looking at target markets.

Implications, Recommendations, and Conclusions

The evolution and advances in information and communication technology with each passing day is remarkable, to the current 5G smartphones. As indicated, 5G and the advances in communication technologies are very evident in the competitive business environments telecommunication industries operate in. Customers are the customers of services and the final arbiters of choices, which determine market share and financial returns of companies operating in this domain. The leading players are Verizon, Sprint, T-Mobile, and AT & T.

From the preceding paragraph, it is evident that the telecommunication industry is amid remarkable change with the evolution of smartphones and internet services. Dictating the pace of change, is however driven, and predicated by customer preferences for these products and services. The many facets of marketing and business strategy, in the acquisition and retention by the telecommunication service industry may be served and informed by primary and secondary research. Data mining has proven valuable in the discovery of customer trends although is often underused. The detailed and exhaustive analysis of data using descriptive and inferential statistical approach can provide significant insights The objective of this research study was to conduct an in-depth analysis of customer behavior and industry trends, to potentially aid sales and marketing leaders in implementing business and marketing strategies in the telecommunication organization. Clearly, understanding and developing sales capabilities based on market information, can lead to better customer and financial performance. The mining of secondary data of recent origins is often neglected, which may yield knowledge of potential value in business and marketing. The purpose of this study was to contribute to strategic insights, as managers and team leaders in telecommunications face challenges in developing employee

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sales and communication skills to successfully interface with customers in diverse environments. The knowledge from this study may contribute to strategy development execution and serve in the efforts to deliver customer centric value propositions and offerings in ongoing customer acquisition and retention outreach.

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INFORMED TELECOM CUSTOMER ACQUISITION AND RETENTION STRATEGY FROM ADVANCED DATA MINING AND ANALYTICS

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Abstract

The United States telecommunication industry is a consumer driven and a buyer's market, and very competitive with many different companies vying for leadership.There is potential for greater business leadership understanding of the relationship between the customer choice variables of gender, age, income, and ethnicity in selecting telecommunication services.Grounded in the transformational leadership theory, the purpose of this quantitative study with a regression and correlation design, was to analyze secondary consumer data and thereby uncover prudent business strategies in customer acquisition and retention. The overarching question reflected the aim in understanding customerchoice and trends, from the data mining and analysis of secondary data, were indicative of business and leadership strategic imperatives in the wake of the current and anticipated market evolution. The research involved mining and analysis of secondary datasets and to ensure holistic analysis, included the triangulation of findings against industry reports, peer reviewed journal articles, consumer, and technology trends. The findings of this quantitative data mining study with application of regression, correlation, and descriptive statistics, indicated high customer preferences for speed, convenience, and affordability. The findings of the study from examining customer choice for smartphones, different Apps, and service features, indicated that the most advance technological features scored high in favorability. The recommendations pursuant to extensive data analysis, is that in achieving vital competitive business differentiation, formulating, and implementing innovative sales strategies and communicating value propositions by skilled and trained marketers is critical. Customers gravitate to attractive service pricing, and bundled value propositions, for which sales competencies appear as vital in marketing success factors. The business intelligence from this study, may be valuable to telecommunication leadership in inspiring sales personnel, who are key differentiators in achieving business success.

Key Words: Consumer behavior; Correlation; Data Mining; Secondary Data; Smart Phones; Regression

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Introduction

As in many an industry, it is a buyer's market in the United States telecommunication sphere. The marketing gains are more assured when a firm canbe superior among veritable equals. The reason is that companies operating in this service segment, offer products and services that essentially appear similar in the features and capabilities of products and services, usually with little to no differentiation, however usually presented to customers as differently packaged options and trade-offs. The field of telecommunication carriers is intensely and dynamically competitive as the many companies and service providers vying for marketing honors, seek to acquire and retain customers, with perhaps the abilities and competencies of sales teams representing a critical differentiating factor in the quest for market growth.

The offeringsof telecommunication products/services are multidimensional, andinclude network quality and customer service. Munyanti and Masrom (2018) emphasized that network connectivity are a key determinant of customer appreciation and satisfaction. The summarized inference from an expansive review of literature and studies undertaken in this endeavor, is that in-service quality, features which enhance communication and consumer relationships to transact business and social networking, are critical customer acquisition success factors for telecommunication providers of services and receivers respectively. With access to instant information through the Internet, highly informed customers seek bargains and look for the best possible package deals and offerings. Since there is often very little in terms of what separates one company from another, as customers have many options and choices, the level of service quality and excellence communicated by the sales team may be a key differentiator, of the quality-of-service offerings of rival service providers and competitors. With the advancements in technology and connectivity, the telecom industry has changed the way consumers approach information and services (Jaisal, 2020).

The intensity and aggressiveness in sales in the telecommunications industry arguably stems from a saturated marketplace (Henry & Quansah, 2013). Customers are less loyal in any domain, as with the Internet, price shopping and seeking the best service options are only a keystroke, or a telephone call away for a consumer to get inundated and besieged by a flood of offers in the email inbox, or through live phone operators. More durable loyalty and new

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customer acquisitions greatly depends on the strategies in training sales teams. There is limited research in this area, and the knowledge is sparse. The findings of this study may hold significant value to business leaders and industry players who are keen to building relationships with customers, through the efforts of a competent sales team engaged in bringing new customers to the organization, and preventing existing customer from leaving, by effectively presenting customer value in every sales pitch and conversation. The sales team represent the face of the telecommunication organization, even in remote settings. Sales representative in the telecommunication industry are generally expected to appropriately interact with customers who are geographically distant, remote, and even in virtual environments to increase customer acquisition, retention, and ensure revenue increases. Effective and good communication strategies by the sales team represents an important means for telecommunication firms to present value to customers, earn continued patronage and the accruing revenues from this relationship (Shafei & Tabaa, 2016). Given the business implications of good asynchronous communication in the team effectiveness of geographically dispersed virtual teams, the value from knowledge arising from this study may be of significance to sales managers, and to the industry.

The mining and analysis of telecommunication consumer data can support improvement in business, as may lead to the identification of valuable hidden patterns in large dataset (Khanbabaei et al., 2019). The objective of this study from a business and strategic perspective, was related to understanding the challenges telecommunication business managers face in developing sales employees to increase customer acquisition, retention, and revenues. The knowledge arising from the findings of this study, with the rationale presented, may hold value to managers and leaders, in advancing sales and business competencies, which could translate into improved revenues and more loyal customers.

Theoretical Framework

The theoretical underpinning, represented by the theoretical framework, whichguided this study, was the transformational leadership (TL) theory propounded by Bass (1985). In advancing the TL theory Bass (1985) noted that it represents the sphere of influence of a leader, to include

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followers, who view this individual for the qualities of trust, honesty, and transformational traits. The theoretical precepts of the TL theory offered valuable insight into the management of change, and therefore its prepositions served in fulfilling the research aims of the study. The theoretical aspects of the transformational conjointly with secondary data analysis of telecommunication industry data, shed light and enhanced understanding of the imperatives for leadership in guiding business development and in unearthing the best practices for sales personnel and marketers to create lasting relationships in customer acquisition and retention (Kanat-Maymon et al., 2020). Customers are often in geographically dispersed and remote environments and are likely to become loyal customers of high performance and customer centric organizations.

Research Question

The articulation and framing of an overarching research question also served in the development of specific approaches in analyzing selected and sourced secondary data from credible telecommunication industry sources, peer reviewed journal articles, and industry reports and trends.

RQ1:What is the relationship between the dependent variable of customer choice behavior (expected sales) and the independent variables of gender, age, income, and ethnicity in customer choice in selecting and purchasing telecommunication products/services?

Hypotheses

$H1_0$. Gender has effect on Expected Sales

$H1_a$. Gender has no effect on Expected Sales

$H2_0$. Age has effect on Expected Sales

$H2_a$. Age has no effect on Expected Sales

$H3_0$. Income has effect on Expected Sales

$H3_a$. Income has no effect on Expected Sales

$H4_0$. Ethnicity has effect on Expected Sales

$H4_a$. Ethnicity has no effect on Expected Sales

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Significance of Study

The findings of this study may advance a deeper understanding of customer choice behavior (expected sales) in the preferences for telecommunication services, and thus may offer sales and marketing leaders with potentially undiscovered information for data mined and analyzed, to serve in customer acquisition and retention strategies and outreach. The understanding was derived from the strategic performance, business intelligence and analysis of major telecommunication firms and secondary data sets. Data mining by deriving insights from data specific to customer behavioral habits, potential needs, and desires, necessitates the integration of data mining into business processes (Pivk et al., 2013). The findings for this study therefore may be of value to business development sales managers and leaders in the telecommunications industry, as it reflects data mining and analysis, using the lens of the transformational leadership theory.

This study involved an examination and analysis of secondary data of consumer and industry trends from the telecommunication industry. The datasets from the period 2013-2017 provided by reputed industry vendors, with secure personal access as stated, were carefully selected, and subjected to descriptive and inferential statistical treatment and analysis. The analysis entailed the invocation of descriptive and inferential techniques such as regression, correlation, and measures of central tendency. The aim of this study was to glean appropriate understandings that may be relevant to leadership and management of business and marketing imperatives for customer acquisition and retention. Such knowledge may be of value in marketing and business development and can be applied to the training of sales staff.

An examination of the results provided by a leading data vendor provider to the telecommunication industry Statista (Statista, 2017), indicated that 81% of the people surveyed do not have a landline at home and only use a cellphone. The days of the landline are clearly in decline, and obsolescence may not be far off, at least in the realm of private customers. From the data extracted and presented in Table 1below, it may be explicit, from customers surveyed, that the largest number of subscribers post the year 2016, to telephone service have a smartphone. The versatility and unlimited features and capabilities of the different smartphone makes, drives

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their customer favorability as clearly the value in text messaging, surfing the net, and in an incalculable and almost countless number of other applications and possibilities, including playing games, listening to music are just a few of almost limitless capabilities.

Table 1

Customer Choice in Cellphone Vs Landline

I don't need a landline phone/I use my cellphone for all calls	81%
It has never occurred to me to buy one	7%
I have no connection at home	3%
For me, the telephone is too expensive	12%
For me, the connection/monthly charge is too expensive	20%
I don't want to have a landline phone at home	20%
Other	2%
Don't know	1%

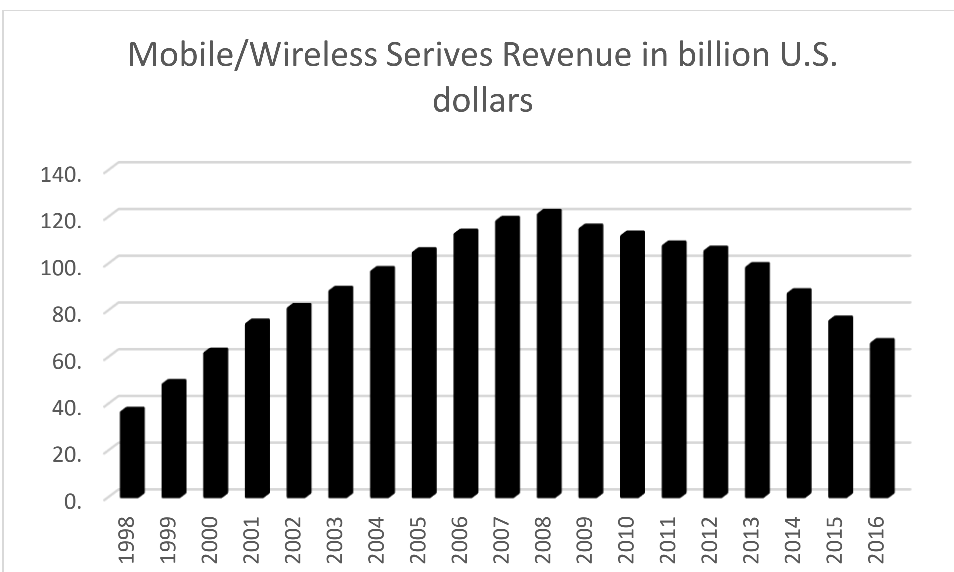

Figure 1: Wireless Revenues in U.S.

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Table2

Customer Choice of Cellphone by Gender and Age

	Gender		*Age*		
	Female	Male	18 to 29 years	30 to 59 years	60 years and older
Basic Cellphone	14%	17%	4%	8%	4%
Smartphone	84%	80%	22%	48%	12%
I don't have a cellphone	22%	15%	0	2%	1%

The large number of customers having a mobile phone is indicative of 97% of customers with a cellphone, while a mere 3% expressed not having a cell phone, as seen in Table 2.

Table3

Preferred Type of Cellphone

Preferred Type of Cellphone		
Basic cellphone	14%	17%
Smartphone	84%	80%
I don't have a cellphone	3%	3%

The universality of smartphones is also reflective of usage and time spent in Table 3 below. First, the dominant usage and time spent in minutes is seen in the age group of 30 to 59 years. As may be seen in Table 3, the time spent on smartphones by customers may depict patterns in usage based on gender and age and could offer marketers with insights into targeting the right audiences, for different service offerings, segmentation of the market, and other strategic use, in addition to developing engagement and communication strategies. From the analysis of the survey data, smartphones are clearly an indispensable fact of life. Males and Females alike spend over 61 minutes a day on smartphones, which is more than double any other time periods, as denoted in the table above. In evaluating the different for time spent on phones, the age groups of 18-29 as well as 30-59 are on their smartphones over 61 mins. a day, which is at least double any other time. The only age group this does not hold true for, is 60 yrs. or older, which spend much less time on their phones. 60 yrs. and older time is fairly wells distributed with less than 10 mins. and 61 mins. or longer being the same.

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Table 3

Time Spent on Smartphones based on Gender and Age

Percentage of Time Spent on Smartphones Daily					
	Gender		Age		
	Female	Male	18 to 29 years	30 to 59 years	60 years and older
less than 10 minutes daily	4	4	0	4	3
10 to 15 minutes	4	4	1	5	2
15 to 30 minutes	6	7	3	8	2
30 to 45 minutes	8	8	4	10	2
45 to 60 minutes	9	8	5	10	2
61 minutes or longer	18	18	14	20	3
I don't use the smartphone	0	0	0	0	0

In analyzing customer behavior for the different operating systems in cell phones by gender and age, behavioral trends become apparent in Table 5. From the analysis, it can be clearly seen that the operating system of choice by females as well as males is an Android operating system. Android and Apple are the two main operating systems currently available in 2019. From an analysis of the survey data, women are 9% more likely to choose Android over Apple, while men are twice as likely to choose Android over Apple.

While examining choice by age, some differences also become explicit in Table 5. In examining choice behavior, notably when looking at age, all age all groups indicated a propensity to more likely to choose an Android system, however the age group of 30-59 has a higher percentage (17%) of choosing Android over Apple. In viewing Table 5, at the 60 and older, the gap of choice narrows down to 2% of Android over Apple.

In the constant evolution of smart phone technologies, 5G is the fifth generation of wireless technology, and many phones in the year 2020 are available in this evolutionary phase of development. The 5G generation means quicker downloads, improved network reliability and potentially making a remarkable difference to all aspects of everyday living (Andrewset al. 2014).The evolution of the 5G services brings along associated customer and technological

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pressures in delivery. The accompanying sophistication and advancement have brought forth expected and unanticipated challenges in terms of economics to customers and service providers, as well as technological challenges for both. The demands from this advancement likely place greater pressures on utilization and optimization of networks, and the problems expected in the integration 5G infrastructure.

The constant change also manifests in the transformation of the communications, as the telecom sector is undergoing remarkable transformation in 2020. The evolution of the past three to four years shows the increasing favorability of more secure cloud-based technologies and represents a discernible trend. The technological transformation is predicated on seeking an edge and gains over rivals as companies in the telecom industry seek competitive advantages in a saturated market (Quantzig, 2019).

Table 4

Age and Gender Customer Choices for Operating Systems

Type of Operating System on a Cellphone	*Gender*		*Age*		
	Female	Male	18 to 29 years	30 to 59 years	60 years and older
Android OS	48%	52%	27%	60%	13%
iOS (Apple)	32%	25%	16%	32%	3%
BlackBerry OS	0	1%	0	0	0
Firefox OS	0	0	0	0	0
Symbian OS	0	0	0	0	0
Windows (Windows Phone)	1%	1%	0	2%	0
Don't know	1%	1%	0	0	0
No answer	1%	1%	0	0	0

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As part of this study, the analysis also led to the examination of datasets to study leading telecommunication company customer ‘churn’ or attrition. The churn rate is the customers that providers lose, for different reasons. Table 6and the corresponding pie chart (Figure 2) depicts the churn rate from 2013 to 2017 of leading players, Verizon, AT&T, Sprint, and T-Mobile. Table 6shows the percentage of customers each of the top four providers have lost between 2013 and 2017. The illustrations show the overall loss, or churn rate for the five years of 2013, to 2017.

Table 5

Churn Rate

Year	*Verizon Wireless*	*AT&T*	*Sprint*	*T-Mobile USA*
2013	5.01%	5.48%	11.30%	11.35%
2014	5.26%	5.81%	11.46%	11.25%
2015	4.94%	5.54%	11.47%	10.01%
2016	4.98%	5.93%	11.38%	9.11%
2017	4.96%	5.41%	9.69%	9.34%

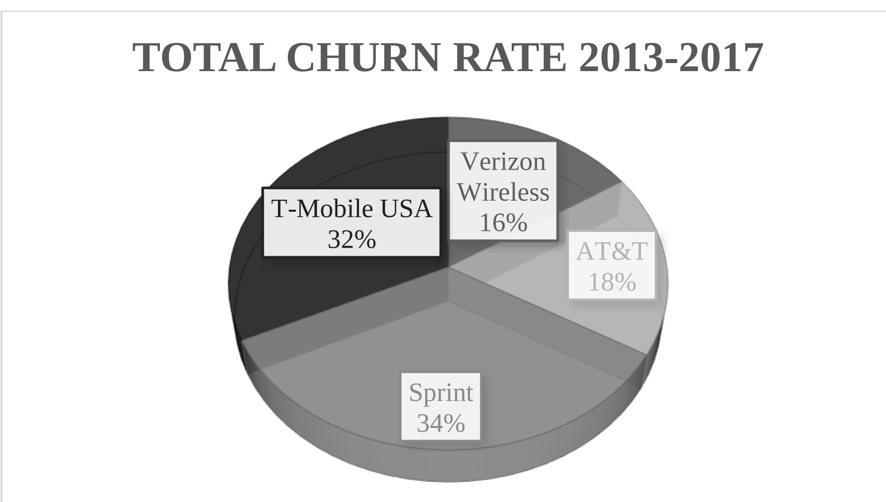

Figure 2: Churn Rate 2013 to 2017 of leading players

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Applying the criteria that coefficients of association may vary from 0, indicating no relationship, to 1 indicative of a perfect and positive relationship, to the range from 0 to -1, indicates different degrees in the pathway to reflect a perfect negative relationship, exemplified by -1. Using these principles in the interpretation of correlation, an explanation of the strengths of the relations is next the focus and attention of the deeper analysis undertaken.In examining the data and applying the inferential statistical techniques to identify and determine the extent and degree of any possible relationships and the strengths between variables, or a lack thereof, the method of analysis involved here, the invocation of correlation. This approach is conducive to examining the degree and extent of the of association. For instance, a frequently used measure is the Pearson correlation coefficient, r, is a measure of linear association between the variables, which were perused for evidence of strength and degree and extent of the association between variable. Examining the positive, negative of absence of relationship with the invocation of correlation serves to interpret data and draw suitable inferences, from which business management strategies can be derived and formulated.

To commence this section of analysis, a true perspective may be from identifying the leading players in the telecommunication industry in the United States. Table 6 and 7 and the pie chart in Table 7, shows the total number of subscribers, and by default the market share that the four major wireless carriers have in millions, reflective of customer and consumer accounts.

Table 6

Subscribers 2013-2017

	Verizon Wireless	*AT&T*	*T-Mobile USA*	*Sprint Nextel*
2013	475.7	434.97	169.71	217.77
2014	502.72	471.84	207.54	219.11
2015	546.57	500.72	240.25	229.96
2016	573.84	530.46	273.69	234.56
2017	592.58	551.12	285.48	218.15

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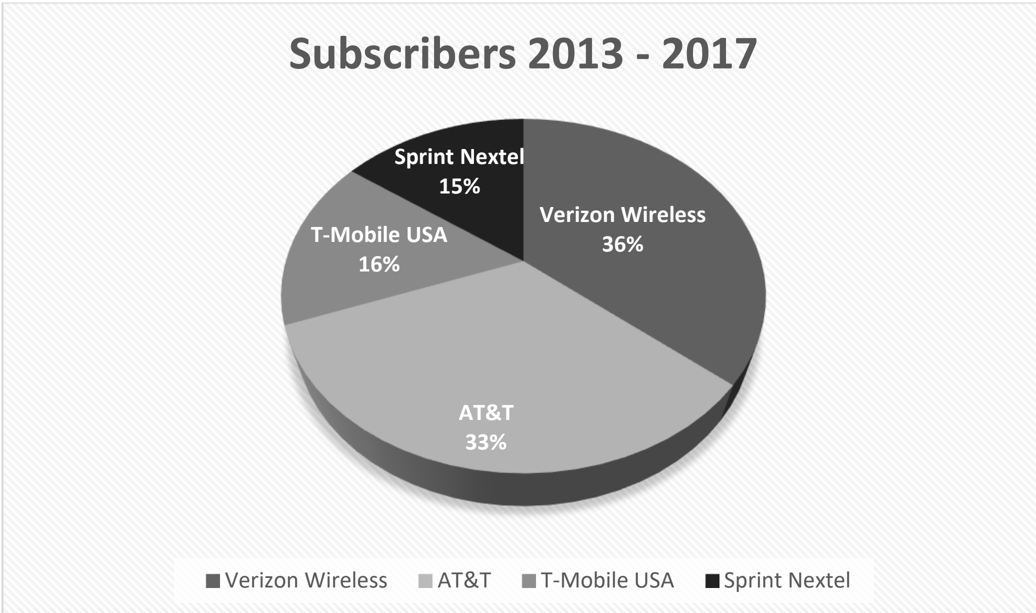

Figure 3 Telecom Subscribers from 2013-2017

Table 7

Total Number of Subscribers lost Between 2013-2017

Total Customers Lost Between 2013 -2017 in Millions				
	Verizon Wireless	AT&T	Sprint	T-Mobile USA
2013-2017	430.63	448.04	400.07	358.26

The significant use of apps in contemporary society brings appropriate closure to the analysis of this study. Table 8shows the categories of apps and their usage in Kilobits. From Table 9it is explicitly clear, that apps usage is highest in Video. The top 3 apps are Video, Social Media and Productivity. The top three app choices of customersare not surprising, as the data on video shows this is more than watching a video, it entails video apps, such as Hulu, Netflix etc. The next highest usage app is social media, which encompasses all social media sites. The next app with the highest usage would be Productivity, it is a little different as the previous two, as it is not clear from the name what makes up this app. Productivity encompasses web browsers, Roku's, communication apps, Digital Assistants, cloud services, security/anti-virus apps, notes

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apps, Microsoft services, Google Drive, Slides, Docs, and Sheets, home security apps, alarm apps, mobile apps, and flashlight apps.

Table 8

App Usage in Kilo-bytes

AT&T USA		**Sprint USA**	
Communication	96761721050	Communication	96102581587
Finance	2749971544	Finance	2524029151
Games	59351363009	Games	55662111565
Lifestyle	192622515146	Lifestyle	181024239907
Music & Audio	57812006868	Music & Audio	61103475246
Other	9432339952	Other	8933033847
Productivity	366157968447	Productivity	347535934177
Social Media	478618708090	Social Media	456648975514
Video	759689366832	Video	807581216535

T-Mobile USA		**Verizon USA**	
Communication	127698207648	Communication	133254738423
Finance	3328116336	Finance	3147328282
Games	65692009006	Games	80726950108
Lifestyle	239361892654	Lifestyle	276600254230
Music & Audio	73789752231	Music & Audio	72742036693
Other	10006791782	Other	12449310918
Productivity	440618276247	Productivity	504550018898
Social Media	535483633570	Social Media	598659666730
Video	888814185298	Video	865994528672

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Table 9: *Smartphone Apps Ranked by Usage*

Apps Ranked in Order of Usage	
1	Video
2	Social Media
3	Productivity
4	Lifestyle
5	Communication
6	Music & Audio
7	Games
8	Other
9	Finance

Communication – This encompasses any messaging apps, email services, or video chatting.

Finance – Mobile banking, insurance apps, payment apps, tax apps, and credit reporting apps.

Lifestyle- Movie Theater and ticket purchasing apps, dinning websites, realtor/real-estate websites, transportation apps, photo apps, coupon and shopping apps, car apps, classroom apps, cash apps.

Productivity – Web browsers, Roku, communication apps, Digital Assistants, Cloud services, security/anti-virus apps, notes apps, Microsoft services, Google Drive, Slides, Docs, and Sheets, home security apps, alarm apps, mobile apps, flashlight apps, etc.

Video – All network and video apps (Hulu, CBS, CNN, etc.)

Social Media – All social media apps, including Facebook, Pintrest, Tinder, Instagram, etc.

Other - Scanner Radio, ESPN Tournament Challenge, Societi - TV Shows Trivia Game, and truTV Impractical Jokers

Music and Audio – This includes all music and audio apps including Sirius XM, Apple Music, Google Play Music, Pandora, etc.

Games – This is all gaming apps such as Pokeman Go, Roblox, Solitaire, etc.

Evaluation of the Findings and Conclusion

The theoretical underpinning of this study included use of the transformational leadership (TL) theory. In analyzing the datasets and as presented herein, it was very evident, that the differentiation between the leading players of Verizon, Sprint, T-Mobile, and AT & T appear paper thin in terms of differentiation in technological and service offerings, a reasonable inference then would be the marketing in projecting being superior among equals, where the quality and customer focus of the sales teams is a key determination of success. The examination of the study findings from the undertaken analysis against the postulations of the

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transformational leadership theory offered valuable ways to analyze the research from descriptive, inferential, and theoretical dimensions. The holistic research and analysis, by integrating the lens of the transformational leadership theory may be of utility and value to businesses and managers pursuing growth and increased revenues in a field of intense competition.

The analysis of the leading players indicated their respective market share, and financial strengths. In re-visiting the postulations for the TL theory, the competitive climate of the telecommunication industry, where customers have the final say in making choices in purchasing services, arguably requires inspirational leadership to motivate sales and marketing tams to acquire and retain customers, which may be a critical differentiating factor in being superior among veritable equals. The qualities of transformational leadership therefore may be the differentiating factor in the guidance and the motivational inspiration to sales and marketing teams, which galvanizes and spurs enduring relationships in winning new customers and retaining them. The qualities of adaptive, agile transformational leadership are hence the deciding factor in achieving competitive advantage and business sustainability, and in transforming the organization to higher performance levels with the rapid evolutions in smart phones and telecommunication technologies.

The onus is on telecommunication firm sales management to prudently develop sales teams and leaders. Arguably, the advancements in technology must be met with commensurate change management strategies and human resource adeptness, notably in the supervisors and managers leading at the helm. These individuals must display change receptivity and adeptness to, bring about the change in the organization to present a genuine and fully customer-oriented focus and helps developing leadership qualities with the imparting of skilled customer-oriented mentorship and guidance. Revisiting the desired traits of transformational leadership, the ability to motivate, inspire and positively shape, change, and transform organization is reflected in the critical attributes that these leaders must exemplify, notably of: 1. idealized influence, 2. inspirational motivation, 3. intellectual stimulation, and 4. individual consideration (Kendrick, 2011).

Transformational leadership theory espouses the positive and beneficial transformational change abilities of individuals in vaunted positions in sales and management hierarchy, in the

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context of this study. It is incumbent upon these leaders to inculcate desired attributes and behaviors in the workforce, to successfully negotiate the change of the business and marketing environment, greater customer appreciation and service proclivity. Transformational leaders are the factor in driving positive change, as outlined from analysis, which also stems from the twin factors of rapid technological evolutionary trends in the telecommunication industry, and the greater purchasing power of more informed customers in opting for features of conveniences and necessity in everyday life (Table 6) The positive influence in transformational leadership can be in enhancing sales and customer acquisition and retention marketing, by fostering an environment and competencies within the sales organization, to be superior among veritable competitive equals. Inyang, Agnihotri and Munoz, (2018) found, that transformational and transactional leadership styles are complimentary, and leaders can deftly use these styles to improve the strategy implementation behaviors of their salespeople.

The data analysis in Figure 2 displays the market share of leaders, as well as churn rates in Table 6, and Figures 3, are indicative of almost identical strengths, and therefore makes the argument valid for the invocation and application of the principles of the TL theory relevant to business sustainability, Sales leaders must inspire and influence the customer focused strategy and quest for competitive advantage. The analysis presented, with the accompanying graphical and tabular representations (Tables and Figures 1 to 10), can be further supplemented by undertaking a gap and SWOT analysis in assessing the deficit between current and desired performance. The process of continuous improvement and ongoing learning may also help leaders to re-orient workforce performance in the sales driven telecommunication sphere, with the anticipated revenue generation, and customer acquisition and retention from strategic change management. In tandem with the findings and analysis presented herein, the lens of transformational leadership theory may thus have practical and strategic implications in changing an organization. Consistent with the trends of frequent new generations of smart phones, and the climate of less loyal customers, whose reliance on smart phones for speed, superior service features, sales diligence and competence may be critical.

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SCIENCE SOCIETY AND TECHNOLOGY:
USING UNIFIED MODELLING LANGUAGE AND FACES

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International Conference – "Global Collaboration in STEM & Humanities to Advance the Frontiers of Knowledge & Innovation"

St. Francis de Sales College
Seminary Hills, Nagpur, India

March 8-13, 2021

SCIENCE, SOCIETY AND TECHNOLOGY

USING UNIFIED MODELLING LANGUAGE AND FACES

This paper is a deviation from the traditional and descriptive textual form, as the details are presented in resource specifications and as data flow diagrams. The sequential stages are presented as an explicit pathway, which depicts the culmination as Image Acquisition.

1 SOFTWARE RESOURCE SPECIFICATION (SRS DOCUMENT)

R 1 : - Image Acquisition

I/p : - Input Image

Process : - Store Image

O/p : - Store Image

R 2 : - Find Templates ‘or’ feature points

R 2.1 : - Find Templates

I/p : - Input Image

Process : Filtered Image

O/p : - Store filtered image in database

R 2.2 : - Find features points

O/p : - Store feature points in database

R 3 : - Find distances

I/p : - Input filtered Image

Process : Find distances between test image and images in database

O/p : - Store the maximum similarity image as identified image.

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2 DATA FLOW DIAGRAM (CONTEXT DIAGRAM)

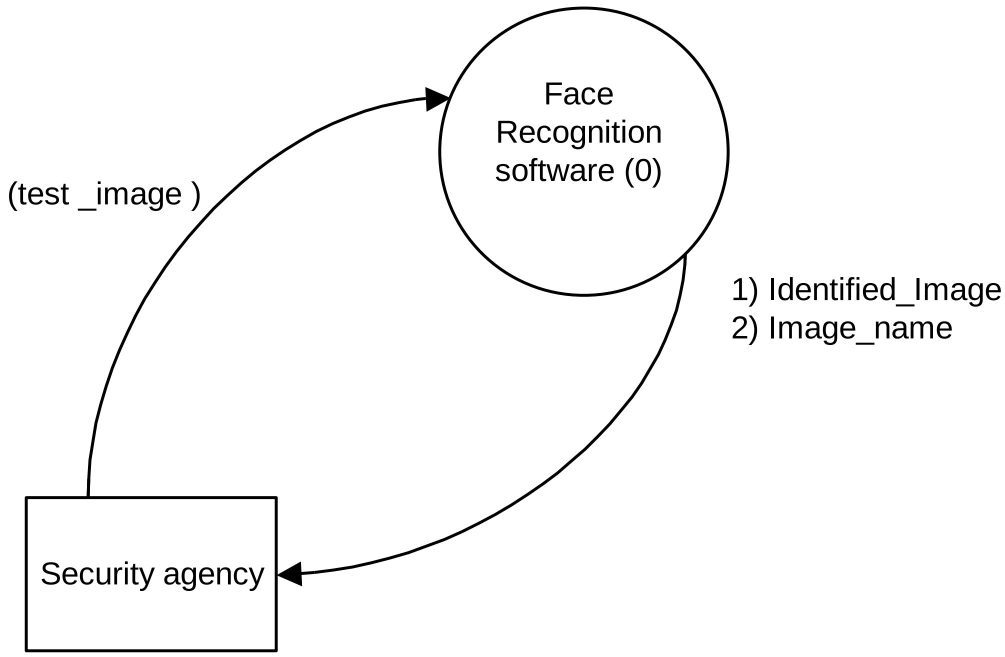

Fig. 1 Showing the Context Diagram

* **Data Dictionary for Context diagram**

Test_image = image

image = Image

Image_name = name

name : String

Identified_image = name

* **Context diagram string shows the interaction between security Agency and the Fare Recognition Software.**

DATA FLOW DIAGRAM – I

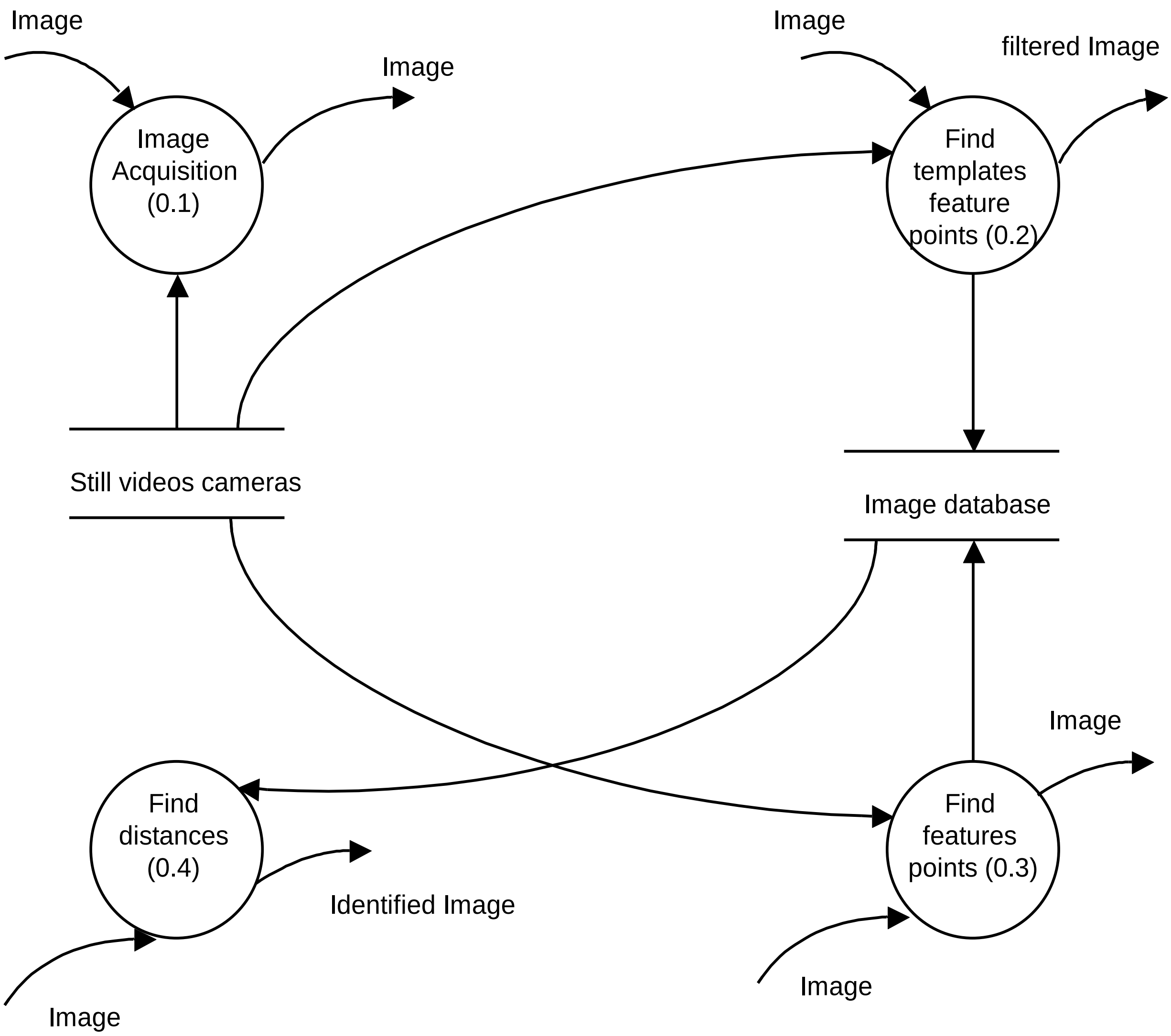

Fig. 2 Showing the Data Flow Diagram

*

Data Dictionary for DFD – I

image = image_name

image_name : String

Identified _image : Image

feature_points = fet

fet : Number

distances = dist

dist : Number

*** STRUCTURED CHART**

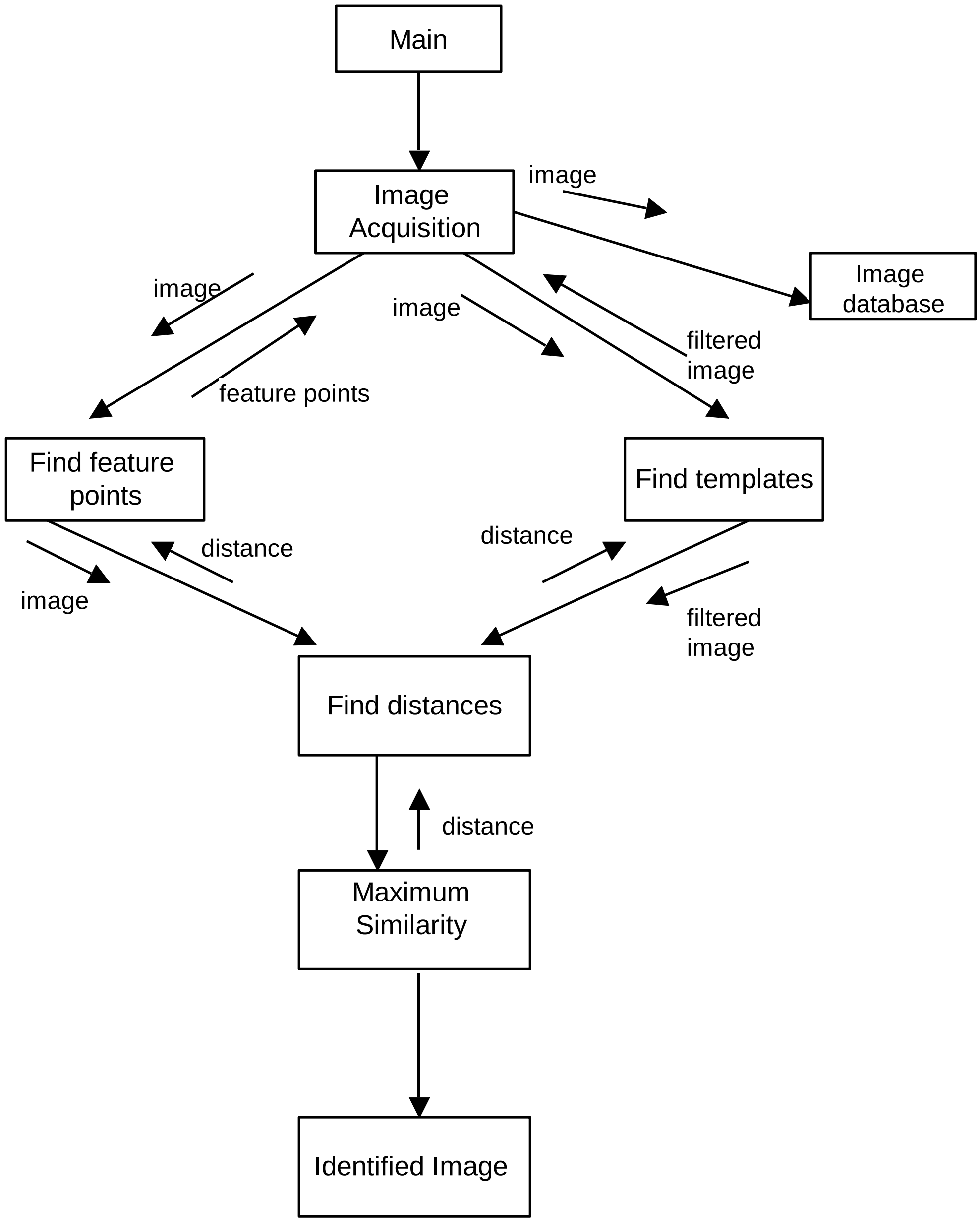

Fig. 3 Showing the Structured Chart

3 USE CASE DIAGRAM

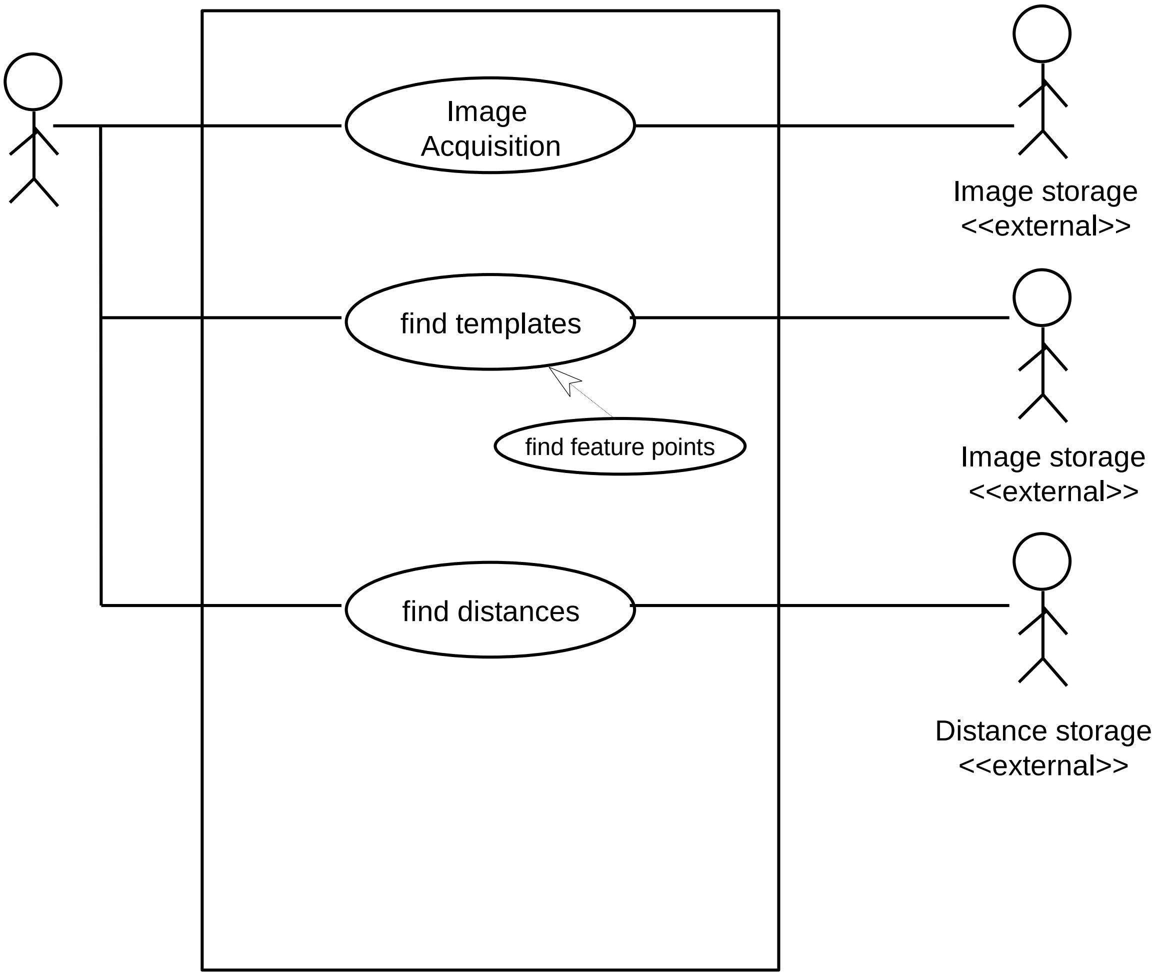

Fig. 4 Showing the Use Case Diagram

*** Test Description of Use Case Diagram**

Main Line Sequence

1) Image Acquisition Use Case

User Action	**System Response**
1. Input Image	2) Store image in database

2. Find templates Use Case

1. Input Image	2. Filtered image

3. Find feature points use case

1) Input Image	2) Image with feature points

4. Find distances

1) Input filtered image

2) Store distances in database and find the identified image

4 CLASS DIAGRAM

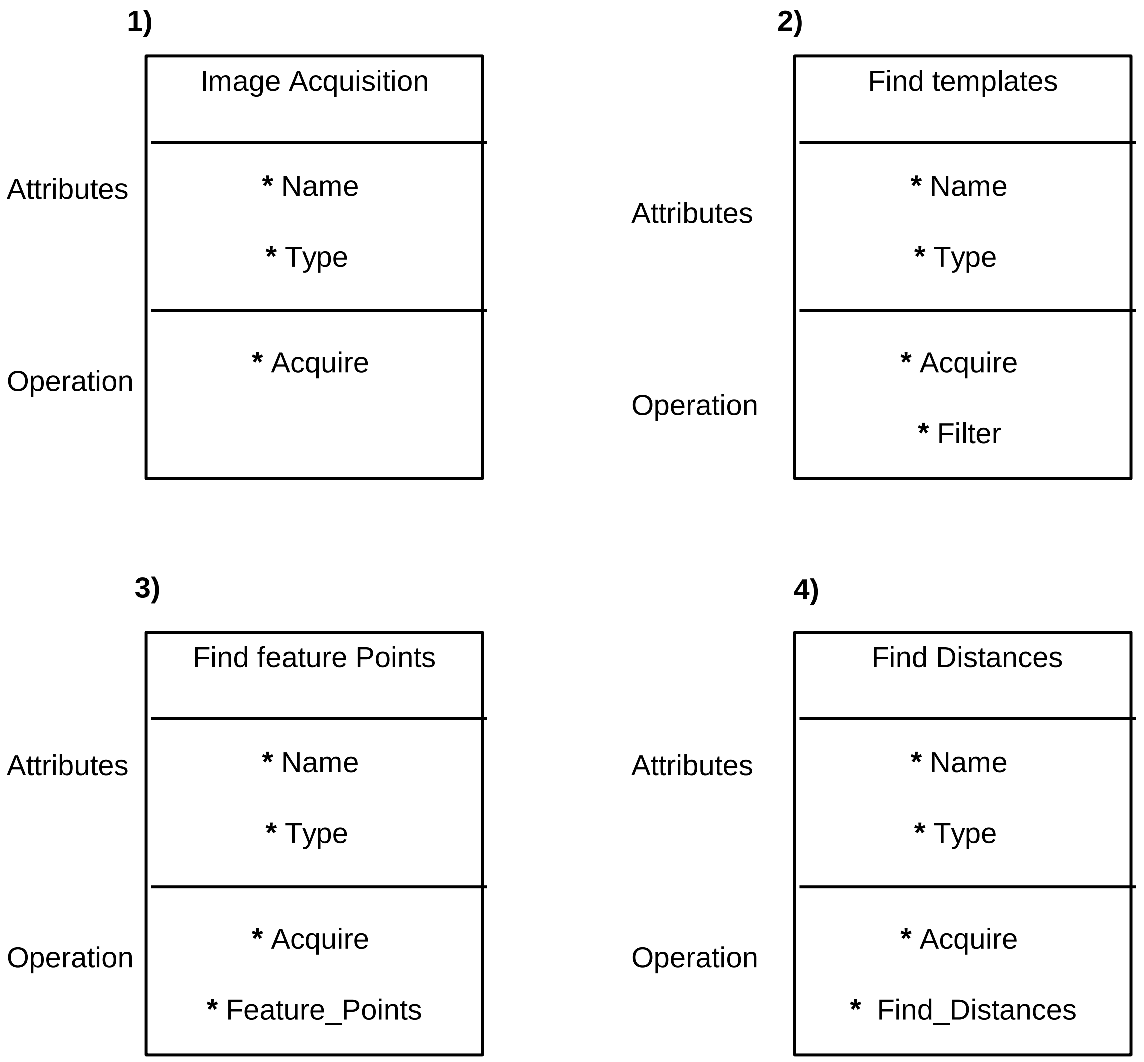

Fig. 5 Showing the Class Diagram

*** Relationship among classes (from computer)**

- Image Acquisition class is for acquiring images
- Find feature points class is for finding feature points
- Find template class is for finding templates of faces
- Find distance class is for finding distances among templates or feature points.

*** Class Diagram Description**

1) There is a class hierarchy in class diagrams

2) The relationship is a dependency among the class.

5 SEQUENCE DIAGRAM

Sequence Diagram for Image Acquisition

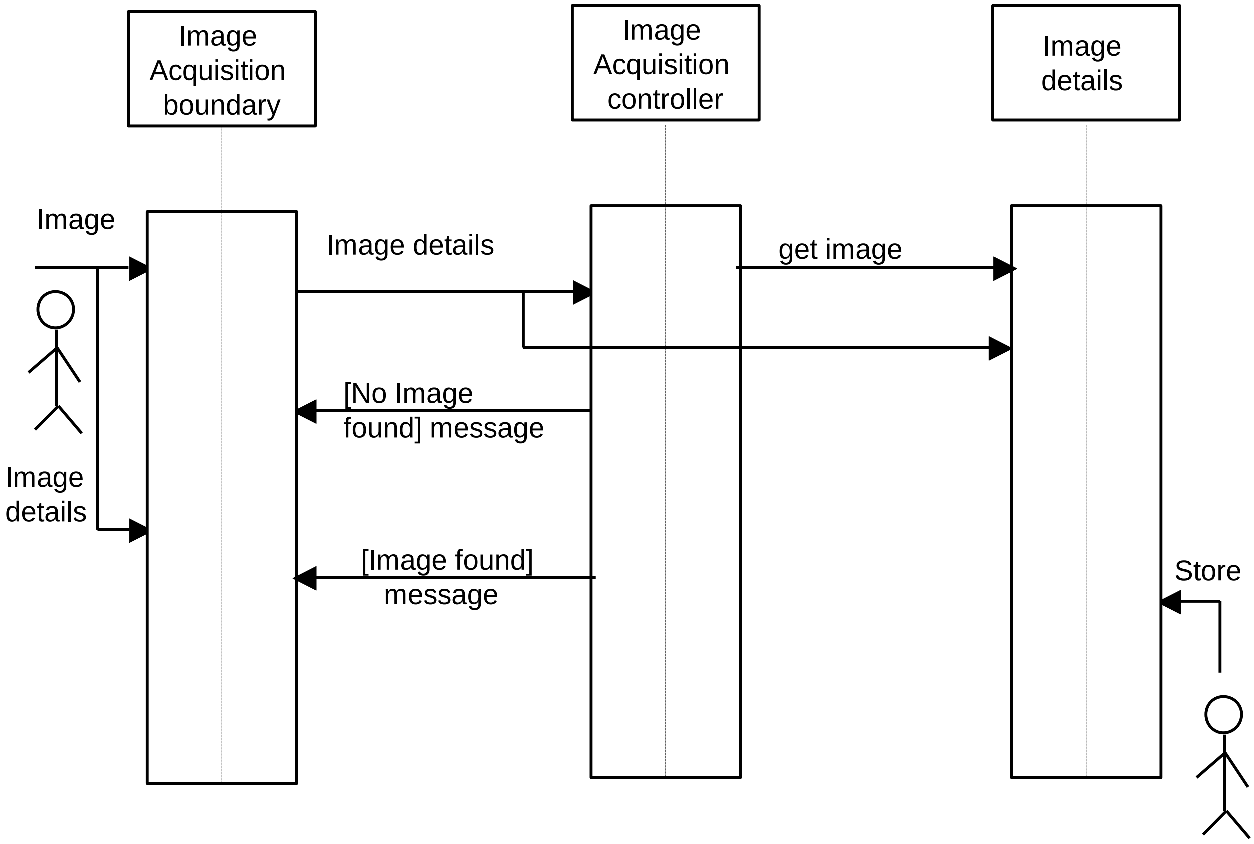

Fig. 6 Showing the Sequence Diagram for Image Acquisition

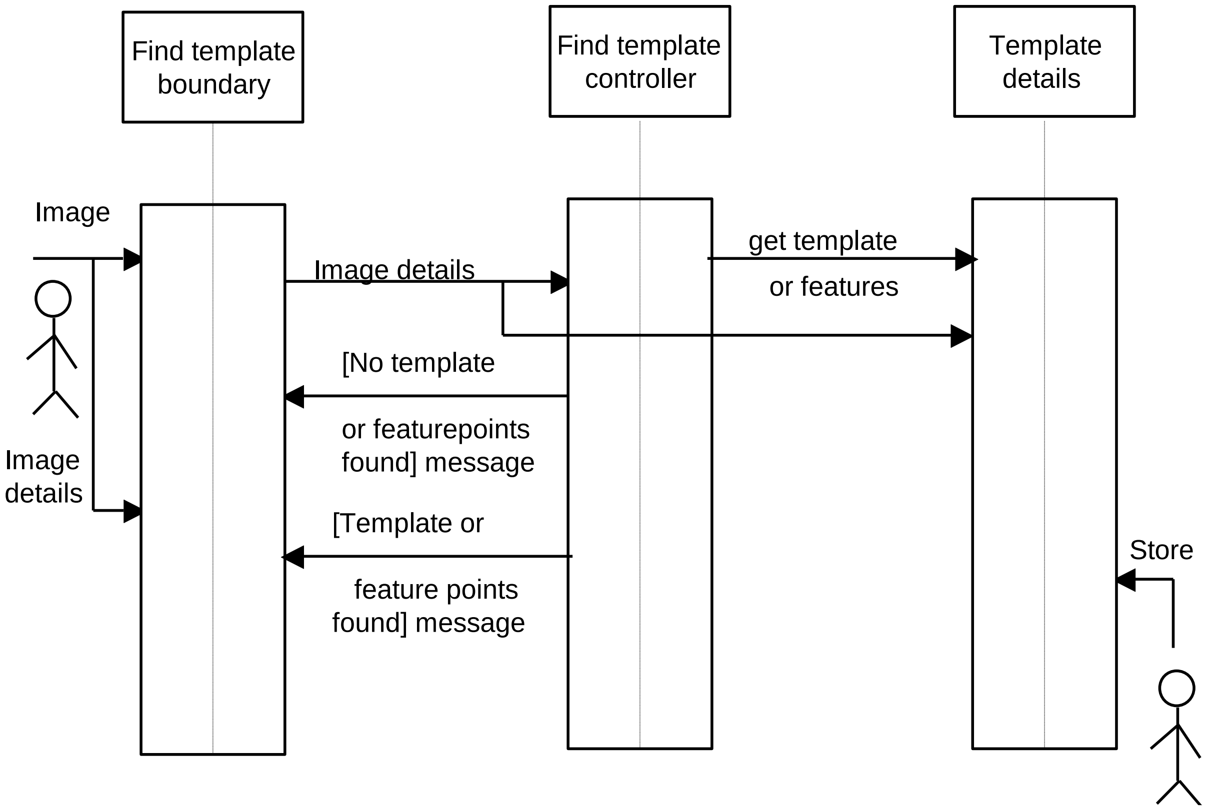
Find template boundary
Find template controller
Template details
Image
Image details
Image details
get template
or features
[No template
or featurepoints found] message
[Template or
feature points found] message
Store

Fig. 7 Showing the Sequence Diagram for Finding Templates

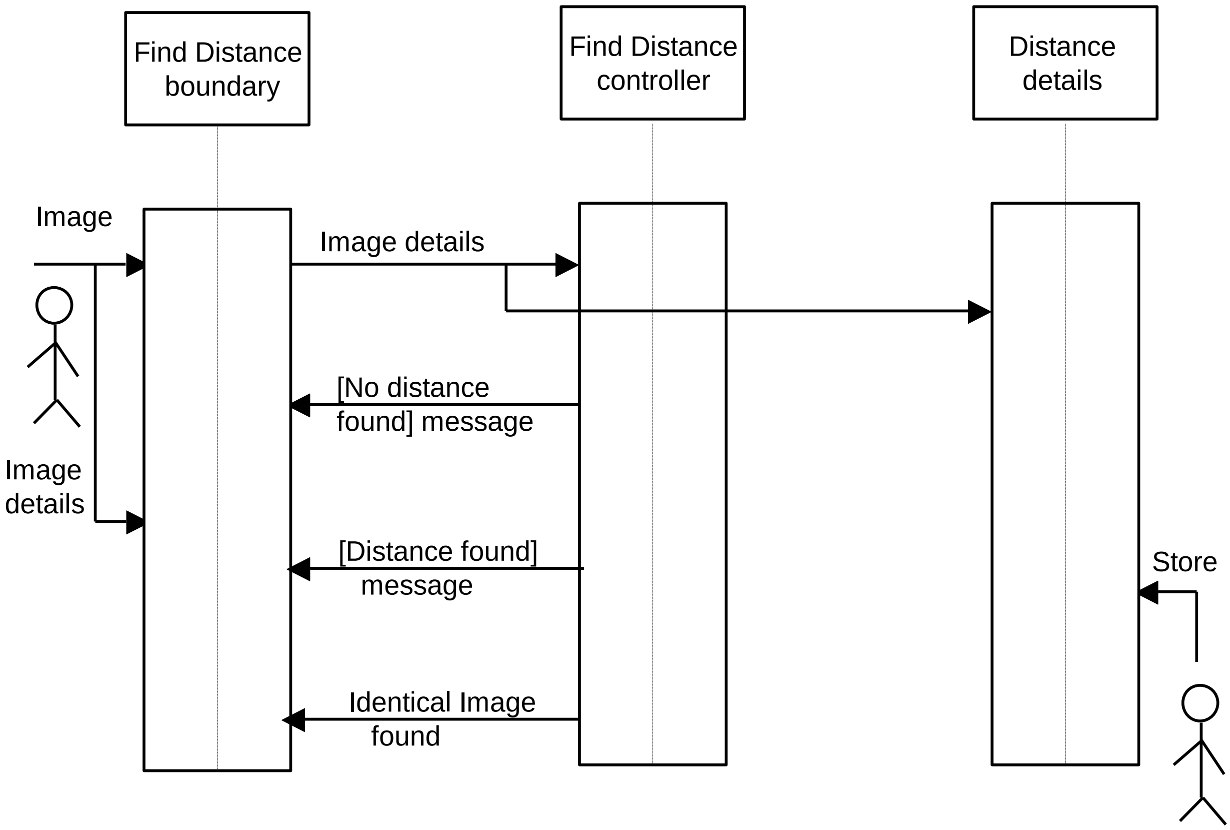

Fig. 8 Showing the Sequence Diagram for Finding Distances

6 COLLABORATION DIAGRAM

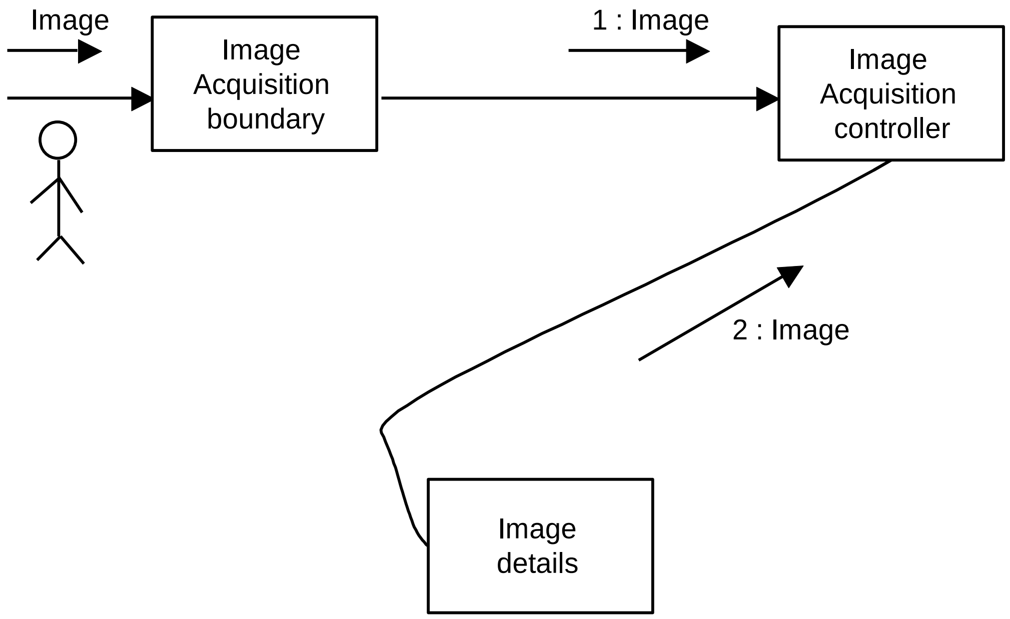

Fig. 9 Showing the Collaboration diagram for Image Acquisition

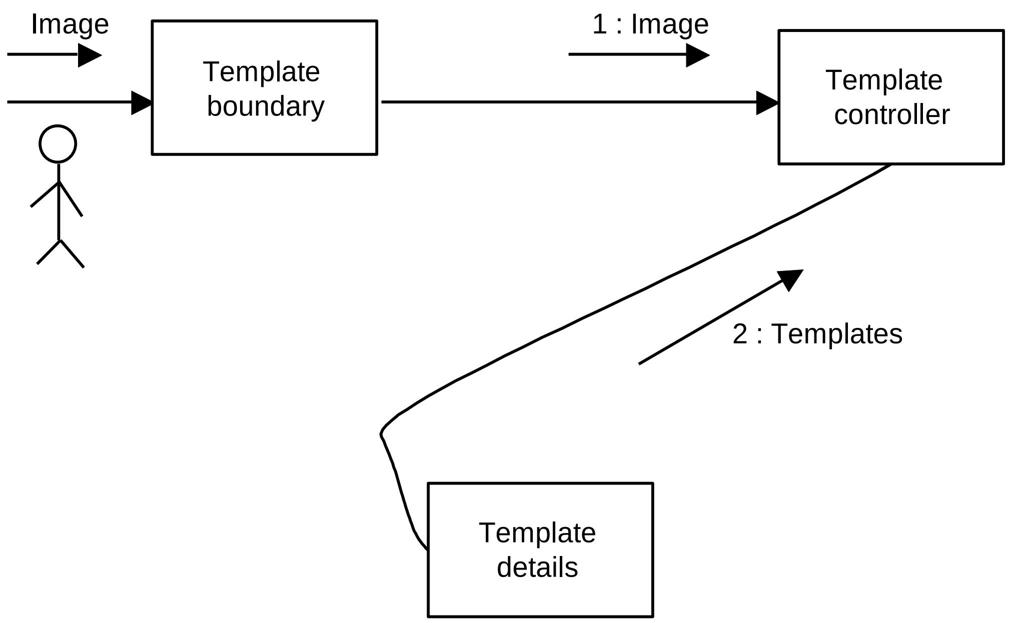

Fig. 10 Showing the Collaboration diagram for finding templates

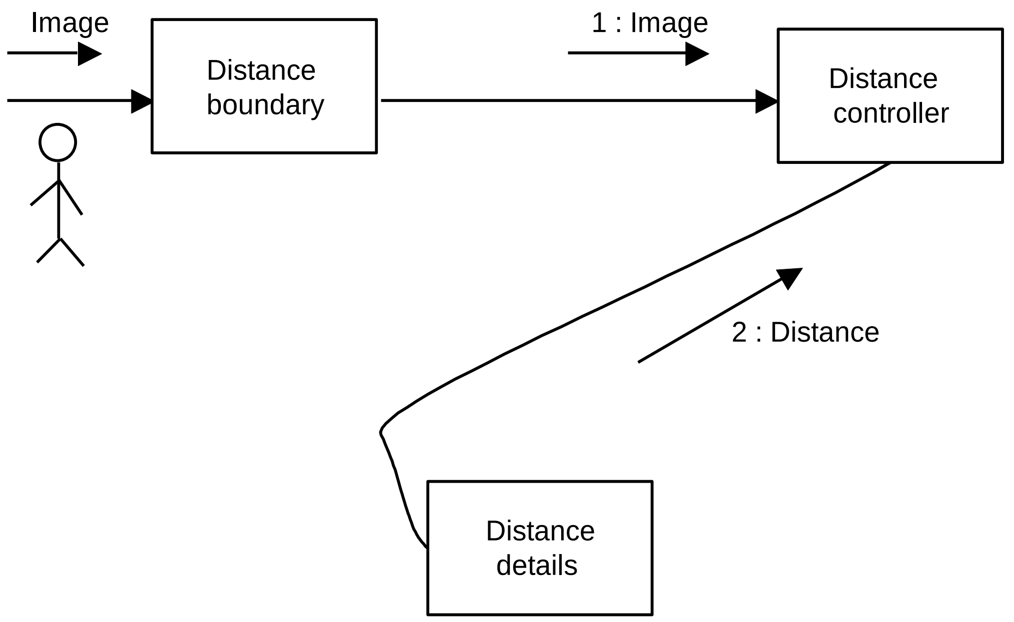

Fig. 11 Showing the Collaboration diagram for finding distances

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1. Facial Recognition Manuals.
2. Facial Analysis Manuals.

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CULTURAL COMPETENCY AND SPIRITUAL ECOLITERACY

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Abstract

Cultural competency has become a topic in recent years due to an increased globalized society and issues with inequality, bias, and a breakdown in intercultural communication (Mareno& Hart, 2014). When people are faced with cultural differences, they may experience uncomfortableness and may experience stages of egocentrism before developing into ethnorelativism (Bennett, 2012). Spiritual ecoliteracy provides purpose and meaning making in life learning through reading the world with the head, heart, hands, and spirit (Lees, 2017, 2021, 2021). In this article, we provide the elements of cultural competency and the methods used in ecoliteracy to increase cultural, spiritual, and ecological understandings. This article was a presentation on March 8th, 2021 at the Global Collaborations in Science, Technology, Education, Mathematics (STEM) & Humanities to Advance the Frontiers of Knowledge and Innovation Conference at St. Francis de Sales College, Seminary Hills, Nagpur India via virtual learning.

Keywords: Culture; cultural competency; ethnorelativism; spiritual; ecoliteracy; spiritual ecoliteracy; pedagogy

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Cultural Competency and Spiritual Ecoliteracy

Cultural competency has become a topic in recent years due to an increased globalized society and issues with inequality, bias, and a breakdown in intercultural communication (Mareno& Hart, 2014). When people are faced with cultural differences, they may experience uncomfortableness and may experience stages of egocentrism before developing into ethnorelativism (Bennett, 2012). Spiritual ecoliteracy provides purpose and meaning making in life learning through reading the world with the head, heart, hands, and spirit (Lees, 2017, 2021, 2021). In this article, we provide the elements of cultural competency and the methods used in ecoliteracy to increase cultural, spiritual, and ecological understandings. This article was a presentation on March 8th, 2021 at the Global Collaborations in Science, Technology, Education, Mathematics (STEM) & Humanities to Advance the Frontiers of Knowledge and Innovation Conference at St. Francis de Sales College, Seminary Hills, Nagpur India via virtual learning.

Why is Cultural Competencies a Topic?

Increased globalized societies and issues with inequality, bias, and breakdown in intercultural communication has amplified cultural awareness (Mareno& Hart, 2014). Societies have become more interactive through technology creating an interaction between many different cultures (Palvia, Aeron, Gupta, Mahapatra, Parida, Rosner & Sindhi, 2018). Issues of inequality span the globe and have become more prevalent with some cultures gaining more power than other cultures (Langer & Brown, 2007). The increased intercultural interaction has raised the question of how to interact with care, empathy, and equity.

What is Cultural Competency?

Cultural competency is the ability to understand how to effectively interact with cultures across the world and consists of knowing your culture, knowing different cultures, suspending judgement, gathering multiple view points and synthesizing them, respecting differences, and leading with courage and empathy (VIF International Education, n.d.). Knowing your own culture is recognized through the comparison of different cultures. The comparison allows a

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greater knowledge of the elements of one's culture they may not have noticed without the comparison. It also allows an expansion of understanding another culture. Interactions with different cultures may create difficulties which requires the suspension of judgement to gain a deeper understanding of the different culture. Learning multiple view points and amalgamating them will provide a greater depth of understanding of the world. Understanding how to respect differences is an essential part of being cultural competent as it allows for individuality and reverence. Lastly, leading with courage and empathy provides leadership and guidance that supports individuality.

Importance of Cultural Competency

Proficiency in cultural competence allows for increased communication, effective interactions, and a reduction of negative behaviors, beliefs, and actions (Asian Society, 2020; Binger, 2018; Binger & Hassan, 2021). It encourages the acceptance of differences in cultural appearances, behaviors, and traditions. Increasing positive interactions with others can be powerful providing effective positive change around us and within us.

What Happens When Cultural Differences are Introduced?

People experience stages of cultural understanding as they interact with cultures different from their own. Their perceptual organization become more complex and sophisticated increasing the potential for intercultural relationships to be more productive, beneficial, and pleasurable (Bennett, 2014). The six stages of cultural experience (denial, defense, minimization, acceptance, adaption, and integration) progress from ethnocentrism to ethnorelativism with the final stage allowing individuals to fluidly move within different cultures effortlessly. The closer we become to ethnorelativism, the more we are able to adapt to multiple perspectives, accept the importance of cultural differences, and the understanding that our personal beliefs are just one way of life. Examining, understanding, and sharing in multiple perspectives concerning an individual, cultures, and the world can be aided with a pedagogical tool like that of spiritual ecoliteracy.

 ISBN: 978-81-948301-9-1

What is spiritual and what is ecoliteracy?

Spiritual is defined as the uniquely creative expression of humans taking a particular teaching(s), any teaching(s), and bringing them to life in an engaged effort involving commitment, purpose, and dedication. Such efforts support the establishment of meaning making, connection, and motivation (Lees, 2021a).**Ecoliteracy** is defined as learning how to read the world with the head (cognitive), heart (intelligence), hands (experience), and spirit (language as method towards meaning making) (Lees, 2017). FritjofCapra's theoretical foundation for ecoliteracy is called *The Web of Life* (Lees, 2017). The Web of life consists of four main constructs that include: pattern (form), structure (matter), process (autopoiesis), and meaning (construction of language) (Lees, 2017).Ecoliteracy then is an ecologically systems-based organic and ***objective*** approach towards recognizing that all sentient life participates in interdependent activities and relationships. These relationships are considered as being a part of, yet greater than the sum of its parts, and within all of the Earth's and cosmos's living systems (Lees, 2021b).

Spiritual ecoliteracy is defined as the ***objective*** and ***subjective*** spiritual development of ecoliteracy through acts of learning and doing using our head, heart, hands, and spirit. Ecoliteracy, and particularly spirit, is not only grounded in language construction, but now also includes meaning making that is driven with purpose, motivation, commitment, and dedication towards the evolution of meta-spiritual intelligence (Lees, 2021a). Meta-spiritual intelligence is defined as, "individual capacity to see a whole-system with an objective point of view in an effort to determine adequate affective responses" (Lees, 2021a,p. 19). The development of meta-spiritual intelligence supports a deeper understanding for our interdependent relationship with life by building a bridge between our ***objective*** and ***subjective*** responses towards digesting how we learn ***about*** (objective), and in turn ***do*** (subjective), living. Spiritual ecoliteracy is the fostering of objective "big-picture" think relative to subjective motivation, purpose, and meaning

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making. Spiritual ecoliteracy consists of three lenses that support the development and practice of this worldview.

What are the three lenses of spiritual pedagogy?

The **three lenses** for developing a pedagogy for study, practice, and doing in spiritual ecoliteracy include the personal, social, and ecological (Lees, 2021b). Each lens involves a way of looking, seeing, studying, learning, processing, engaging, and embodying that which is the focus of attention. Each lens provides means and methods towards understanding our objective (empirical and as unbiased as is possible) and subjective (phenomenological, emotive, and felt) responses to our personal, social, and ecological interrelationships. All of which are nested within the experiences of our immediate personal, local, global, and cosmological environment. These three lenses provide the foundation for the development of pedagogical approaches to learning within and across subject disciplines (the sciences and humanities) in the classroom as well as the school of life. None of this will work without practice if one seeks to see actions and outcomes manifested in the experiences of learners inside and outside any classroom.

What does practice, actions, and outcomes look like in spiritual ecoliteracy?

Practice involves action toward improvement. Any action for improvement requires commitment and dedication. Something that you, as the individual, do repeatedly, for a long, long time. Practice means doing. Practice is understanding (objectivity) in action and spirituality (subjectivity) through direct experience. Practice is where we foster meaning making and development of purpose. Practice involves knowledge-building concerning interdependence within living systems and our phenomenological responses to biology and physics. Most importantly practice hopefully leads to the manifestation of knowledge and the transformation of said knowledge into wisdom. A gained sense of wisdom that balances human approaches to ***life living us*** on personal, local, and global levels. Practice means live, study, learn, do. Life takes work and life takes play. Practice shows openings and limitations. Practice is never easy. But, without practice when would

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we know to laugh or cry, know peace instead of war, and appreciate the AH-HA moments of our lives lived in what is only a temporary and impermanent situation? Through practice, personal, social, and global awareness is now supported with a deeper understanding concerning individual relationships with history, space, place, culture, belief, philosophy, and scientific constructs. An individual's social, emotional, and spiritual intelligence garners the potentiality to develop and question, with critical thinking, logic, reason, and creativity, the problems everyone faces daily. Spiritual ecoliteracy provides an expanded world view that includes objective and subjective understanding while supporting the solving of personal, local, and global problems with authentic aspirations, ideas, meaning making, and purpose (Lees, 2021b).

Conclusion

We currently find ourselves in a world that is weathering a pandemic of global proportions. Peoples around the world are getting sick and losing loved ones. A pandemic provides a teaching in what unifying as peoples on a global scale can potentially look like. Understanding one another. Understanding each other's cultures, traditions, and worldviews provides avenues towards bridge-building and barrier braking in order to work towards coming together to overcome a pandemic and other divisions that have long kept peoples at war and apart. Awareness surrounding cultural competency and using a tool like spiritual ecoliteracy in pedagogical practice provides the ability to look at what works and does not work on personal, social, and ecological levels. Using the right lenses creates proper sight. With proper sight action can be taken. Knowing how to craft the lens, clean the lens, and use the lens is what makes seeing clearly possible. Cultural competency and spiritual ecoliteracy provide means to exploring, understanding, and learning what it means to be a global world. With each and every uniqueness that are a peoples in tow.

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DETERMINING PERCEIVED BARRIERS AFFECTING PHYSICIANS' READINESS TO DISCLOSE MAJOR MEDICAL ERRORS

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Abstract

Medical errors have been detrimental to patient outcomes in the field of medicine have adverse consequences on patients and physicians. In There is often a dilemma, in that while physicians often recognize that admitting and disclosing medical errors is an ethical and professional obligation, many remain silent in such instances, for different reasons. Guided by the theory of planned behavior and Kant's deontological theory, the purpose of this quantitative study was to investigate the perceived barriers affecting physicians' willingness to report major medical errors. An association was tested between the independent variables of physician fear of disclosure of errors, organizational culture toward patient safety, physician apology, professional ethics and transparency, physician education, and the dependent variable physician willingness to disclose major medical errors. Using a cross-sectional method, 122 physicians out of 483 surveyed, completed the online and paper-based survey. Multiple linear regression and descriptive statistics models were used to analyze and summarize the data. The results showed a statistically significant relationship between the independent variables of organizational culture toward patient safety, physician apology, professional ethics and transparency, and physician education and the dependent variable of physician willingness to disclose major medical errors. There was no relationship between the independent variable fear of disclosure of errors and the dependent variable. The study findings may contribute to knowledge on the medical error disclosure by physicians. The results and recommendations could contribute to hospitals raising physician awareness of the importance of reporting and disclosing major medical errors.

Keywords: Descriptive and inferential statistics; deontological theory; independent and dependent variables; medical errors; multiple linear regression; physician education.

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Introduction

Medical errors are common in contemporary settings and frequently occury in hospitals and other health care organizations (Bonney, 2014; D'Errico et al., 2015; Guillod, 2013). The rate of errors and the consequent preventable adverse events among hospital patients ranged from 4% to 16% (D'Errico et al., 2015). For many years, medical errors became the focal point for patient safety and quality improvement (Lipira & Gallagher, 2014; Poorolajal, Rezaie, & Aghighi, 2015). Medical errors were ranked as the third leading cause of death in the United States (U.S.) resulting from either individual mistakes, or system failures (Bonney, 2014; D'Errico et al., 2015; Kalra, Kalra, & Baniak, 2013; Nevalainen, Kuikka, & Pitkala, 2014). The Institute of Medicine, IOM (1999) estimated that medical errors were responsible for approximately 44,000 to 98,000 deaths annually in the U.S. While these medical mistakes caused fatalities, the costs were significant to the U.S. economy, and hospitals spent an estimated \$3.5 billion per year on costs associated with the errors (Kalra et al., 2013). The IOM (2001) offered prospective recommendations to reduce problems related to medical mistakes and these reports included analysis and reasons for medical error issues and the consequences on patient safety and health care quality.

Medical errors have remained an important issue for health care organizations and physicians in the U.S. and worldwide (Elwahab & Doherty, 2014; Plews-Ogen, Owens, &May, 2013). When the mistakes occur, physicians were usually found reluctant to report them. Although 87% of physicians recognized that it has been their ethical duty to admit errors, only 37% reported these errors (Anwer & Abu-Zaid, 2014; D'Errico et al., 2015; Kachalia & Bates, 2014). The reporting data showed a discrepancy between what physicians said and did. The AMA (2016) reportd, that in the case of complications resulted from the physician's mistake, the physician is ethically required to inform the patient. The Patient Safety and Quality Improvement Act of 2005 encouraged voluntary reporting of adverse events, and therefore, reinforced the AMA Code of Medical Ethics (Agency for Healthcare Research and Quality [AHRQ], 2012). However, despite these efforts facilitate the disclosure of medical mistakes, medical errors remain underreported.

The disclosure of medical errors remained a significant measure of patient-centered healthcare, and an essential element of patient safety and quality improvement (Lipira &

Gallagher, 2014; Martinez & Lehmann, 2013). Despite growing pressures to disclose errors, 51% of physicians who committed mistakes never reported medical errors (Poorolajal et al., 2015). Underreporting of medical mistakes may be the results of barriers such as lack of appropriate training in handling medical mistakes and the fact that physicians were less likely to disclose errors they felt were not severe (Lipira & Gallagher, 2014; Poorolajal, 2015). Other factors that have inhibited physicians' reporting of errors included fear of legal actions, loss of trust, and loss of job or position (Jahromi, Parandavar, & Rahmanian, 2014; Soydemir, Intepeler, & Mert, 2016; Wu et al., 2013). However, Zaghloul et al. (2015) showed that fear of litigation and other barriers such as loss of reputation and organizational culture constituted the biggest hurdle that limited physicians' ability to report mistakes. Zaghloul et al. laid out five factors that represented major barriers to disclosure. These are factors on which this study was based, and are fear of disclosure, physician apology, organizational culture toward patient safety, professional ethics and transparency, and patient and physician education (Zaghloul et al., 2015). The U.S litigation system has provided incentives through settlement for the patient who sued a doctor; however, not all states have protected physician statements related to medical mistakes reporting. The lack of protection and the ensuing consequences has therefore, this made it sometimes difficult for a physician to report and disclose errors (Wu et al., 2013).

The objective of the study was to contribute new understanding to existing knowledge on voluntary disclosure of medical errors. By understanding physicians' reluctance to come forth, regarding errors admission and gaining insight into medical errors disclosure, it might be possible for hospitals and health care leaders to design an intervention to help physicians disclose medical mistakes as soon as these occur.

Background

Approximately 44,000 to 98,000 people die in U.S. hospitals each year due to medical errors (Bonney, 2014; D'Errico et al., 2015; Guilod, 2013; IOM, 1999; Kalra, Kalra, & Baniak, 2013). While these errors caused harm, these are often underreported. Over a decade, the Joint Commission (2016) has mandated hospitals and physicians to divulge medical errors irrespective of the physicians' liability concerns, although compliance with this directive has not yet been fully realized in the U.S. Even though the AMA Code of Ethics (AMACE) recommended that

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physicians admit errors, physicians' disclosures differed significantly. Only 33% of nearly 90% of physicians who admitted. that error disclosure was an ethical duty, there were often lapses in reporting mistakes (Anwer & Abu-Zaid, 2014; D'Errico et al., 2015; Kachalia & Bates, 2014; Taggaddosinejad, Mesri, Sheikhazadi, Mostafazadeh, & Farahani, 2013). Statistics revealed a discrepancy between physicians' willingness to admit errors and current medical mistake reporting practices, however the reasons behind this behavior was not well studied. The principal reasons for physician reluctance to report errors were the fear of litigation, perceived loss of reputation, and the relative absence of legal protection for physicians (Jahromi et al., 2014; Wu et al., 2013). Therefore, this study was vital to understand the perceived barriers that prevented physicians from reporting medical errors and a reluctance to comply with the Joint Commission mandate and the AMA Code of Ethics.

Wereused the Zaghloul et al. questionnaire with two critical variations. First, werepeated the questionnaire in the U.S. to study any variation in results due to changes in organizational behavior and culture. Second, welimited collected responses to major mistakes, only so that the effect of these variables on perceived barriers could be identified. The study was deemed necessary, to advance understanding of the reasons behind physician reluctance to report errors.Using the Zaghloul et al. instrument in the U.S. helped determine the variance in results that may be due to the influence of organizational and cultural norms and see the effects on phyisicians perceptions. From the results, it could be possible to develop strategies to alleviate barriers which hindered physician errors reporting. The reason for lessen barriers to errors reporting was that knowing how errors happened, physicians and health care institutions could initiate preventive and proactive actions to correct these errors from occurring, thus improving patient safety and fostering a culture of safety (Crane et al., 2015; Kachalia & Bates, 2014).

Identified Problem

In the U.S., medical errors occurred frequently in hospitals (D'Errico et al., 2015; Guillod, 2013; Rafter et al., 2014). Belgian, Portuguese, and U.S. hospitals combined have shown, that the median percentage of adverse events among hospital patients was 9.2% (Marquet et al., 2015; Sousa et al., 2014; Rafter et al., 2014; Zeeshan, Dembe, Seiber, & Bo, 2014). In the United States, these errors were responsible for the deaths of approximately 44,000 to 98,000 people annually (D'Errico et al., 2015; Wu, Boyle, Wallace, & Mazor, 2013). Patients and the public wanted errors to be disclosed, but many physicians or medical practitioners are reluctant for fear of legal actions and loss of trust (Anwer & Abu-Zaid, 2014; D'Errico et al., 2015). Although 90% of health care professionals have agreed to errors disclosure in a hypothetical situation, less than 40% disclosed mistakes when these happened, showing a mismatch between what was said and done (Anwer & Abu-Zaid, 2014; D'Errico et al., 2015).Although 87% of physicians considered that it was a deontological and ethical duty to admit mistakes, only a few, 33%reported errors (D'Errico et al., 2015; Kachalia & Bates, 2014).

Purpose and Motivation for Study

The purpose of this cross-sectional quantitative study was to determine and understand perceived barriers affecting physicians' readiness to disclose major medical errors. A primary focus of health care has been to evaluate physicians' attitudes toward errors admission in order to improve a proper disclosure of error (Kalra, Kalra, & Baniak, 2013). To address the barriers to error disclosure, in this the study, a cross-sectional online and paper survey method served to examine the relationship between perceived barriers and the willingness of physicians' to disclose major medical mistakes.

Data Collection

The theory of TPB and Kant's deontological theory grounded this research. Data was collected data through a paper-based questionnaire and administered via Survey Monkey, with physicians operating in three community hospitals, representing the population. These three hospitals were in Iowa and Illinois. Weemailed 194 physicians and mailed 289 physicians. A total of 483 questionnaires were sent via email and mail. 12 emails and 6 mail questionnaires were sent back because the participants were no longer working in these hospitals. The response rate was 25%. Six minutes and 20 seconds was the typical time spent by physicians to complete the online survey. Weanalyzed data gathered using the International Business Machines (IBM), Statistical Package for the Social Sciences (IBM SPSS) statistics version 24.

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Potential Importance of the Study

Medical errors have frequently occurred at a high rate in U.S. hospitals (D'Errico et al., 2015; Guillod, 2013). Some physicians often seem reluctant to disclose errors to patients and families (Anwer & Abu-Zaid, 2014; D'Errico et al., 2015). The aim of this research was to contribute to knowledge and fill a gap in understanding barriers to medical mistakes reporting by focusing on understanding the factors that influence physician disclosure of medical errors. The findings of this study may be of significance, as could potentially prompt health care organizations adopt and promote patient safety culture.

Though medical errors cause approximately 44,000 to 98,000 deaths annually in the United States, they also had a financial cost (Bonney, 2014; D'Errico et al., 2015; Guilod, 2013; IOM, 1999; Kalra et al., 2013). According to Kalra et al. (2013), forty-five cents of each dollar paid out in the U.S. were connected to medical errors. The median cost per error has risen from $892 in 2008 to $939 in 2009 (David, Gunnarson, Waters, Horblyuk, & Kaplan, 2013). Furthermore, the annual cost of medical mistakes reached $17 billion in 2009 (Kalra et al., 2013). It was evident that these skyrocketing costs attributed to medical errors, have in the past, affected existing human capital and financial resources.

Presentation of Study Results

The purpose of this quantitative project was to determine the effect of the fear of disclosure, organizational culture toward patient safety, physician apology, professional ethics transparency, and patient and physician education on medical error disclosure in the United States. The invocation of a cross-sectional quantitative design, included data collection from physicians. The data collected reresented the reponses of 122 research participant respondents. For this study, the data collected only included physicians who were working at three community hospitals located in Illinois and Iowa. The total sample size for this study was n=122. In this study, the research questions and hypotheses, are depicted below, while examination of the data involved using multiple linear regression analysis through SPSS Version 24:

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RQ1: What are the most critical perceived barriers affecting physicians' readiness to disclose major medical errors?

H_01: Physicians' readiness to report major medical errors are not related to fear of disclosure and physician image consequences.

H_a1: Physicians' readiness to report major medical errors are related to fear of disclosure and physician image consequences.

H_02: Physicians' readiness to report major medical errors are not related to organizational culture toward patient safety.

H_a2: Physicians' readiness to report major medical errors are related to organizational culture toward patient safety.

H_03: Physicians' readiness to report major medical errors are not related to apology.

H_a3: Physicians' readiness to report major medical errors are related to apology.

H_o4: Physicians' readiness to report major medical errors are not related to professional ethics and transparency.

H_a4: Physicians' readiness to report major medical errors are related to professional ethics and transparency.

H_o5: Physicians' readiness to report major medical errors are not related to patient and physician education.

H_a5: Physicians' readiness to report major medical errors are related to patient and physician education.

Fidelity of statistical Tests and Categorization of Variables

Multiple linear regression was used to analyze the samples and address the five research hypotheses. Given that the key variables analyzed were quantitative (ordinal), the challenges encountered while applying linear regression in SPSS were negligible.

 ISBN: 978-81-948301-9-1

Table 1

Relevant Variables Analyzed in This Study

Variable Label	Variable Name	Level of Measurement
AGE	Age of the Study participant	Numerical
SEX	Sex of the Study Participant	Categorical
SPECIALITY	Specialty	Nominal
EDUCATION	Education	Numerical
EXPERIENCE	Experience	Ordinal
CONSEQUENCES	Independent Variable	Numerical
SAFETY	Independent Variable	Numerical
APOLOGY	Independent Variable	Numerical
TRANSPARENCY	Independent Variable	Numerical
PHYS EDUCATION	Independent Variable	Numerical
ERRORS	Dependent Variable	Numerical

Table 2

Relevant Variables Coding

Variable label	Variable name
V12	AGE
H13	SEX
V14	EDUCATION
V154	EXPERIENCE
V134	SPECIALITY

Table 1 to 2 represent the variable labels, names, level of measurement, and values.

 ISBN: 978-81-948301-9-1

Demographics

Table 3

Age of Study Participants

		Frequency
<40 y	42	
≥40 y	80	
Total	122	

According to Table 3, 42 study participants were under the age of 40 years old. There were 80 study participants were equal to 40 or greater years old.

Table 4

Gender of Study Participants

	Requency
Female	37
Male	85
Total	122

Table 4indicated, that 37 female and 85 male physicians participated in the study.

Table 5

Education of Study Participants

	Frequency
Bachelor	1[a]
Postgraduate	121
Total	122

a. This participant with a bachelor's degree was allowed to practice as a doctor.

According to Table 5, there was only one study participant who received bachelor's degree. 121 study participants received postgraduate degrees.

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Table 6

Work Experiences of Study Participants

	Frequency
Less than 10 years	42
More than 10 years	80
Total	122

From Table 6, 42 study participants have served less than ten years in the community hospitals. 80 study participants have served more than ten years in these hospitals.

Table 7

Specialty of Study Participants

Specialty	Frequency
Not Specified	4
Anesthesiology	1
Cardiology	7
Critical Care	8
Electrophysiology	1
Emergency Medicine	16
Endocrinology	1
Family Medicine	7
General Surgery	15
Infectious Disease	1
Internal Medicine	12
Neurological Surgery	1
OB-GYN	14

(table continued)

 ISBN: 978-81-948301-9-1

Oncology	6
Pathology	1
Pediatrics	11
Physical Medicine & Rehabilitation	1
Primary Care	1
Family Practice	12
Psychiatry	1
Urgent Care	1
Total	122

Table 7 depicts study participants' specialty. This table indicated, that physicians who took the survey came from various specialty. However, the dominant specialties were emergency medicine, general surgery, OB-GYN, internal medicine, family practice, and pediatrics.

Data Analysis Results

Tables 10 to 14 portray the analysis and the relationships between the independent variables and dependent variable. For multiple linear regression test, I had five independent variables measured at continuous and ordinal levels. Therefore, the test assumptions were met.

Hypothesis 1

As illustrated in Table 8, there was no significant relationship between fear of disclosure and physician' readiness to report major medical mistakes. The *p* value was 0.754 ($p < 0.05$).

 ISBN: 978-81-948301-9-1

Table 8

Multiple Linear Regression of Relationship Between fear of disclosure and Physician' Readiness to Disclose Major Medical Mistakes

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	15.970[a]	40	.399	.818	.754
Intercept	1751.548	1	1751.548	3586.375	.000
Question_8	1.555	4	.389	.796	.532
Question_9	3.902	4	.975	1.997	.104
Question_10	.563	4	.141	.288	.885
Question_11	.808	4	.202	.414	.798
Question_12	1.003	4	.251	.513	.726
Question_13	.819	4	.205	.419	.794
Question_14	1.352	4	.338	.692	.600
Question_15	.843	4	.211	.432	.785
Question_16	2.659	4	.665	1.361	.256
Question_17	.680	4	.170	.348	.845
Error	35.652	73	.488		
Total	6315.000	114			
Corrected Total	51.623	113			

(table continued)

a. R Squared = .309 (Adjusted R Squared = -.069

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Hypothesis 2

Table 9 shows a significant relationship between patient safety and physician readiness to report major medical mistakes. The p value was 0.50 ($p<0.05$).

Table 9

Multiple Linear Regression of Relationship Between Patient Safety and Physician' Readiness to Disclose Major Medical Mistakes

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	38.858[a]	75	.518	1.598	.050
Intercept	1906.568	1	1906.568	5880.725	.000
Question_6	.295	4	.074	.228	.921
Question_21	1.381	4	.345	1.065	.386
Question_22	.989	3	.330	1.017	.395
Question_23	3.049	3	1.016	3.135	.035
Question_6* Question_21	6.772	10	.677	2.089	.049
Question_6* Question_22	2.088	6	.348	1.074	.394
Question_6 Question_23	2.052	5	.410	1.266	.297
Question_21* Question_22	3.282	8	.410	1.266	.287
Question_21* Question_23	2.749	8	.344	1.060	.409
Question_22* Question_23	6.687	5	1.337	4.125	.004

 ISBN: 978-81-948301-9-1

Question_6* Question_21* Question_22	1.268	1	1.268	3.910	.055

Question_6* Question_21* Question_23	2.046	2	1.023	3.156	.053
Question_6* Question_22* Question_23	.000	0	.	.	.
Question_21* Question_22* Question_23	.000	0	.	.	.
Question_6* Question_21* Question_22* Question_23	.000	0	.	.	.
Error	13.617	42	.324		
Total	6526.000	118			
Corrected Total	52.475	117			

a. R Squared = .741 (Adjusted R Squared = .277)

Hypothesis 3

As shown in Table 10, there was a significant relationship between apology and physician' readiness to report major medical mistakes. The p values were 0.055 ($p < 0.05$).

Table 10

Multiple Linear Regression of Relationship Between Physician Apology and Physician' Readiness to Disclose Major Medical Mistakes

 ISBN: 978-81-948301-9-1

	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	24.740[a]	41	.603	1.531	.055
Intercept	2397.354	1	2397.354	6081.061	.000
Question_18	1.208	4	.302	.766	.550
Question_19	3.276	4	.819	2.077	.092
Question 20	4.414	4	1.104	2.799	.032
Question_18* Question_19	3.208	6	.535	1.356	.243
Question_18* Question 20	3.737	8	.467	1.185	.319
Question_19* Question 20	2.841	8	.355	.901	.520
Question_18* Question_19* Question_20	3.552	3	1.184	3.003	.036
Error	29.567	75	.394		
Total	6479.000	117			
Corrected Total	54.308	116			

a. R Squared = .456 (Adjusted R Squared = .158)

Hypothesis 4

Table 11 indicated a significant relationship between professional ethics and transparency and physician' readiness to report major medical mistakes. The p value was 0.011 ($p<0.05$)

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Table 11

Multiple Linear Regression of Relationship Between Professional Ethics and Transparency and Physician' Readiness to Disclose Major Medical Mistakes

	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	21.344[a]	30	.711	1.893	.011
Intercept	1237.560	1	1237.560	3292.190	.000
Question_1	2.552	3	.851	2.263	.087
Question_2	.549	3	.183	.487	.692
Question_3	1.682	4	.420	1.118	.353
Question_1* Question 2	4.138	4	1.035	2.752	.033
Question_1* Question 3	4.277	6	.713	1.896	.090
Question_2* Question 3	3.373	5	.675	1.795	.122
Question_1* Question_2* Question_3	.181	2	.091	.241	.787
Error	33.456	89	.376		
Total	6626.000	120			
Corrected total	54.800	119			

a. R Squared = .389 (Adjusted R Squared = .184)

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Hypothesis 5

Table 12 shows a significant relationship between physician education and physician' readiness to report major medical mistakes. The p value was 0.015.

Table 12

Multiple Linear Regression of Relationship Between Physician Education and Physician' Readiness to Disclose Major Medical Mistakes

	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	31.123[a]	51	.610	1.752	.015
Intercept	1960.330	1	1960.330	5627.947	.000
Question_4	1.018	4	.255	.731	.574
Question 5	1.867	4	.467	1.340	.264
Question_7	3.612	4	.903	2.593	.044
Question_4* Question 5	7.526	13	.579	1.662	.089
Question_4* Question 7	2.225	9	.247	.710	.698
Question_5* Question 7	1.378	8	.171	.491	.859
Question_4* Question_5* Question_7	3.770	5	.754	2.164	.068
Error	24.034	69	.348		
Total	6690.000	121			
Corrected Total	55.157	120			

a. R Squared = .564 (Adjusted R Squared = .242)

Data Analysis Summarized

The results from the analysis showed a significant statistical relationship between 4 independent variables (organizational culture toward patient safety; physician apology; professional ethics and transparency; and physician's education) and the dependent variable (physician willingness to disclose medical error). However, there were no significant relationships between fear of disclosure as well as image consequences and the dependent variable (physician willingness to disclose medical error). From the results, it may be inferred and concluded, that 4 out of 5 independent variables were statistically significant. However, one independent variable (fear of disclosure) was not considered statistically significant.

Personal and Theoretical Interpretation of Analysis

In this study, and important agenda was the examination of how fear of disclosure and the consequence and perception of physician image, organizational culture toward patient safety, apology, professional ethics and transparency, and patient and physician education could be used as predictors of physician readiness to disclose major medical errors. Studies have been undertaken on the barriers affecting physicians' willingness to disclose errors. However, focusing on perceived barriers at the individual level was hitherto, seemingly lacking.

The research findings indicated barriers to medical mistakes disclosure. These barriers that were significantly with the underlying reasons, attributed to the organizational culture and disposition to patient safety, physician apology, professional ethics and transparency, and patient and physicians' education. Wefound that a lack of an organizational culture that did not emphasize transparency and patient safety hinder doctor's ability to report medical mistakes This finding was consistent with Kagan and Barnoy (2013), who found that the absence of a culture of safety in a healthcare organization culture could cause underreporting of errors. Lee et al. (2015) also found that the lack of a culture of safety that is part of a hospital culture could hinder implementation of patient safety mechanisms, which perhaps discouraged physician voluntarily reporting errors. The finding was consistent with the research of Ammouri et al. (2015), who contended that patient safety was central to healthcare quality because a good organizational

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culture could lead to safer clinical outcomes. Thus, achieving patient safety requires healthcare leaders to move from a punitive culture, to a patient safety culture that facilitates openness, as also noted by others (Ulrich & Kear, 2014).

We also discovered that the variable ‘apology; frequently impacted physician ability to report errors. Dahan, Ducard, and Caeymaex (2017) found that apologies were difficult to express and admitting and apologizing for errors increased the prospect of malpractice suits. Many physicians have feared, that apologizing for medical errors could be an admission of wrongdoing (Nazione & Pace, 2015). Although some states enacted apology laws, several physicians have still felt unprotected to avoid being sued (Nazione & Pace, 2015). An apology was deemed a barrier to error reporting because physicians lacked formal training in error disclosure and apology (Deawar, Parkash, Forrow, & Truog, 2014).

There was furthermore, an association discerned, between physicians’ readiness to report a medical error and professional ethics and transparency. Theofanidis et al. (2013) suggested, that physicians need ethical grounding and must rely on ethical principles to make a decision regarding medical mistakes.

Another discovery in the study, was that the seemingly lack of adequate education on ethics and other aspects related to the gravity and seriousness of underreporting medical errors, adversely affected error disclosure. When physicians lacked the appropriate training and skills to handle medical errors, reporting these would usually be difficult. The lack of training and its impoact on voluntary disclosure was consistent with the views of Nabilou et al. (2015), who expressed, that the lack of expertise in handling error reporting held physicians back. Without adequate training, physicians may perhaps be reluctant and averse to reporting medical errors.

Finally, the study the revelations of the study, from the application of descriptive and inferential statistical techniques, indicate a lack of correlation between fear of disclosure consequences and physician willingness to report mistakes. While physicians did not fear that error reporting could affect their reputation and relationship with patients, the results showed that physicians could perhaps would be more apt to disclose errors if some conditions such as appropriate training, positive organizational culture, and apology knowledge were inculcated.

In summary, the fear of disclosure was not found related to physician reporting of medical errors. Barriers inhibiting physician error reporting included fear of legal action, loss of trust, and loss of position. Zaghloul et al. (2015) concluded that fear of litigation coupled with

 ISBN: 978-81-948301-9-1

other factors were the biggest hurdles limiting physicians ability to disclose mistakes. While barriers to errors disclosure were attributed to various reasons, from this study, it may be evident, that an organizational cultural disposition, oriented toward patient safety, making it easier for physician voluntarily admitting errors, to pre-empt adverse consequences, perhaps with an apology, professional ethics and transparency, and patient and physician education represent some of issues and barriers affecting the disposition of physicians to report medical errors.

It is hoped, that the efforts in this study have made a worthy contribution to existing knowledge in the field health sciences through the examination of the possible barriers to physician willingness to report medical errors. These may be universal realities and generalizable, however, this study was limited to the states of Illinois and Iowa. In these geographies, therefore, the findings may connote, that are affected by these barriers in dealing with errors disclosure. Healthcare organizations need to adopt policies that promote transparency and full disclosure, and provide adequate reporting training to physicians to overcome these barriers.

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A CORRELATION STUDY OF FACTORS INFLUENCING CUSTOMER RETENTION IN MULTINATIONAL LOGISTICS SERVICE COMPANIES IN EAST AFRICA

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Abstract

There is increased customer attrition in multinational logistics companies affecting customer retention. The purpose of this correlation study was to examine the sustainability and profitability efforts of logistics companies in East Africa to reduce customer turnover and improve customer retention. The study involved examination of the relationships between the independent variables of price perception, customer satisfaction, switching barriers, perception of service quality, social media marketing and the dependent variable of customer retention in multinational logistics service companies in East Africa, with the appropriate testing of hypotheses. Human subjects participated as customers of the company in this study and the target population of the study was 500 respondents. A random sampling of respondents using Morgan's (1970) table helped determine the sample size of 217 respondents. The data analysis for this study included the use of descriptive statistics, and correlation coefficients, and the analysis of responses to the survey indicated that a) a statistical relationship between price perception and customer retention b) no statistical relationship between customer satisfaction and customer retention c) a statistical relationship between switching barriers and customer retention d) and no statistical relationship between perceived service quality and customer retention and d) a statistical relationship between social media marketing and customer retention. Multinational logistics companies should provide means in improving customer satisfaction, customer retention, focus on innovation and digitalizationof business and utilise social media to offer better services and increase revenues and effectiveness.

KEY WORDS:

4Ps: Product, price, promotion, and place, Competition,Customer Attrition,Customer Relationship Management, Customer retention, Customer satisfaction, Globalization,
Multinational Companies, Perceived Service Quality, Price, Price Perception Theory, Switching Barriers, Wallet Share.

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Introduction

In dynamic and contemporary economic environments, where aggressive rivalry in the business world exponentially increases, companies compete intensely, to endeavour to increase profits, revenues and market share. Business success if often achieved through continuously adapting and formulating strategies and more precisely developing processes to acquire and retain customers. Logistics plays a key role in achieving completive advantage and business sustainability. Olajide (2012) noted, that it costs roughly $200 to acquire new clients, leading to a lower revenue of $150 annual revenues in the retail industry. Olajide explained that the attrition rate for current customers is estimated at 15% compared to 20-25% for new customers.

Landis (2012) ascertained, the value of on customer retention and customer acquisition marketing, citing these capabilities as invaluable. Attrition Landis conclude, may often be preventable by enhancing customer experiences. Hence, factors influencing customer retention are significant in the analysis of consumer relationship definition, which has implications for organizational business strategy and regulatory policies (Ali et al., 2017). The aim in this study led to examining the factors influencing customer retention in multinational logistics service companies in East Africa, achieved through analyzing a multinational logistics Service Company in Uganda.

Customer retention is a concept that has gained substantial attention in the business world. Customer retention is an activity that an organization undertakes to avoid customer attrition (Jopper, 2014). Timothy et al. (2007) pointed out that customer retention refers to a customer's manifested continuation of a business relationship with a company. Companies that attract and retain new customers provide quality products or services and relate well with their existing customers to create a good reputation in the marketplace (Singh, 2014). The outcome of adeptness in customer retention, often depicts the abilities of some companies to use data effectively, create a customer base. This customer relationship information, may represent a source of information and data, to predict future revenues, repeat purchases and cross-buying of other services offered by the service provider (Dawes, 2009). Businesses usually incur set up costs to attract new customers. From a business sustainability perspective, it is financially desirable to retain current customers rather than to constantly lose customers and incur the expense of replenishing the customer base (Dawes, 2009). Businesses therefore need to lessen customer attrition, which invariably benefits competitors since it affects market share, profits and could result in a collapse of the company (Dawes, 2009). Multinational logistics service companies in East Africa face continuous change of environment and background factors, which can cause the transformation of the needs of importers and exporters. Achieving customer retention in the logistics and freight forwarding sector is vital, as this competency serves to increase sustainability and survivability for businesses. The multi-dimensional economic benefits associated with the adoption of customer retention management cannot be over-emphasized, as these capabilities usually lead to the overall profitability of firms (Fiorletta, 2012).

Researchers have emphasized that it is imperative not just to attract new customers, rather to also retain and cultivate the existing ones (Bhat & Parrey, 2018). Satisfied customers are the company's relationship with capital and value. When the company is to be sold, the purchasing company would pay not just for the factory, facilities, and brand name, but also for the customer base and the number of customers who would be doing business with the new company. Acquiring new customers will usually cost five times more than keeping the existing ones and maintaining them in Uganda (Reichheld, 2010). The business rationale is that the business must find a new market or a new product, both to satisfy them, in order to attract new customers. Knowing and discovering the market, and the people who make up that market, means incurring costs. The business may need to spend a great deal of time, energy and money to create a product for the new market.

Customer retention has crucial bearing on profitability, market share, economies of scale as well as other variables that determine the competitive position of the organization in their respective industries (Lui & Atuahene-Gima, 2018). In a highly competitive industry such as logistics, the importance of customer retention was identified, and strategic approaches to encourage and enhance customer retention were also found vital in East Africa. Lee (2017) observed that most of the competing organizations tend to implement aggressive strategies to beat competition and attract the existing customers to the organization. The importance of retaining the existing customers is increasingly influenced by competition in organizations operating in the same market. The importance of customer retention in African firms, requires companies to investigate the relationship marketing and policies that have kept customers loyal in these companies. Several studies in Africa show, that relationship marketing has helped companies to retain customers and ensure profitability (Reichheld & Sasser, 2012). However, Laura (2016) found that companies in East Africa still have problems with retention of customers even with the implementation of relationship marketing.

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Specific Problem

The specific problem is that there is an increased challenge to ensure organisational sustainability by mitigating customer attrition in multinational logistics service companies in East Africa. The problem the increased customer attrition in Multinational Logistics Companies, which adversely affects customer retention. Thus, there is the need to investigate the relationships between the independent variables; price perception, customer satisfaction, switching barriers, perception of service quality, social media marketing and the dependent variable; customer retention in multinational logistics companies in East Africa (Felix, 2017).

Purpose of the Study

The purpose of this correlation study was to examine the sustainability and profitability of logistics companies in East Africa to reduce customer turnover / to improve customer retention. The problem is, there is increased customer attrition in multinational logistics companies affecting customer retention. There was thus, the need to investigate the relationships between the independent variables; price perception, customer satisfaction, switching barriers, perception of service quality, social media marketing and the dependent variable; customer retention in multinational logistics companies in East Africa. The study was undertaken by determining the relationships between price perception, customer satisfaction, switching barriers, perception of service quality, social media marketing and customer retention in multinational logistics service companies in East Africa.

Population and Sample

For the purposes of this research, human subjects participated as customers of the company in this study. The logistics company data accessed and analyzed, included a target population of the study of 500 subjects. One of the most difficult aspects of any study is determining the minimum number of individuals to include in the study. A larger sample size is more often than not, very beneficial because the sample better represents the target population; in addition, the sample has a smaller standard error (Tabachnick & Fidell, 2013). A large sample is usually not possible though, because collecting all the data is often very time consuming and expensive. The sampling strategy for this study included a random sampling of respondents using Krejcie Morgan's (1970) to determine the appropriate sample size. The appropriate sample was identified to be 217 respondents. Online surveys forums have been used successfully by other researchers because they possess a large distribution list (Yost et al., 2010).

This study and its findings may be of importance to multinational logistics service companies in East Africa and to similar companies that have been in existence for at least 50 years but are faced with rising competition in the industry (Pulevska-Ivanovska et al., 2013). Thelogistics industry has evolved over time and has attracted many more players. Although previously existing companies had been thriving based on reputation, an increase in competition appears to have caused a major impact on the multinational logistics companies' customer retention. This study entailed an examination how companies retain as many customers as possible, through a customer retention strategy.

Nature of the Study

A quantitative method with a correlational design was used in this study. Quantitative research methods often help to focus on measurements that are objective, with statistical analysis or numerical data collecting (Creswell, 2009). The study involved using the quantitative correlational research design approach centred on gathering statistical data to generalize it across groups of people to give details on a phenomenon (Barbie, 2010). The quantitative method was suited for this study because the goal was to examine the relationship between a dependent variable and the independent variables. The goal of the study was to determine relationships between price perception, customer satisfaction, switching barriers, perception of service quality, social media marketing and customer retention in multinational logistics service companies in East Africa.

Research Questions/Hypotheses

A statement of the research problem in the form of questions plays a major role in research (Creswell, 2012). Researchers create the direction as well as the focus for a study by developing meaningful and related research questions that can help guide the development of the study (Creswell, 2013). The development of this study included the framing of the research hypotheses from the research questions, notably in following the objectives of the study with the independent and dependent variables. Creswell (2012) advocated that researchers use hypotheses to forecast the variance between the variables in a population during the research study. During this study, therefore, the following research questions were developed.

RQ 1: What is the statistical relationship between price perception and customer retention in multinational logistics service companies in Uganda?

H_1: There is a statistical relationship between price perception and customer retention in multinational logistics service companies in Uganda.

H_0: There is no statistical relationship between price perception and customer retention in multinational logistics service companies in Uganda.

RQ 2: What is the statistical relationship between customer satisfaction and customer retention in multinational logistics service companies in Uganda?

$H2_1$: There is a statistical relationship between customer satisfaction and customer retention in multinational logistics service companies in Uganda.

$H2_0$: There is no statistical relationship between customer satisfaction and customer retention in multinational logistics service companies in Uganda

RQ 3: What is the statistical relationship between switching barriers and customer retention multinational logistics service in Uganda?

$H3_1$: There is a statistical relationship between switching barriers and customer retention in multinational logistics service companies in Uganda

$H3_0$: There is no statistical relationship between switching barriers and customer retention in multinational logistics service companies in Uganda

Theoretical Framework

The social exchange theory (SET) proposed by Homans (1958), “give and take” could form the basis of almost all relationships though their magnitude may vary as per the intensity of the relationship. In a relationship, every individual has expectations from a partner. A relationship without expectations is meaningless. In a relationship, every individual has expectations from his/her partner (Stanley, 2018). A relationship without expectations is meaningless. According to this theory, feelings and emotions ought to be reciprocal for a successful and long-lasting relationship. Relationships can never be one sided. A person can invest his time and energy in relationships only when he gets something out of it. Long term relationships go through four stages: sampling- costs and rewards are explored; bargaining-negotiation of rewards and costs are agreed; Commitment-exchange of rewards and acceptance of costs often stabilize, there is currently focus on relationship; and Institutionalization-norms and expectance are firmly determined. The key idea behind social exchange is that everyone tries to increase the rewards from a relationship and also reduce the

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costs. If the relationship is to be successful, then both parties are expected to give and take in equal proportions. Social exchange theory is a key factor in customer retention for multinational logistics companies, in that they benefit from successful relationships with their customers.

Historical Content and Context

The advent of 4Ps of marketing theory by McCarthy had highlighted that the 4Ps viz. product, price, promotion, and place are the initial control elements that are available to shape a marketing plan. In the early 1960s, on the back of large-scale industrial development and mass production, influenced the way marketers saw their customers. Customers, under this traditional or classical approach, are seen as groups of homogeneous potential buyers with the similar needs (Sharma, 2018). Marketers have then usually predicted what customers need, produced the products and then made these available to customers through distributors, or drew the customers towards the points of sale by manipulating the 4Ps marketing mix: price, place, promotion and product. The traditional marketing approach has still dominated the thinking of both teachers and practitioners of marketing. Researchers, however, have begun to realize the inadequacy of this classical approach in explaining emerging marketing management phenomena specifically from the industrial marketing perspective and service marketing perspective with or without a perspective that was recognized even earlier by managers, in practice (Kamakura, 2013).

Customers who continue consuming the services repeatedly and become clients are often, gradually, and aggressively sought and secured by the sales team to the company as assets (Kotler, 2017). A consumer base provides a source of potential sales from repeat transactions and cross-purchases of other goods that the company sells. If the business requires set-up costs for acquiring or hiring new clients, it is financially beneficial to maintain current clients rather than continually lose customers and bear the expense of replenishing the customer base. From marketing prudence, it is also known that existing customers with repeated purchases are often more important to the business than rare or uncommon purchasers. Construction of "wallet share," otherwise known as relationship length, is therefore seen as a significant target in the service industries (Afiuc & Bonsu, 2016). Share of wallet is the amount an existing customer spends regularly on a particular brand rather than buying competing brands. Companies grow wallet share by introducing multiple products and services to generate as much revenue as possible from each customer (Afiuc

&Bonsu, 2016). In addition, by improving customer retention, a broader partnership can support the firm (Nguli, 2016).

The analysis of responses to the Survey Monkey survey, indicated significance between price perception and customer retention, switching costs and customer retention, and social medial marketing and customer retention. Customer satisfaction, and perception of service quality were not significant to customer retention. The level of significance between price perception and customer retention had a p-value of 0.000 which is less than 0.05; therefore, the null hypothesis was rejected. Therefore, the hypothesis is true that there is a statistical relationship between price perception and customer retention. The details herein, are on the level of significance between customer satisfaction and customer retention with a p-value of 0.037 which is more than 0.05; therefore, the null hypothesis was accepted, and there was enough evidence to conclude that there is no statistical relationship between customer satisfaction and customer retention. The description and details on the level of significance between switching barriers and customer retention, may indicate, a p-value of 0.000 which is less than 0.05; therefore, the null hypothesis was rejected. There was enough evidence to conclude that there is a statistical relationship between switching barriers and customer retention.

The results also reflected the examination of the level of significance between perceived service quality and customer retention with a p-value of 0.317 which is more than 0.05; therefore, the null hypothesis was accepted. There was enough evidence to conclude that there is no statistical relationship between perceived service quality and customer retention. Finally details presented herein, also includes the examination of the level of significance between social media marketing and customer retention with a *p*-value of 0.000 which is less than 0.05; therefore, the null hypothesis was rejected. There was enough evidence to conclude that there is a statistical relationship between social media marketing and customer retention.

Recommendations

The aim of this study was to contribute to knowledge useful to improve the sustainability and profitability of logistic companies in East Africa to reduce customer turnover / to improve customer retention. For this, it is expected that the findings of this empirical study are to provide constructive new insights and implications to both academicians and the investigated multinational companies across the board and more specifically in East Africa.

Supply Chain Practitioners

In particular, multinational logistics companies should provide more benefits to their customers regardless of the optimal prices they provide. Astute pricing helps to ensure that there are no gaps left were by any slight change in price, which would force the customers to move to another company. Multinational logistics companies should furthermore build positive switching barriers in order to create long term relationships between the companies and customers (Hogan & Coote, 2014). At the same time, multinational logistics companies should be able to increase on the number of branches so that a customer can access the services of the company uses from various convenient locations. The convenience factor greatly improves on customer retention ensuring that the customer does not need to change to another company for convenience in accessing logistics' company services.

Multinational logistics companies should provide means of improving customer satisfaction in their companies so as to encourage word of mouth by the customers and ensure continued support from old and new customers, thus improving on customer retention. Solimun and Fernandes (2018) suggested, that customer satisfaction is a kind of consistency evaluation between prior expectations and perceived service performance. Accordingly, the positive evaluation of the product or service that the customer acquires is a major reason to continue a relationship with a company's service or products, and an important pillar that upholds customer retention. Satisfied customers are thus more likely to repurchase, lower their price sensitivity, engage in positive word-of-mouth recommendation, and become loyal customers (Chen & Wang 2009).

Multinational logistics companies based on the analysis and findings of this study. are further urged to increase efforts to enhance and influence brand names on social media. The efforts must be sustained to increase awareness of their services to people in communities since the internet serves the whole world, awareness can increase on the number of customers who use the companies' services, and with heavy awareness of the brand, the result can be continued improvement in customer retention. However, some effort might have to be put down to actually get the customers to do so. Baird and Parasnis (2011) noted, that companies need to encourage their customers to spread their brand with the help of social media tools. To encourage customer experiences with brands on social media can be done by fun and creative marketing campaigns (Baird & Parasnis, 2011). One idea is to reward the followers on Facebook or Instagram when they share the brands page, for example writing that every follower will get a reward when the brand reaches a certain amount of followers will most likely make them to share with friends.

Customer satisfaction, price, service quality and retention are crucial because of their several implications for businesses, employees, and communities (Chuah et al., 2017). A recommendation is that that leaders periodically evaluate, through continuous interaction and engagement with customers, how their organization's systems and procedures are organized to guarantee quality service and timely delivery. The study findings indicated that multinational logistics companies which periodically evaluate their companies' system and processes to ensure quality service and timely delivery, invariably experience more satisfied customers.

Implications for scholars and future research insights

The first recommendation is for future researchers to cover a more expansive geographical location. A more extensive geographical area would enable future study findings to be generalized to other geographical areas. Leckie et al. (2016) underscored the need to study a more extensive geographical area and noted that customer satisfaction and retention has broad application across various sectors that cannot be defined by any single geographical location.

The findings of this study may add to existing knowledge about customer retention in multinational companies in developing countries, more specifically in the East African region. Although, by way very little of practical and theoretical research has been developed in East Africa, the results obtained in this study be of potential value to service providers improve on customer retention. To compete in the existing dynamic environment, concise well thought of comparative pricing and well-designed service quality programs must be introduced to improve customer retention. Logistics companies also need to build strategies to enhance their brand image on social media and address aspects relating to customer trends.This research study, nevertheless, has some limitations. In order to overcome these limitations, more variables such as perceived service value, demographic characteristics of customers, i.e., life cycles, usage pattern of logistics services can be explored in order to understand their effect on customer retention in East Africa. Finally, this research can be expanded to other African countries to help them understand the different factors which

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influence customer retention. Further research should be carried out in the areas of social media marketing, branding, and customer satisfaction, should be conducted. A special focus of that research should be on validating well-established models in the East African cultural setting.

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LEGO BRICKS: *BUILDING THE FUTURE IN DEVELOPING SOCIETIES*

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Abstract

The aim of this research is to highlight the differences between the application of LEGOs inside the digital classroom and other educational tools. The aim of this research is to explain the innovation potential of LEGO bricks in creation, for potentially greater use, as greater adoption inside developing societies may be beneficial and its use also offers engineering students to move from theory to practice in an early stage of their educational journey. STEM education faces creative challenges and requires the use of easy tools that can help in facilitating the engineering process. Constructivism asks for a generation tool that opens the door to experience the world around us. Digital learners and 21st century engineers have to measure the length of the problem, instead of being given the ruler of measuring it. In other words, university professors and teachers have to open the door for their students to choose their own methods. Perhaps in this discussion, it may be relevant to state the immense value in encouraging learners to more extensively use LEGOs, instead of books and pencils. The views expressed does not aim to erase the use of traditional educational resources and tools, rather the recommendation is to concomitantly and additionally develop the use of educational tools through LEGOs.

Keywords: Constructivism; Education; Engineering; Innovation, STEM

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Introduction

Young learners and adults have the same mind. However, young learners tend to experience the world they live in, while adults always work through gaining information that leads them to that experience (Elbert et al., 2006). For instance, students today login to computer systems without reading a manual. On the contrary, it often requires an adult time and effort to read a manual by understanding first the written information that can help in operating the system (Alsop, 2008). Therefore, it is hard to continue teaching today's learners through the traditional tools and methods that do not drive them to reality, as young learners and engineering students require a vibrant tool that helps in transforming fiction into non-fiction as many students miss the physical existence of the substance they study during their educational life (Chu et al., 2021).So, changing the delivery of methods and styles in teaching requires a tool that can lead them to the three core stages, notably to engage, explore and evaluate (Cole& McGuire,2012).

Arguably, students need to investigate and assess their own work by themselves. Many universities today give the chance to their students to evaluate themselves (e.g., peer evaluation) following the rubric criteria. Such a sort of evaluation help students to put themselves in their professors' shoes and understand their opportunities and mistakes to work on and avoid repeating them in the future (Alzaid, 2017).

COVID 19 has changed educational systems all over the world, and learners often miss the social interaction which used to take place inside their past classrooms. In the existing era of the pandemic in 2021, several students have transformed from physical to digital learners which requires more interaction because the chair and computer screen are just means of interaction, but are not tools of encouragement (Montironi, 2020). The 21st century digital learners usually ask for facilitation that brings joy and happiness, instead of teaching styles that cause boredom, and through these screens, they can see their teachers with greater regularity. Every single morning is a new day for all students all over the world, but that day is exactly the same s every other day then our learners possibly change from digital learners to digital robots (Purwanto et al., 2020).

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Planet Earth requires prudent risk-takers, thinkers, innovators, and creative minds that can change it into a better place for everyone to live in. Learners today dream of a world that applies equity and equal opportunities for everyone, a world that respects the young brains and invests in them, instead of causing isolation. One of the mistakes that some teachers and professors make, is the application of older method, which perhaps drives the new generation to rely more on theory, rather than practice. The problem expressed frequently, is that many professors still struggle with the mechanism and strategy that distance learning calls for (Allen et al., 2020).

Distance learning asks for inspiration, encouragement and application, and thus there should be a tool that supports the three mentioned elements mentioned (Alzaza & Yaakub, 2011).LEGO bricks have to some extent spurred a unique kind of motivation during the last decades in that it is multi-generational, with older people today enjoy playing with their grandchildren. LEGO encourages constructive learning and helps future generations in deciding their goals through the simple projects they build and create by themselves. Many young learners have even recognized the future major or career they want to join and study from LEGOs. It is time for teachers, professors and University stakeholders to adopt and in addition to the traditional academic resources of books as manuals, also apply LEGOs as a smart controlled tool that learners can use to create, build and innovate (James, 2013).

A recommendation is that learners should go to workshops instead of schools and create as many projects as they can to change the future of many other generations that will come after them. It is time for professors and teachers to call their students "young engineers" instead of naming them "students" (Barak & Assal2018).

Analyse the difference between "video games" and "LEGOs" evolution

Video games play a vital role in children`s lives. However, the invention of LEGOs is ideal to capture the imagination of the minds of 21st century learners, in what is called "learning by doing". Many learners today remember the prototype they first built when they were young, but when you ask them about the first game they played, they will not likely remember it; instead are more apt to recall the first device used (Paul, 2018).

LEGO bricks take you from one step, to the next; the first brick you place takes you to another brick that helps in building new shapes, which may be envisioned, or emerge through creativity. In contrast video games do not lead to development, rather it takes the individual to transformation which leads the gamer to delete the game to proceed with another stage of entertainment. In other words, gamers invariably get bored with video games quit quickly, and change the game when the character becomes old to play with. However, LEGOs can lead to adding new characters and bricks to the one learners started with, and thus the development of thinking takes place as the process of learning get developed instead of getting erased (Atmatzidou et al., 2008).

Ancient Civilization & LEGOs

Ancient Egyptians built the pyramids because they wanted to transform the static beauty that lived in side their minds to reality. There are many reasons that lie behind the great pyramids of Giza. However, there are many statues that have been built and no one knows until now, the true purpose of building them. The emerging positives when there is transformation of ideas into reality, it is a lasting legacy and something for future generations to treasure, and develop further as well. The development of countries is contingent upon the transformation of the ideas of citizens, to reality (Spencer, 1979).

Future generations may water their plants without reading about photosynthesis as they wait for the first stem to appear and from there, the leaves, flowers and fruits of the plants are nurtured. The same applies when it comes to personal studies. For instance, engineers today love to experience what they learn and believe in. There are many engineers who created things for humanity and they forsook academic studies (e.g., Steve jobs). We do not encourage engineers to drop studies, rather want them to learn and develop their own ideas and not those of others and make worthy contributions to discovery, and add to the universities creative output and also share this knowledge in academic platforms, seminars, International conferences across the world (O'Reilly, 2011).

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Generations through the ages

The energy of young learners differs from adults as young learners have the spirit of taking risks, getting motivated and inspired by what their professors or teachers teach. Accordingly, it is essential to maintain that energy until learner'sgraduate and become engineers. Our young thinking perceptive grows up with us if it is naturally nurtured through the developing process our teachers and professors impart. For example, applying PBL (Project Based Learning) hold our children on growing up in real-life education. Contrarily, exams and assignments through the distance program that students apply today during the pandemic may not likely spur learners to them to greater creativity as would likely be limited to the experiences of teachersonly, and unfortunately creativity may be constrained (Cukurbasi& Kiyici, 2018).

The application of PBL through LEGOs could stimulate the minds of children and young engineers on thinking creatively by the beneficial ramifications and gain when they build, create or innovate (Cukurbasi& Kiyici, 2018).

Grows with you: the transformation of fiction to non-fiction

Young learners and engineers should start unveiling their prototypes so that they can enter the field of production too (Dzialo, 2018).If learners keep their ideas maintained inside their heads, they may face the same destiny of each video game they play as these ideas will be erased. There is a big difference between virtual reality and physical reality. Virtual reality prototypes are built for a short period of time, while physical reality prototypes are built and stay in place for many years (Keshner,2004).

Special effects: the future of the "movie industry"

Green screen is everywhere in today's movies as the actor or actress spends time in the same room and same place, and movies audiences think that the director, producer or even actors of the movie changed many places. (JACOBS et al., 2013). The same applies when it comes to LEGO idea as there is no need for movie directors to close the roads or evacuate places in order

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for them to shoot scenes. Besides, actors do not need to take their movie equipment with them and pay millions to shoot a scene, rather an actor today can just take his LEGO bricks with him to another room to shoot any scene he wants. (Smith,2011).

The future movie industry could open the door for many engineers to join the field, gain experience and work there too. In other words, movie industry today includes many engineers in the studios, but tomorrow's industry could include more engineers who are experts in LEGOs to guide actors and directors, provide new ideas and create better scenes. (Smith, 2011).

LEGO 4 Math

The idea of giving distance learners a ruler to measure has been changed as many teachers do not use rulers today, instead they use digital rulers. But giving students the chance to use LEGO bricks in measuring will change the idea of numbers into colors as counting the bricks vertically will likely facilitate the measuring strategy when it comes to measuring an object with LEGOs, instead of doing so with a ruler (Igel, 2011)

Another simple example can be a tower that consists of 5 or 10 bricks, compared with another that consists of 10 to 20 bricks. Such an idea will motivate learners to compare between numbers easily. LEGOs can be used in all Math outcomes. E.g., fractions, shapes, volume & capacity (Igel, 2011).

Solutions for STEM projects

Modeling any invention requires a prototype. However, it is sometimes hard for universities to spend money on prototypes that might go to the trash bin as it might cost time, effort and money for that prototype to be created(Whitman& Witherspoon, 2003).

Universities and students hence require a reusable porotype in which the student creates what s/he wants to bring to reality, and does not risk the amount of money paid or spent on that prototype. TheLEGO system thus might be solution for young engineers as one set can help in

 ISBN: 978-81-948301-9-1

developing many inventions and creations. Engineering students can model their invention and collapse it if it does not work without any sort of damage as they just need to remove the bricks and return them back to a box. (Whitman& Witherspoon,2003).

Cost you an arm and a LEGO

David Aguilar was born without a right arm. He started his career when he was 9 years old as he got introduced to his prosthetic right arm invention through LEGOs. David right arm helped him to decide his major as he studied bioengineering in one of the esteemed universities in Spain. It is usually hard for a student to decide on a major but it is a way easier when the teacher involves learners into career counselling discussions. We do not need to teach, but rather teachers & professors should involve young learners in their studies through LEGOs as such involvement will develop the process of learning and help each learner to discover new ideas through activating prior personal knowledge, drawing from life experience, which may be applied to projects in development (Aguilar,2019).

LEGO Earth, Humanity & Society

The current generation in the 2020's needs to get involved in life projects that can help in shaping the future of our planet. Learners and young engineers should work towards finding solutions for real life situations that humanity faces today. The real-life education, geared towards creating solutions should not relegate to a daily routine that require us to live in the same cycle which will become worse as every single day the world shrinks with technology. Thus, it is time for humanity to find solutions through educators, learners and professors by finding the motives that our young generation require in order to find real solutions for problems (e.g., water pollution, air pollution, natural resources, solar energy, health). Education should be step forward to a better health, a better society and a cleaner world (Isa& Liem, 2020).

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Conclusion

In conclusion, the world requires new methods, strategies and tools of education. 21st century educational skills and distance learning ask for new ways of practice, rather than theory (Allen et al., 2020).A child or a young learner who sits in front of the computer daily is tired from the same methods that teachers and professors apply because they are locked inside their houses and they cannot feel any sort of creativity that can give that may offer hope and a sense of fulfillment (Montironi, 2020).

It is our time to replace the old methods and tools by activating approaches in education and LEGOs, may be a solution. The internet today can serve to host and help students to publish prototypes and acquire and disseminate knowledge as teachers can spur creativity that is focused on benefitting society, instead of assessing an answer that brings individual development (Isa& Liem, 2020). It is time to use LEGOs to reshape the world and give solutions to planet Earth through the STEM prototypes that Engineering students and young learners will create for the development of society (Whitman& Witherspoon,2003).

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A NEW ATTITUDE TOWARDS MACHINE LEARNING & POTENTIAL APPLICATIONS IN EDUCATION

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Abstract

We are currently witnessing the exponential growth and development of Artificial Intelligence (AI), Machine Learning (ML), Data Mining, and Data Science. Education is one of the areas that AI will expectedly have a massive impact. The invocation of AI can lead to many new innovations in in education, which will contribute to improved knowledge acquisition and spawn newer approaches to learning. The application of AI is conducive to providing solutions and hybrid models, which will serve to the development of new learning and testing platforms. Although ML is also used in traditional education systems, however, the exponential use of online education system will in the wake of the pandemic, fuel its greater usage. ML can. not only advance the quality of educational delivery, it is predicted to also revolutionize it. In education, with students coming from different backgrounds and levels, course materials could be swiftly adapted and individually customized from student feedback, learning rates and other such data. The learning speed of every individual student for example could be customized and then, training curriculum could be dynamically generated to individual students based the individual and specific student needs. AI can be used to gauge student motivation, success and other parameters, and help in the development of solutions, will contribute to improved educational outcomes. Currently, student evaluations and assessments are via grade-based exams. However, a drawback is that the exam's results is not a true reflection of student knowledge uptake and learning quantification. Arguably, the result of an exam should not be a fail or pass, it could indicate which discipline is a match with students interests and aptitude. The knowledge graph represents the relations and directions of individual learned concepts, and it shows the variance for different students! One of the aims of using ML is in interpreting this knowledge with using data science techniques to obtain and identify strengths and weaknesses points for each student individually. In adaptation to the increasing speed of technology, our educational system needs a fundamental revamp, and the role of ML is immense and imminent!

Keywords:
Artificial Intelligence (AI), Machine Learning (ML), Big Data, Data Science, Data Mining, Online Education, Peer Assessment, Learning Journal, Knowledge Graph.

Introduction

The exponentially increasing growth and expansion of machine learning in all aspects of our daily life, is that education is also in need of radical change. Education is one of the areas that AI will potentially have a massive impact. AI will not replace teachers or other educational staff, as thought by many, although will likely just provide different platforms, solutions, and platforms, which will serve to increase the different solutions tools for student success. The application of AI has the potential to contribute to the development of hybrid education models to increase creativity and find students' potentials and can develop a new learning and testing platform. The quality and speed of education should commensurately also match the rapidity in the evolution of technology. The importance in the education of school students is paramount, where a strong foundation in varied educational fields is critical for future success, in college and university, and in professional life thereafter. P6roviding students to acquiring a strong foundation may present opportunities to explore new approaches to teaching foundational and basic concepts in any educational field. This article is based on research conducted in school settings, which involved exploring the optimal learning practices and strategies to impart ensure this grounding. The research findings indicated that students with a strong foundation were also able to develop critical thinking skills, valuable in solving problems, principally from a developed ability to think logically and even algorithmically.

One of the biggest and at the same time critical challenges could be the procedure of assessment and evaluation of student assignments. Traditional educational systems use g grade-based examinations which are often not of acceptable quality regarding an accurate result and a fair arbitration. Several long-time experiences imply, that not all students who pass an exam with a high score are really knowledgeable and *vice versa*. During this research, new methods based on AI and ML techniques were explored in an endeavour to understand the potential adaptations and evolution of the traditional examination systems, to potentially futuristic approaches.

Background

Before investigating how AI and ML can be used in education and how these can enhance the quality of education, it’s essential to have a brief review of Data Science and its allied branches. Data Governance is very difficult on a large scale of information. One computer science idiom is “Big data, Big problems”!

Machine Learning is extensively used in the design and development of algorithms and techniques that is conducive for computers to learn. The concept of learning is different between machines and human, although somehow, if a machine has the ability to discern the classification of many input patterns in relation to the output classes, it can be said that the machine is learning. Data Science is also a combination of techniques and methods for using data to generate valuable information for a specific reason. machine learning can be thought of as a flag which is planted at the intersection of several different disciplines such as, mathematics, statistics, logic, philosophy, programming, communication, and others. Figure (1) shows a block diagram of data gathering with relations and may depict how it can be amenable and adaptable to specific applications.

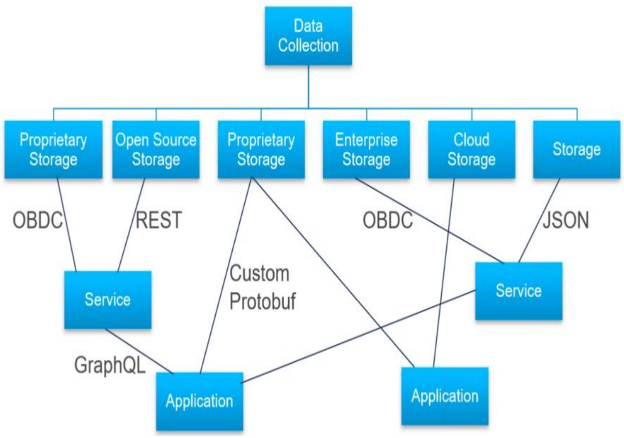

Fig 1. Data gathering block diagram

Now let us see, what a Data Scientist does. Actually, the main focus of a data scientist would be defined as a combination of different tasks in order to acquire pure information for

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a particular assignment, from a large amount of raw data. Whereas, the input data normally can contain millions of items, often withirrelevant, or redundant data. Usually, this refiningresult will be less than 1% rejection of the raw data. At a glance, those tasks can be classified as follows:

- Identification of the data-analytics problems
- Determination of the correct data source
- Extraction, Transformation and, Load (ETL)
- Mining of the stores of big data
- Analysis and interpretation of data

Though generally, in theprocess, a group and teamwork is involved in performing these different parts, as data scientists often are experts in only one or two of them. Figure (2) shows another block diagram of Data Mining and the process of leading data to a purposeful application.

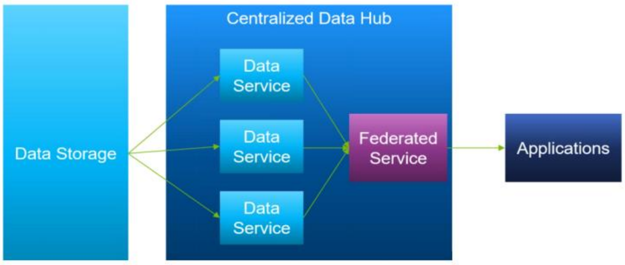

Fig 2. Data Mining block diagram

For those who are interested, these are happening by C++/Python/R/Ruby, Java, and Rust programming languages via expert developers. Meanwhile, those jobs are not very easy as they look and there are many challenges and problems, especially in contemporary data management. Figure (3) briefly indicates varied obstacles and associated their difficulties.

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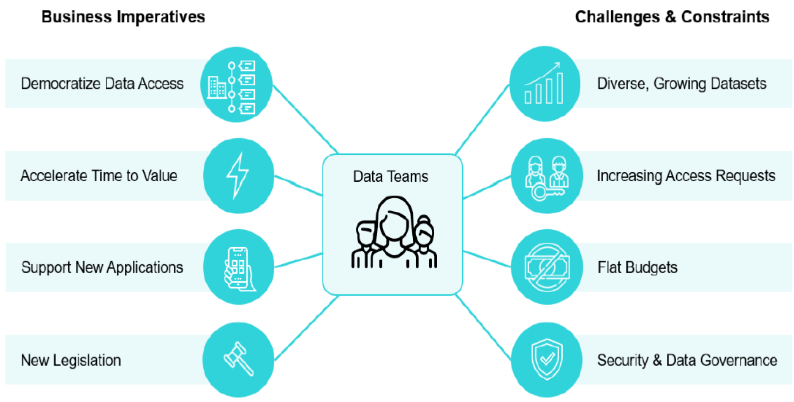

Fig 3. Data teams face multiple challenges

Online Education

When considering life after COVID-19, most colleges, universities, and other educational centreshave realized the considerable potential of Online Education. Although online education has a long history; however, in the contemporary environment of the pandemic, it has received more attention and is completely under the magnifying glass. In traditional forms, many universities using a blended learning approach, had an 80% classroom-based education and 20% as online offerings. The current situation with the virulence of the pandemic has led to the emergence and favourability of online platforms, perhaps a reversal of the traditional forms of education. The evolution of technology and greater need to embrace online platforms by virtue of sheer necessity, from the pandemic has also some positive benefits. Here I would like to point out asimilar example, which is from the period of the Second World War. Although, it had many ruins and devastations, but we should not forget that some of the biggest inventions and innovations happened at that time. For instance, the idea of distributednetworks and the earliest forms of the Internet.

Though AI and machine learning are also used in traditional education systems; however, the online education system has created an exponential increase in need and application for AI usage and its adoption in education. As an academic, I have been teaching AI and Machine Learning courses at an online university for a few years now. In the online education system, all the educational materials (Including all conversations between students and teachers) are in a digital format which means warehousing different file formats in the data storage. In online education, everything is web-based and course materials (Syllabuses, textbooks, announcements, discussion forums, course forum chats, learning journals, assignments, quizzes, examinations, and so on) are of varied digital formats such as text, image, voice, and video. These data leads to the generation of "Big Data"from the activities of thousands of students. The potential to manage and process this data with good methods in refinement and analysis may be invaluable in the breadth and scope of information, which can be optimally used to improve and enhance educational systems. The role of Data Science and Data Mining therefore may hence be quite obvious.

Applications of ML in Education

Machine learning can not only contribute to better education but can also revolutionize it. The specific problem is that there are anomalies and mismatch issues which invariably arise, increase the challenge to ensure educational sustainability by mitigating quality attrition in overall. Data science techniques arguably can be used in all levels of education from primary school, to postgraduate, and is not merely for specific academic streams, such as restricted to only computer-related disciplines. These techniques and manners can be applied to any educational program. As mentioned before, machine learning is already used in diverse aspects of education. Some common uses are as follows:

- Libraries, book housing, and resource centre's
- Peer Assessment (with a score for assessors)
- Plagiarism issues
- In the proctored exams and a myriad of different applications

Machine learning methods now are the possibly the ideal solution for different challenges and can facilitate regarding fast and easy access to detailed resources in libraries, book housing centres, and educational resources. The increasing number of resources and articles makes it even more necessaryeach day. One of most challenging parts of the online education is the Peer Assessment. The peer assessment is a part of students' assignment evaluations, that are performed by other students. This form of peer-review has many advantages and benefits and is often deemed a big help to save the instructors time and effort. Students also learn more and get a better understanding of study and learning concepts from course material via an assessment of the other students, and this peer-review process also increases the breadth of knowledge as students get introduced to other viewpoints on the same subject.To maintain equity and avoiding renegade assessments, there is also an assessment grade for peer students that rate their evaluation. Thus, if an individual performed a fair assessment, that would manifest as a high score and vice versa. In an online education system, the main problem is the calculation of this score. In other words, if the assignment is a mathematic question with a unique answer, all is quite fine and we can easily control the students' assessments. But, what about an English essay or a computer programming assignment, or similar other subjects? In such instance, there would not be a unique and specific answer. Again, AI and machine learning methods are the perhaps optimal solutions for this problem. Similarly, data mining can be helpful in the field of recognition, to identify and keep track of plagiarism incidence and academic integrity. The functioning of most of the academic integrity and plagiarism similarity checker websites and tools are based on data mining techniques, and compare a target document with millions of items to perform this indispensable, yet seeming impossible task, in the absence of these forms of machine intelligence. The proctored exams again are another cumbersome problem; in online education, though training is not face to face, but most of exams are performing under monitoring of a proctor. As this can be costly including other authenticity matters, once again AI and face recognition with image processing methods will solve some of the challenges.

Innovations

Up to now, we usually conducted classroom discussions on available, existing and already used methods, withing the subject matter and discipline knowledge. The aim of this article is to also contribute a few new ideas for focus and attention. One of the biggest challenges in any educational canter is a combination of a large number of students with different backgrounds, different levels of knowledge, varied learning speeds, and diverse tastes, all together in one single group as a classroom. How it would be possible to achieve an acceptable level of student learning and quality in this situation? The existing traditional solution could be an arrangement of course materials based on the general average point of all students in the classroom. Though it can cover a big part of midrange students'

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requirements; however, it would be useless or wasteful (or even impossible) for another part of students.Regarding different backgrounds and levels of the students, course materials could be converted and adaptedfrom the feedback receivedfrom the rate of student learning. The learning speed of every individual student could be customized and the training curriculum could be dynamically generated for individual students based on specific needs.AI can be customized to measuring individual student learning, aptitude and other aspects related to knowledge uptake, and then customized to the individual contributing to greater attainment of goals for the individual student.

Another important role in education, is the assessment process and the examinations. Currently, student evaluations and assessments are via grade-based exams. One of the biggest criticisms of the score-based learning systemcould be this question: *How accurately do exams evaluate students?* Of course, not all types of exams are accurate and the result of an exam does not always show the exact level of the concepts learned. The following two examples can clarify this subject much better. First, repeating an exam with another set of questions from the same course material and syllabus will result in different grades for the same students! Second, repeating an exam with the same set of questions but at different times (For example one week later) again will result in different grades for the same students! One of the most usual statements we have heard from students is: *"I knew it, but I just couldn't do it in the exam!*. On the other hand, there are limits and restrictions in designing the exams' questions, which also depends on the types of exam. From these challenges, clearly, not all of the concepts are convertible to the existing format of the questions in the exams' sheets. That means, the concepts are either test-driven (important for the exam) or goal-driven (important for the future career).

With utilizing machine learning as futuristic and modern methods, the shape and nature of the assessment and examinations will radically change. The result of any exam should not be a fail, or pass, and it should indicate which area is better to continue for the individual assessed. Subscribing to the belief that there is no weak student and it is just critical that we should discover apparent and hidden potential. Fortunately, the application of AI can contribute to the emergence of true potential in ways that would not be possible in the current and traditional approaches and formats.

Knowledge Graph

The Knowledge Graph is one of the significant tools in data science which is used in the education field. This graph contains many nodes and links and represents the relations and directions of all individual learned concepts in an interval. Whereas, it looks different for different students. Figure (4) shows a simple model of this graph for durations of the pre-college, to the professional age, or after graduation. The color of nodes indicates different categories of the learned concepts. For instance, all the blue color nodes are various learned concepts in mathematics at different levels, such as algebra, calculus, geometry, trigonometry, differential equations, probability, statistics, and logic.

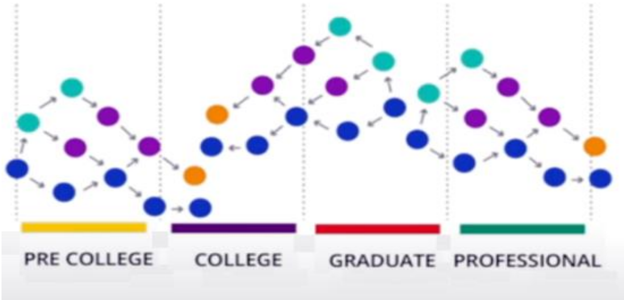

Fig 4. A sample knowledge graph

As is shown in the figure, there are correlations between nodes as well, and some different colors, which are different learned subjects, can be in interaction with each other. Actually, in the real world, this Graph contains a big number of nodes and the links between them as shown in Figure (5). One of the aims of using ML is interpreting this knowledge using Data Science techniques to obtain and identify strengths and weakness points for each student, and that too individually.

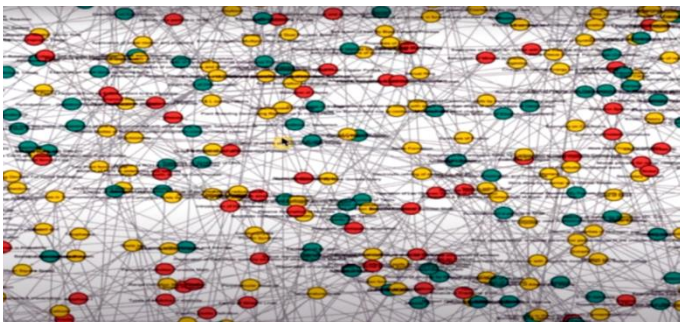
Fig 5. A full connection real knowledge graph

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Conclusion

In this paper, pursuant to an introduction to machine learning and data science , the potential applications were discussed. The applications to daily life and immense use in education, displays the immense promise and potential of AI, ML and Data Science. The pandemic has led to some benefitting aspects of educational evolution, and the rapid and accelerated flow of technological advances, requires us to use this science to improve and amend the defects and shortcomings of the current educational system.

Finally, a conclusion could be so that, in adaptation to the increasing speed of technology, our educational system needs a fundamental revamp, and the current and future value of AI and machine learning are immense to fulfil untold promise in this field and many other areas of human endeavour!

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STRATEGIC HUMAN RESOURCE MANAGEMENT (SHRM) PANDEMIC RESPONSE STRATEGIES IN PUBLIC & PRIVATE ENTERPRISES IN INDIA & SOUTHEAST USA: - A COMPARATIVE STUDY -

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Abstract

A comparative study undertaken on Strategic Human Resource Management (SHRM) Pandemic Response Strategies in Public & Private Enterprises in India & Southeast USA is presented in this paper, which is the evaluation and analysis of two independent qualitative studies, in the widely different and diverse geographies of Central India and the Southeast United States. The aim of the researchers, was firstly to contribute to the existing body of knowledge on understanding the SHRM response strategies in response to unprecedented devastation to organizations and businesses by COVID-19 in 2020-2021. The qualitative study with a multiple case study design is presented, and is from the perspectives of strategic human resource management policy makers, implementers and their insights into the strategic initiatives. experiments, decisions, policy changes, and other forms of adaptation, to ensure organizational sustainability and an environment of safety for employees. A comparative study of Central India and the Southeast United States, two distinct regions in different continents, with vastly different cultures, customs, human resource strategies, practices, policies, and business environments, yielded many similarities in overcoming the challenges imposed, and also some notable differences. The critical review and deciphering of the human race responsiveness to an unprecedent catastrophic phenomenon, possibly of greater magnitude and intensity, likely to match and surpass the cataclysmic events which wiped out the dinosaur, millions of years ago, may hold value for HR practitioners and students, from the many benefits and possibilities in global collaborations that this study brought about.

Keywords and Acronyms: Center for Disease Control (CDC); Work from Home; (WfH) Human Resources (HR); Human Resource Management (HRM); Indian Council of Medical Research (ICMR); Strategic Human Resource Management (SHRM)

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Introduction and Scope:

The research findings presented herein, is from "Strategic Human Resource Management (SHRM) Pandemic Response Strategies in Public & Private Enterprises in India & Southeast USA: A Comparative Study". This study is the outcome, evaluation and analysis of the following two independent qualitative studies, in the widely different and diverse geographies of Central India and the Southeast United States, respectively: 1. Pandemic Influenced Strategic Human Resource Management (SHRM) Initiatives and Policy in Government and Private Indian Enterprises, undertaken by Khisty and de Souza in 2021, and 2. Organizational Sustainability HR Strategies in the Southeast United States, conducted by Smith, White and de Souza in 2021.

Aim and Objective

The aim of the researchers, was firstly to contribute to the existing body of knowledge on understanding the tactical and strategic Human Resource (HR) response to the upheaval caused by COVID-19 in 2020-2021. This study centered around obtaining the perspective in the actions, adaptations, and innovation of strategic human resource management (SHRM) policy makers, implementers and from their accounts, those being at the receiving end of those strategic experiments, decisions, policy changes, and other forms of adaptation, the employee. Inasmuch that the pandemic has generated a flood of research studies, the aim pursuant to research, was to undertake a comparative study of Central India and the Southeast United States, two distinct regions in different continents, with vastly different cultures, customs, human resource strategies, practices, policies, and business environments.

From a review of an extensive body of recent and relevant literature of 2021, the seeming paucity of literature of the two uniquely different geopolitical, cultural, and organizational environments, denoted a gap in current knowledge. A key motivating factor was therefore in a desire to contribute however infinitesimally, through a research study, to the practice and field of human resource management (HRM). The research area may well be the most significant and studied phenomenon the world has ever witnessed, albeit in this study, was from the narrow conclaves of strategic human resource management, which provided the impetus and motivation for this study. The goal of the researchers, after conducting independent studies in India and the

USA, was next to critically scan the findings for common ground and approaches, in terms of the stark and subtle differences in the manifested strategic human resource management actions and experiences. The interviews were of SHRM professionals entrusted to make sense of major change impacting every facet of employer and employee relations, unified to combat the devastations of the pandemic, and helped to fulfill the objectives of this study.

Research Approach Persuasions and Rationale

The fabric of commonality woven into the two studies, was therefore a critical review and deciphering of the human race responsiveness to an unprecedent catastrophic phenomenon, possibly of magnitude and intensity, likely to match and surpass the cataclysmic events which wiped out the dinosaur, millions of years ago. After conducting the independent studies in India and the USA, the researchers, thus further under a critical evaluation of the aforementioned environments, and presented findings in the St. Francis De Sales (SFS) College International Conference “Global Collaborations in STEM & Humanities to Advance the Frontiers of Knowledge & Innovation” in March 2021, as Strategic Human Resource Management (SHRM) Pandemic Response Strategies in Public & Private Enterprises in India & Southeast USA: A Comparative Study.

The approach opted for in the research of the independent studies, was choosing a qualitative approach, and since different business enterprises were the focus in efforts to understand strategic human resource practices, a multiple case study was the logical design of choice as well. The aim of the researchers in both studies was to truly understand human dynamics, emotions, feelings, the reactions, empathy of employers, the feelings of employers, at a deep and personal level, therefore sterile numbers generated by quantitative research would not do justice to such inquiry. Interviews are conducive to deriving insights from data, voice inflection, and other non-verbal cues (Miller et al., 2018).

The rationale and justification of qualitative research and the appropriate multiple case study design were deemed suitable, based on extensive deliberations by the researchers, where all forms of research options and possibilities received extensive consideration. These thoughts on selection of the methodology and design of the two studies and the ensuing comparative evaluation, also entailed a review of a copious amount of pertinent literature, studies on human

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resource practices in India and the United States. Seeking the opinions of academics and practitioners steeped in the art and science of strategic human resource management, led to the appropriate development of interview questions, to meet the research objectives of these studies.

The substantive academic and professional experience of the researchers as business owners, human resource and organizational heads, and other areas of expertise in allied domains, led to the purposive selection of qualified exponents of human resources in private and public enterprises. Those interviewed, therefore was for the depth of their knowledge specific to this field and phenomenon. Participants were recruited for the depth of experience, seniority, and knowledge in SHRM, therefore for closest association and proximity to the phenomenon, consistent with the recommendations of well-regarded sources (Bordens & Abbott, 2018).

Reporting of Results

The first agenda in research was to explore and evaluate the HR policies of two public sector organizations and private enterprises during the COVID-19 pandemic, with Headquarters in Nagpur. This is the that is among the first fifteen largest cities in India, currently witnessing unprecedented ‘smart city’ evolution and development in amenities, and infrastructure. The aim of the study in the USA was to explore organizational and business sustainability strategies of human resources in Southeast United States, vis-à-vis, small business, which constitute the prime contributors to the economy of the United States. The Southeast United States is comprised of the states of Florida, Georgia, South Carolina, North Carolina, Virginia, West Virginia, Kentucky, Tennessee, Mississippi, Arkansas, Louisiana, and Alabama:

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The business concerns of the public and private enterprises studied, and the concomitant secondary research for the study portrayed the alarming trends of revenue declines in the large government of India energy sector of India, where productivity of coal-based power plants plummeted by 26%. As the diminished output in this sector sent alarm bells racing, it was to the credit of public enterprises, was that they did not respond by the drastic lay-offs that typifies management approaches in many countries, instead from our study, the human resource think-tank displayed empathic solution, in overcoming the daunting challenges, by innovatively striving to keep employees engaged. The empathy was also identical in the HR disposition in the small businesses in the US component of the study. In both international settings, the solution-oriented mindset, was in allaying the mortality and safety fears of the pandemic, commensurately matched with preventive strategies of social distancing, dispensing masks and sanitizers, freely, and in India, with improvements in quick health care treatment in revamped and improved medical facilities and care of individuals displaying any symptom of Covid-19.

Organizational & Business Impact: India/US: February to April 2020

India	USA
• Revenues ↓ of large Energy sector government organizations in India • Productivity of coal-based power plants ↓ by 26% • Challenges to human resources to keep employees engaged • Increased mortality/safety fears of pandemic • Lowered productivity and diminishing financial returns for organizations • Although some environmentally beneficial outcomes (Kanitkar, 2020).	• US Economy: 22 million jobs lost ↓ • Active business owners declined by 3.3 million, or 22% largest drop on record across nearly all industries Declines in Employment • African American: 41% ↓ • Latin-American business owners': 32% ↓ • Immigrant business 36% ↓

Beleaguered with the lowered productivity and diminishing financial returns for organizations, a silver lining, if it all it could be called one, were some environmentally

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beneficial outcomes (Kanitkar, 2020) of cleaner air, with reduction in traffic density. In the similar period in the United States of February to April 2020, the US Economy suffered immeasurably, with 22 million jobs lost. The number of active business during this period declined by 3.3 million, or 22%, representing the largest drop on record across nearly all industries. The employment figures, a key performance indicator of a nation, showed significant job losses, as evident in the figures for minorities in the table above.

The analysis of the interviews in India and the US was bythematically deriving key and standout common themes, including idiosyncratic and other differences, as is reflected in the important emergent key findingsin Figures. 1 to 5. In the first significant theme, as seen in Fig. 1, the findings in Common Theme 1, revealed satisfaction by employees of the employer efforts in India and the USA. Employees according to the interviewed HR personnel, expressed deep satisfaction and appreciation for HR efforts in health and business risk mitigation, in keeping the health and welfare of employees as foremost priority. As stated, the genuine efforts in prevention and proactive measures to safeguard employees, was further in India, with making payments of Rs 15 lakhs, *ex-gratia* for COVID-19related death in one public organization, treating it on par with accidental death in the course of employment in India, which was commendable, as opined by HR manager, relaying the sentiments of employees.

The flexibility options to employees, where feasible in India and the US was indicative of the inclination to shed bureaucratic inflexibilities of the past in large enterprises, for the ‘common good. While the advice and dictates of medical and regulatory agencies such as theIndian Council of Medical Research (ICMR), New Delhi, the apex body in India, and the Centers for Disease Control (CDS) were followed in almost rigid compliance. In the course of the pandemic, however it was also brought to light that these agencies were not infallible, for such is the virulence and unknowns that the virus brought to bear on treatment by medical authorities, that frequently the advice was retracted, or changed. Nevertheless, life continued, the focus on organizational survivability as the first order business, in parallel with the strategies to ensure the safety of employees.

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Fig. 1 - Common Theme 1: Employee Satisfaction of Employer Efforts in India/US

India	USA
High Employee Appreciation for 1. Safeguarding health of employees/families: 2. Offering Prevention: Sanitization of workplace, Masks, etc. 3. Revamping medical facilitates for COVID-19prevention and treatment 4. Make payment of Rs 15 lakhs, *ex-gratia* for COVID-19 related death in one public organization	High Employee Appreciation for 1. Protecting employees 2. Ensuring compliance with Centers for Disease Control (CDS) and Health Mandates 3. Offering flexible work options

Common Theme 2, as depicted in Fig. 2,.was about the comparison of Employer-Employee Relationships during the pandemic in India/USA. In India, the pandemic has a unifying effect, as it improved employer/employee relationships and fostered cooperation to implement COVID-19guidelines, with trade unions ,officers, staff associations an all in the organization collaborating to the common cause of reducing its debilitating intensity. The decline in cases of in-discipline and in-subordination in the public enterprises is evidence of management and staff collaborations to this end. A similar spirit of collaboration in small businesses interviews in the southeast USA, with an increased propensity for flexible workforce solutions.

Fig. 2 - Common Theme 2: Employee/Employer Relationships: India/US

India	USA
• Improved employer/employee relationships • Increase employee cooperation to implement COVID-19guidelines • Positive contribution by trade unions, officers, and staff associations in operations • Decline in cases of in-discipline and in-	• Improved relationships • Balancing by HR of Business Survival & Retaining Employees • Employment in USA generally 'At Will' – which means, relationship can be terminated with notice from either

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subordination	side • Small businesses generally have no unions and bargaining agreements

It would be remiss on our part as human research management exponents and practitioners to not mention, that in the contrast to the ‘job security’ inIndian public enterprises, employment in the US is generally ‘At Will’, in many private enterprise contexts, which means, relationship can be severed with the stipulated notice from either side. The illusory job security and often alters many dynamics in the challenges in “real and fictitious equitable” employment, quoting an aggrieved employee, as noted one of the study participants. A common truth also, is that small businesses generally have no unions and bargaining agreements in the US, as opposed to some public enterprises and larger organizations.

The ravages of the pandemic left little choice for business organizations of all dimensions and persuasions to innovate, reflected in Common Themes 3 to 5: Strategic Adaptation (Fig..) The common theme across public enterprises in India and the smaller business HR heads in India and the US indicated exercising the ‘work from home; (WfH) option for employees, where feasible, with the appropriate checks and balances for employee accountability and performance.

Fig. 3 - Common Theme 3: Strategic Adaptation

India	**USA**
Adaptive Strategies in Office/Administrative Operations: 1. Introduced fortnightly roaster to ensure 50% attendance with prior intimation 2. Implement ‘work from home ‘(WfH) with immediate effect - Circulate explicit guidelines on WfH - Display empathy for individualized cases and exceptions - Mandate strict social distance norms	Human resource managers Innovatively Adapting to the ‘new norm’ 1. Implement communication technological options for Employees 2. Facilitate remote working 3. Adhere to recommendations from the Centers for Disease Control

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Change Initiatives in Field Operations 1. Expect normal performance/output for remote work 2. Require uncompromising Pandemic Guideline compliance	

Expectedly, the flexibility, depicted in Fig. 4., is also seen in a combination of ensuring a delicate balance in maintaining uncompromising Pandemic Guidelinesregulatory and healthcare compliance, b) innovatively adapting to the 'new norm', c) leveraging optimally different communication technologies, d) favoring virtual meetings, e) curbing unnecessary travel, and other approaches to facilitate uninterrupted organizational working, and lastly f) keeping as the raison d'être employees safe and organizations profitable.

Fig. 4 - Common Theme 4: Propensity to Innovate and Embrace Change

India	**USA**
Transitions to Virtual Meetings 1. Virtual meetings for Board of directors, Joint bi-partite union, and management - **India** 2. Departmental promotions, and direct appointments through virtual mode. **Important Policy decisions:** 1. Implement voluntary retirement with payment of compensation and extension of all other benefits as applicable to retiring staff 2. Treat COVID-19 on par with accidental deaths for employee compensation and	**Transition to Changing COVID-19Environment** 1. Where feasible, employees transitioned to work remotely 2. Adaptation to leveraging communication technologies 3. Innovate or Die (Drucker, P.)! Mentality

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benefits 3. Stoppage of tours of employees to HQ and HQ to Field 4. Comply with guidelines/instructions issued by the district administration	

Conclusion

The recommendations and conclusions from our research in Fig. 5., may denote, that regardless of geography, work from home' may become more extensively a new work norm, even after normalcy returns, however this seemingly informed assumption warrants further study, as the simmering discontent is apparent in a Covid-weary environment. The optimal balance in striking a fine line in rationalization of staff and operational efficiencies necessitates further study in simulations, what-if-scenario planning and case studies, therefore in factoring practical and the real challenges encountered thus far, to develop transparent, customizable and adaptive short and long-terms solutions.

Fig. 5 - Common Theme 5: Management Imperatives

India	USA
1. Ensure uninterrupted work 2. Safeguard health of employees through strict enforcement of safety provisions 3. Strengthen existing medical facilities/care - Make COVID-19prevention and care specific - Provide medical and para medical staff 24/7 for care of employees/families	1. The show must go on! 2. Survive! 3. Innovate 4. Keep staff engaged and safe!

In involving employee representatives, trade unions and management more extensively in implementing long-term policy decisions, will demonstrate the willingness in spirit and actions of future collaboration to serve the best interests of organization and employees respectively. The

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ease by which the virus mutates, will call upon all the adaptive resilience and unflagging determination of all organizational members in ensuring safe and profitable organizations.

The comparative India & USA study and the presentation of findings were intended for a College audience. We trust, that students will be able to see that it is possible to collaborate seamlessly across the world, when the aim is to acquire and share knowledge. Our suggestions to students are toshed inhibitions, and strive to collaborate Locally and Globally! The beneficial ramifications in knowledge sharing will aid in developing critical thinking abilities, strengthen knowledge in and outside your area of study, so that it may propel to excellence in professional, academic, or whatever pathway you future calling may be. We exhort you to enlighten others, transmit and radiate knowledgeand help defeat the virus through education and informed knowledge!

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SUSTAINABILITY STRATEGIES AND THE BUSINESS AND SOCIAL IMPACT OF THE GLOBAL PANDEMIC ON US SMALL BUSINESSES

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Abstract

A multi-phase research study was undertaken in two phases.In Phase I, the emphasis was on exploring the actions and strategies of business to stay sustainable in the face of the massive disruptions of the COVID-19 pandemic on business and the impact on the most valued component of an organization, its human resources. The study was delimited to U.S. Small & Medium Sized Businesses (SME's) in the Southeast United States. To understand the experiences and insights of 5 business owners and human resources managers, a qualitative study with a multiple case study design was found optimal to fulfil the research objectives. From a thematic analysis of the interviews, the critical need for adapt and creativity in operations during the ongoing pandemic emerged. The twin responsibilities were to optimize the work and performance of employees and stay profitable and afloat, since the entire business world has suffered unimaginable reductions in business returns, with many closures. The 10 key findings of this study in Phase I, although not ranked in order of importance, may nevertheless provide useful strategic insights.In Phase II of the study, we asked these business leaders several questions, notably on how, despite the odds, they were managing their business with some degree of success. An analysis of those views let to the development of a blueprint on the essentials and imperatives for business development and profitable operations. The pandemic has adversely affected business operations, therefore regardless of business type, it is crucial to innovate, learn and adapt to remain sustainable. The ability to intelligently innovate, keeping financial returns in focus, will aid in efforts to remain viable and sustainable. Employees are the key differentiator in negotiating a most challenging and unprecedented environment ever, hence not only is of utmost importance to treat employees as key resources, this is the time to collaborate and partner with them.

Keywords: Centers for Disease Control (CDC);Human Resources (HR); Strengths, Weaknesses, Opportunities and Threats (SWOT; Small & Medium Sized Businesses (SME's);U.S. Small Business Administration (SBA),

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Introduction

This research study was undertaken in Phases I and II. In Phase I, the emphasis was on exploring the actions and strategies of business to stay functional despite the detrimental consequences of the COVID-19 pandemic on business and the impact on the most valued component of an organization, its human resources. The title of this study was Sustainability Strategies and the Business and Social Impact of the Global Pandemic on US Small Businesses. The study was conducted in the Southeast United States and was delimited to U.S. Small & Medium Sized Businesses (SME's). The Southeast United States is comprised of Florida, Georgia, South Carolina, North Carolina, Virginia, West Virginia, Kentucky, Tennessee, Mississippi, Arkansas, Louisiana, Alabama. To appropriately understand the first hand experiences and insights of 5 business owners and human resources managers, a qualitative study with a multiple case study design was found optimal to fulfil the research objectives. The purposive selection of these screened participants, to meet the pre-determined study participation eligibility criteria, revealed a breadth of business operation challenges and the innovative approaches to confront these.

Phase I of the Study

The findings from the analysis of the interviews are summarized below, and Phase II will be presented in detail thereafter. The 5 small business owners, from a thematic analysis of the recorded interviews, described the critical need for adapt and creativity in operations during the ongoing pandemic. The twin responsibilities were to optimize the work and performance of employees and stay profitable and afloat, since the entire business world has suffered unimaginable reductions in business returns, with many closures. The 10 key findings of this study in Phase I are presented, and although not ranked in order of importance, may nevertheless provide useful strategic insights. The analysis of recorded transcripts of the interviews, using a process of constant comparison, facilitated the emergence of the important themes for the interview questions in Phase I, as described:

Under theme 1, "Facilitated Remote Employee/Company Engagement". where feasible, the company and its HR put into place remote working options for the safety of all organizational members, with the endeavor to ensure business continuity. This engagement was in denoted in theme 2: “Leveraged Communication Technologies”: Skype, Zoom, phones and emails continue to serve as the communication options as where a physical presence is not required, seamless and asynchronous communication requires the innovative ways of communication in the many forms and technologies available. In theme 3, the value of employees seemed explicit: “Treated Employees as Valuable Resources”: The interviewed HR managers and owners indicated that the business runs because of employees, therefore in the COVID-19 environment, it is critical to recognize the value of employees in support, with the empathy, and flexibility required to run operations.

Continuing the reporting of the analysis, in theme4, on “Prioritized Organizational Engagements”, from the personal experiences, the organizational disposition was also indicated as very focused, so prioritized investments in time and money were commensurate with ROIand running efficient operations, warranting greater financial and ROI alertness, with the failure rate and closure of many businesses. In emergent theme 5, “Displayed Awareness of Economic and Health Data in Survival”, it was the participants in this study indicated how vital ii is in paying heed to data and figures from the epidemiology and healthcare data and implementing the guidelines on COVID-19 from the healthcare and regulatory agencies, such as the Centers for Disease Control (CDC).

Theme 6 represented successes, as their stories reflected how they “Created, Innovated and Carved a Niche for the Business”: The interviewed business heads stressed on the importance of delivering unique propositions, from the perceptions and estimation of customers and end-users. These business leaders emphasized the need for assessing customer choice behavior and trends to ensure the products and services filled a need and potentially a niche in the marketplace. Theme 7, emerged from the efforts and measures which “Increased Efficiency and Reduced Waste”. The continuous quest for efficient business necessitated adopting newer approaches, leveraging technology, and increasing lean operations in view of restricted budgets, dwindling customer spending during this period of the pandemic, and therefore a more responsible commitment to an austere and restrained focus in business adventurism and spending. Theme 8 was on the successes and challenges as the interviewees related how they had “Leveraged Digital Technology Advantageously”. The technologies referred to previously were to facilitate communication and remote operations, however extended to using the technologies in billing, marketing, supply chain, enterprise resource management, and other options.

Lastly, the concluding emergent themes 9 and 10, denoted social engagement: “Engaged with Stakeholders and Community: The interviewed business heads indicated the advantages of community engagement from a multitude of positive public relations, advertising, and marketing perspectives, which paid dividends in company and brand recognition equities, ultimately and circuitously contributing to profitability. The interaction with the community was through an “Enhanced Social Media Presence”: A greater social media presence noted the study participants, improved the awareness of the business by the customer, and added to image enhancement of the company, its brand recall of offerings, and many other ways of innovatively communicating with customers and building relationships of value and loyalty.

Phase II of the Study

In Phase II of research, we asked these businessowners and heads, several questions, how, despite the odds, they were managing their business with some degree of success. The overarching question below,are with the summarized responses:

What is Critical to Start or Run a Business? Their response(s) on some fundamental, yet critical actions are presented herewith:

The consensus of the interviewees on one of the important and critical sustainability strategies for U.S. Small Businesses, was that owners must create and live by a business plan, especially start-ups, to chart a course of generating returns on investment (ROI) that would likely help the viability of the firm to survive in a business climate of tumult and upheaval, and remain sustainable. The next step, or along the way would be to conduct internal and external assessments and reality audits, such as a SWOT (Strength, Weaknesses, Opportunities, and Threats) analysis of internal and external/environments. Business owners, it was opined, must calculate the cost to start/run a business because many entrepreneurs have great ideas for various business ventures, but often fail to understand the opening costs, and the running of it thereafter. McCollum, (2020), also affirmed the critical elements of creativity, business planning, mitigating risks, and judiciously capitalizing strengths while improving weaknesses, made in this paper.

From a statistics and informational viewpoint, the U.S. Small Business Administration (SBA) has noted that if a business has less than 500 employees, it is considered a small business (SBA, 2014). Another recommendation by the interviewees, was to secure funding for the initial startupand ensure ROI and support for sustainable and profitable operations. The interviewees advised of the various ways to secure funding (i.e., angel investors, obtaining a loan, familyand friends, or drawing from personal savings). The caution was that business owners should ensure continued income for new and established businesses to remain profitable because many companies do not survive the first 5 years from business registration, or inception. Small and medium-sized businesses (SMBs) are significant drivers of economic growth, job creation, and innovation in the USA. Around 29 million businesses with fewer than 500 employees in the US, represent 99.7% of all US businesses and almost half of total private sector employment (Deloitte, 2017).

Market Research/Diligence Vital for New & Established Businesses

Business prudence and diligence was ranked very high by the interviewed in the success pathway. The strong theme, gauged from analysis of interviews. was that small business owners should develop the competence of market and financial assessments, to anticipate trends, and formulate and implement suitable strategic actions and maneuvers. Market research was considered vital to evaluate the market, as a key initial step. The market is constantly changing, and so a business must display the diligence to use research, financial ratios, risk assessments, and generally undertake appropriately intense market research and competitive assessments and analysis, before starting out, or in running or established ventures. Market research is also vital and monitoring consumer trends are essential, because the analysis would proactively and reactively help anticipate, or reactively address current and future customer needs and wants. Diligence is therefore, it was held, critical to charter a strategic plan on business development and growth, one where the business keeps a constant vigil and commitment and focus on consumers, all stakeholders, and the community.

The recommendations in response to our questions, on business intelligence, gleaned from the analysis of the interviews was to use assiduously use market research and competitive intelligence to know where your company or business fits, or how it may cement or consolidate

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its place in the market landscape. The imperatives expressed were to a) Evaluate market in terms of size and share of the principal and other players b) Monitor consumer trends to potentially tap into, or improve business ideas and offerings c) Reduce risks, even at early stages of a business c) Gather demographic information to better understand opportunities and limitations for acquiring customers, by collecting data on population, age, Income/Wealth - anything data relevant to business. The importance of business intelligence and competitive analysis cannot be undermined, and the recommendations by the participants were to conduct thorough business intelligence and competitive analysis and thereby gain knowledge, as an aid and imperative to secure market advantage d) Learn (best practices) from competition and identify potential customers e) Define a competitive edge that creates sustainable revenue streams e) Identify competition by product line or service and market segment f)Determine industry size and the market share of leaders. From a business prudence standpoint, the business leaders interviewed, advised on the importance of introspectively assessing and knowing the strengths and weaknesses, while they cautioned that the window of opportunity in any industry is not ‘forever’, therefore the efforts in business intelligence would likely provide knowledge on opportunities, as well as barriers, to new and those already in business. Kennyand Zbinden, (2020) advised on the possibilities of harnessing cloud-based business intelligence, to enhance internal capabilities in real-time, concomitantly with improved efficiency or customer service.

Importance of Business Intelligence & Competitive Analysis

A few in the interviews mentioned, what we as academics and practitioners of marketing conducting the study, thought would clearly fall under the postulations of Porter’s Five Forces analysis. Notably, we interpreted and clubbed their views, spelled out on how vital it is be undeterred by competition, use the knowledge to negotiate with one or more suppliers, be aware of the established and the ‘upstarts’, and always remember that there is an alternative for every product or service. It is generally a buyers-market, since consumers have many options and tremendous power to control the destinies of businesses. Perhaps the key takeaway, was to use the knowledge of Porter’s Five Forces Model, in tandem with a SWOT Analysis, could aid in on ongoing process of keeping abreast of current and future swings and changes in the environment.

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Reducing risks even at early stages aids in over expenses that small business owners cannot afford, compared to the more risk absorbent larger companies. New and established businesses in the current COVID-19 environment, they contended, have to wisely be cautious on the expenses for business operations, and avoid over spending. The versatility of the SWOT is also evident in the study of Wang and Wang, (2020) in healthcare settings in China.

In the United States, small business owners can also gather knowledge from the U.S. Small Business Administration, which has a plethora of resources and business information. Those interviewed expressed concern, that businesses often fail to attract consumers and keep the cash flow healthy. The pandemic has led to the closure, as many small businesses to shut down and close doors for good, the disastrous impact on small businesses also cited by Papadopoulos, et al. (2020). Amadeo (2020) noted that competitive advantage is the process of providing goods or services at a cheaper price than your competitors. Business intelligence is the process that can aid in the transformation of data into actionable and informed business strategic implementation (Pratt & Fruhlinger, 2019), andAhmad, et al., (2020) reported significance in management and decision-making in enhancing the efficiency of business processes.

Questions to Ask and Data to Collect

As the small business owner or manager, what are some questions that one should keep in mind, and what data is critical, we asked our participants and an in turn, phrased those responses into the following questions: What is the current or estimate demand of the product or services? What is the market size and how many people purchase, or will buy your product? What is the income range and employment rate in the catchment area, and therefore how will you reach consumers? What is considered market saturation on the same or similar products that are already available to customers? What is the pricing for the alternative products? And,lastly, What knowledge or data will one utilize to stay current with business trends.

Summarization of Starting a Business

As previous discussed, before starting a business, one must conduct thorough research and brainstorm. The next step would be writing a business plan that would help on a strategic level, informed with the appropriate level of data and a SWOT. There is a simple formula that could be used to perform a break-even analysis of your business: Fixed Costs/(Average Price – Variable Costs) = Break-Even Point. Another consideration is securing funding for the business (i.e., loans, crowdfunding, angel investors, etc.). The final aspect is making sure that you are keeping tabs or track on the money that is spent. Business owners must avoid overspending and reduce risks at the early stage to stay sustainable beyond the first five years of startup, considered the period of great vulnerability. The blueprint to start a Business, may well be in the following words of advice and caution as a summarized guide from Stowers, (2020):

- Develop & Refine your idea: Brainstorm
- Write a business plan - Conduct market research.
- Assess your finances: Perform a break-even analysis
- Secure and Manage Funding – Loans, crowdfunding, etc.
- Keep Tabs on your expenses - Don't overspend when starting a business

Application of Knowledge in Studies (Academic, Personal, & Professional Life)

As this was a presentation to College students, we suggest to the audience and readers, that it is possible to apply the knowledge from the presentation in increasing academic success. We have perhaps demonstrated that the research study conducted and presented involved systematic efforts, which if correspondingly applied, may help students to reap the following benefits:

- Acquire deep knowledge in the chosen discipline of study
- Pursue a systematic quest for excellence in all endeavors
- Contribute and disseminate knowledge in student-community partnerships
- Use technology and internet resources to be a Subject-Matter Expert (SME)
- Reap rewards of success in academic and professional life
- Develop unique command in writing, expression and worldly affairs

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Conclusion

Derived from the interviews in Phase I and II, are some lessons on the benefits of philanthropy to a business. From the discussions,in two studies of successful and knowledgeable small business heads in the Southeast US, we also learned the importance of engagement and involvement of the community in surmounting challenges and making a difference to societal well-being. Donthuand Gustafsson, (2020) found some entrepreneurs personally benefitting and overcoming limitations by leveraging alternative, domain-specific sources of social support, from the positive feedback of customers. The determination and perseverance with internal and external partners require unfettered communication, and contrary to perhaps popular misconceptions, innovation is not the exclusive preserve of technological marvels, it can be in every walk of organizational subsistence and being. An innovative flair is critical though, and a business must strive to display the savviness in astutely blending technological and human capabilities within the enterprise.

The COVID-19 pandemic has adversely affected business operations, therefore regardless of business type, it is crucial to learn and adapt to remain sustainable. Communication is the glue of cohesiveness, and in trying times, the emphasis must be to facilitate, without constraints, the flow of information across the organizationinternally, and with customers and stakeholders. The ability to intelligently innovate, keeping finances in mind and in rein, will aid in efforts to progress and remain viable and sustainable. Employees are the finally, the key differentiators in negotiating a most challenging and unprecedented environment, hence not only is of utmost importance to treat employees as key resources, this is the time to collaborate and partner with them.

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THE STRATEGIES OF SUCCESSFUL BARBER SALONS IN INDIANA, USATO ENHANCE LICENSED BARBER SKILLS

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Abstract

The barber salon business in the United States is fraught with many challenges in achieving business sustainability. A limited pool of trained, qualified and licensed barbers compounds the limited availability in staffing skills in an industry where business skills are as vital as the finer aspects of aesthetics and craft in plying the trade. Many barber salons and other small businesses in the United States must overcome these challenges. The invocation of a qualitative multiple case study served to explore the business strategies of successful barber salon owners. The purposive sample of barbershop leaders who have displayed the required business management acuity, also led to knowledge on the strategies enacted by these individuals to overcome the challenges associated with a paucity of a skilled barber pool, attributed to low wages and the consequent high turnovers. The underpinning of the theory of transformational leadership provided an additional and suitable lens for holistic analysis, to supplement the primary data. The interviews of 3 successful barber salon owners, met the study participation eligibility requirements of being licensed, registered, and running a salon business in the Indiana region for more than 5 years. The important theme which emerged from the interview data analysis was the self interest in personal skill enhancement in every aspect of the business. The analysis of the interview data triangulated against information from the Small Business Administration (SBA) and other barber industry reports, provided the required depth for critical success factors for this business to emerge. The expertise and knowledge shared by the interviewees may well serve the quest of barber salon businesses in the Indiana region toovercome the staffing, business and financial sustainabilitychallenges of this industry. Knowledge from the study may contribute to the business and strategic advancement success factors, and hold value for current and future aspirants to this profession and the community of entrepreneurs.

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Introduction and Background

This research was embarked upon in the State of Indiana in the United States. The reason for the study was that in the wake of an alarming number of barber salons and other small businesses closures in the United States in the first few years, this area of study was deemed to be of significance to be explored, and in contributing to strategic business knowledge. A crucial factor frequently attributed to the early susceptibility and closure of salons may include the limited training opportunities and rather basic education levels mandated by the various state certification requirements in the United States. The best practices and success stories of business demonstrating growth, was therefore felt to be of significance to the business world. This study is a story of entrepreneurial barber salon owners with a track record of sustainability and their strategies in innovation and adaptation to overcome the business management and staffing challenges associated with a small pool of skilled barbers and the high staff turnover in a low wage profession.

There are business opportunities, as the Small Business Administration [(SBA)] (2016b) reported an establishment of 28,800,000 small businesses in the United States, in the third quarter of 2015. Hall and Pokharel (2016) noted that most barber salons are sole proprietorships. The Bureau of Labor and Statistics [(BLS)] (2018) indicated, however, that in 2016, at least 72% of barbers were self-employed and working full or part-timeas they own establishments. From the information, the BLS saw change of 13% in the employment of barbers, signifying, then an estimated growth in jobs, from 54,600 in 2016 to 64,000 in 2026. The qualifications perhaps are inadequate to manage these businesses, as Hall and Pokharel (2016) saw the minimum qualification for obtaining a barber license, of only a high school diploma, a limiting factor in business and entrepreneurial abilities to operate and run a business. While the minimum qualifications may be a positive factor, State licensing and other stringent regulations, Hall and

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Pokharel noted, makes the barbering profession unattractive to aspiring salon businesses. The inference from a review of data, trends, and employment statistics may well be that the running barbershops are often considered a profession of limited income and opportunities, and consequently also plagued with staffing challenges.

Problem Identification to Barbering Industry

Licensing and regulation excesses dampen entrepreneurial activity in occupational trades, and as experienced by an estimated 30% of U.S. small businesses and workers (Thornton & Timmons, 2015). The barbering industry widely considered to be low income generating, with minimum education required for licensing, presents limited business opportunities and financial rewards (Thornton & Timmons, 2015), and also adversely causes a short fall in the availability of licensed barbers in the employment pool (Hall & Pokharel, 2016). The general business problem is reflective of limited opportunities in revenues and economic attractiveness of the profession, to present low returns on investment, while stringent regulations present the dilemma of a limited competent and skilled barbers staffing availability. The specific business problem is that some barber salons are constrained by deficiencies in business management skills and experienced staff availability in surviving beyond the first few years of business formation, when the vulnerability of a business is the highest.

Purpose of Study

A qualitative study with a multiple case study was chosen to explore the business management and leadership strategies that the identified successful barber salons owners used to overcome deficiencies in business management skills and licensed staff availability in surviving beyond the first few years of business formation, and serving beyond the typical business threshold of vulnerability. The participants were purposively selected from the population of 69 government licensed and registered barber salons in Indianapolis, Indiana(Indiana Government, 2018a). The criteria in selecting the sample of

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three successful owners, was business operation exceeding 5 years of profitable commencement of the salon in the city. Amaeshi et al. (2016), and other researchers noted that small business growth holds social upliftment and beneficial change for communities. The findings and knowledge from this study hence could in some infinitesimal way contribute to improving the social and economic welfare of the barbering professionals, employees, and customers in the Indiana region. Barbers serve a vital social good need in being a resource for individuals to maintain good physical appearances and grooming.

Principal Research Questions

The central research question for the study was: What are the strategies of successful barber salon owners to improve licensed barber skills and achieve profitable financial operations?

Interview Questions

The important interview questions were:

1. What training programs have you implemented for enhancing barber skills in the salon?
2. What business management leadership strategies are crucial to achieve profitable operations?

Theoretical Underpinning

The lens of the transformational leadership theory (Burns, 1978) provided the underpinning for the study and constituted the foundation of the conceptual framework. Burns introduced the theory of transformational leadership in 1978, which Bass and Avolio (1993) developed further, by enunciating the fundamental 4 I's, denoted as dimensions of idealized influence, inspirational motivation, intellectual stimulation, and

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individualized consideration(p. 112).The postulations of the theory of transformational leadership aligned with the objectives of the study of management and leadership in barber salons. Martin (2015) noted that transformational leaders inspire followers. Martin also proclaimed the advantages in organizational performance, in their fostering a climate of empowerment and innovation in the workplace, to increase organizational performance and accomplish the goals of adaptability and sustainability. Gyanchandani (2016) endorsed the role of transformational leaders in stimulating workers intellectually, which contributes to organizational improvement.

Gyanchandani argued that transformational leaders are able to increase individual and team performance within an organization. Transformational leaders usually have the soft skills of empathy and display good emotional communication with followers and subordinates (Gupta & Mathew, 2015), of developing employees' efficiency and ensuring the profitability and financial sustainability of barber salon businesses. The theory of transformational leadership, in this study, served as a valuable lens for understanding successful business management leadership strategies implemented by the interviewed barber salon owners implement to improve licensed barber skills, increaseprofitability and growth of business operations.

Critical Review of Literature

Burns introduced the theory of transformational leadership in 1978, extended possibly further by Bass and Avolio (1993) by framing the fundamental 4 I's, denoted as the dimensions of idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration (p. 112). The inclusive four characteristics of transformational leaders and previously mentioned by Bass and Avolio, and it may be pertinent to analyze these further. Firstly, the charisma is referred to in the context of holding special qualities and the ability of the leader to express a sense of mission, and transmit the values and attributes for success among the workforce (Balwant, 2016).

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Leaders with charisma and the traits of idealized influence inspire and also challenge employees profoundly to rally them to the achievement of common organizational goals and objectives. As Eliophotou-Menon and Ioannou (2016) noted, that charisma servestransformational leaders to motivate employee commitment to the well-being of companies.Cheng, Bartram, Karimi, and Leggat (2015) found that the idealized influence of transformational leaders over employees is attribute to abilities in achieving remarkable results by spurring on employees to superior performance. The mission and corporate vision and goals are attainable by transformational leaders using their persuasive charisma or idealized influence.

Inspirational motivation is another characteristic of the transformational leader.Cheng et al. (2015) defined inspirational motivation, as a role model trait, which exemplifies determination and confidence, which galvanizes andmotivates employees to put in greater efforts in surpassing the average and expected performances. Balwant (2016) offered another perspective, in that inspirational motivation represents an engaging vision that transformational leaders convey within the enterprise, displaying optimism, a positive demeanor, and setting the bar high for employees, and leading by example to achieve higher levels of performance. Inspirational motivation, as suggested by Long et al. (2016), is a trait and ability of transformational leaders to inspire and motivate employees to often put in efforts that exceed and surpass usual and expected levels of effort, which consequently delivers superior outcomes in the pursuit of accomplishing the goals of the organization.

The caring and empathy usually shown by transformational leaders may denote their individualized consideration of employees. This third dimension of transformational leadership is the personalized attention to the individual employee by the transformational leader. The personalized attention or Individualized consideration depicts the human side of transformational leaders. Long et al. (2016) described individualized attention leaders pay to each employee, a quality which strives to

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understand needs and aspirations, and increases employee satisfaction. The hallmark of individualized consideration is the characteristic of transformational leaders to be the resources for employee's, serve as coaches and mentors, and display the caring to aid in the support, development and welfare of employees.

As the term Intellectual Stimulation implies, in the context of the development of the critical thinking of employees, by Bass and Avolio, it signifies the ability of transformational leaders to foster creativity and a personal penchant for innovation, as well as among employees. Balwant (2016) noted that intellectual simulation in this context is the transformational leaders inspirational and motivational abilities to urge employees to come up with innovative approaches in advancing organizational success. Marques de Lima Rua and Costa Araújo (2015) suggested that intellectual stimulation to be critical in exhorting employees towards a successful disposition in organizational life, and reaping rewards arising thereof from superior and motivated workforce performance. Quintana et al. (2015) claimed that companies face fewer uncertainties and anxieties when leaders possess and exploit traits holistically to boost the competency of employees and maintain the satisfaction level of customers.

Requirements and Small Business Aspects of the Barbering Industry

The professional license requirements for licensing of barbers in many states within the US, and including the state of Indiana, where this study was undertaken, mandate a minimum age of 18 years old, and a high school diploma, with the attending of barbering or cosmetology schools, and passing the state level licensing exam. The BLS (2018) noted that a qualified licensed barber is an individual who complies with the U.S. barbering industry regulations, of a minimum 16 years of age, with a high school diploma, and graduation from cosmetology or a state-licensed barber school. The training program occurs under the frame time of at least 1,000 hours in Alabama (Thornton & Timmons, 2015) or 1,500 hours for barbers, in the city of Indianapolis (Indiana

ISBN: 978-81-948301-9-1

Government, 2018b), which evidently shows variance from a state to another. Indiana Government (2018b) notified also that these circumstances vary slightly across the different states, which have resulted in discrepancies in the training hours. In the state of Indiana, barbering schools require 1,500 hours of professional study and training to license professional barbers, whereas, in other states, the minimum requirement is nine months (Hall & Pokharel, 2016). The emphasized view stressed by Hall and Pokharel is also that the requirements for barbering profession vary across states in the United States, with even little to no educational qualifications is acceptable in some cities.

Clark and Douglas noted that the SMEs owners are self-employed who often operate at or from private residences. Barber salons, in the United States, may fit the SBA (2017) definition of SMEs, by employing fewer than 500 workers. Hall and Pokharel (2016) informed that the state of Minnesota was the first to license the barbering profession to meet the barber licensing law enacted in 1897. Alabama, meanwhile, was the last state to conform to the barbering profession rules by passing a barber licensing law only in 2013. Bawany et al. (2014) noted that barber operations are small, and big road salons with three necessary facility conditions for the physical premise required for meeting requirements: electricity, water, and ventilation. The salon owners hire and employ some workers, and also operate within a standardized square feet area and the BLS (2018), classify salon owners as self-employees.

Critical Success Factors in Running a Business

The SBA (2018) indicated that to operate firms in the United States, entrepreneurs have to choose a name and register with the local state agency, protect it, obtain a license related to the field, select location, write a business plan, file and comply with hiring, tax reporting policies. The SBA also reported that an entrepreneur could avoid registering a business when using a personal name. The BLS (2018) indicated that the training, mandated high school education, and the management skills required are critical success

ISBN: 978-81-948301-9-1

factors in succeeding in the barbering profession. Ratajczak-Mrozek (2016) indicated that skills acuity often leads to steady value creation in augmenting business margin profits. Understanding the critical success imperatives of businesses typically entails a review of many factors, however; only the focus in this study was only on those considered vital from a business profitability and sustainability perspective.

Technology advancement. Thapa (2015) observed that the internal success factors essential in the running and management of a business enterprise, includes education, previous experiences, skills of leaders, and the foreseeing of entrepreneurial performance. Technology is crucial for running any business regardless of its size or year of establishment. The effective operation of salons requires licensed barbers the technological skills improvement to schedule convenient appointments with clients to make and grow sales. Using technology could be useful in tracking customers loyalty and grow sales. Salon leaders and owners may appraise licensed barber performances by evaluating the operation effectiveness in rendering satisfactory haircut services to customers.

Leader educational background and role model.Ikpefan and Agwu (2015) declared that organizations achieve results through leadership that uses the ability to leverage employee talents and skills. D'Netto, Shen, Chelliah, and Monga (2014) elucidated that as of 2012, the know-how of managers has contributed to the generation of $106 billion in revenue for the Australian economy. Salon owners can exploit, where applicable, the competencies gained from a business background, and utilize the experiences in designing and implementing adequate training of staff. The ongoing emphasis in view of the lack of trained staff, must be with the manager and owner imparting skills training, progress barber skills, as such strengths and abilities help in achieving developing a skilled staff to meet patron satisfaction and the consequent acquisition and retention of customers, with the desired financial sustainability each year.

ISBN: 978-81-948301-9-1

Barber salon owners and leader's effectiveness would serve in developing the barbering skills of staff.

Training and coaching programs for employees. D'Netto et al. (2014) observed that employees potentially constitute a crucial source of competitive advantage for businesses. Martinez et al. (2016) indicated that the improvement of employee skills could also ensure filling a gap in knowledge. The transfer of competency requires leaders to implement a continuous program of knowledge sharing and skill training for employees. The knowledge transfer could occur through consultancy, training, and coaching. Ikpefan and Agwu (2015) emphasized that as small companies face limited access to financial support and funding, the improvement of employee skills should become an essential factor in achieving business growth and performance. The intelligent management and allocation of financial resources display the sagaciousness and financial wisdom of leaders. The acuity in financial management comes with education, training, experience, skills, technical expertise and ability. Educating employees should be a strategic vision that successful barber salon owners implement to increase the quality of haircuts services and differentiate from rivals. Audretsch, Coad, and Segarra (2014) stressed that innovation lies at the core of economic growth; and is contingent on the knowledge, education, and development of employees.

Research Method and Design

The conduct of a qualitative approach engenders insightful results by helping researchers learn from the dynamic and changing nature of the researched phenomenon at a given moment (Park & Park, 2016). The use of semi-structured questions is useful to seek and reach objectivity in addressing the central research question but through the views of interviewees (Barnham, 2015). This research study entailed striving to achieve a profound comprehension of the experiences, strategies, and the mindset of successful barbers operating in the U.S. barber salon industry. Barnham (2015) declared that

ISBN: 978-81-948301-9-1

qualitative research has meaning when a researcher intends to identify the mental structures that business stakeholders use to depict and know organizational environments. The qualitative method and the conducted interviews undertaken in this study, optimally served in obtaining detailed perspectives and insights for this study on the strategies successful barber salon owners use for enhancing the skills of licensed barbers in achieving business profitability and financial sustainability.

Research Design

From extensive review of research methods and design options, an exploratory multiple case study was deemed a suitable design for this research. Using a multiple case study design, researchers exploit different small case studies sequentially to achieve reliable results (Singh, 2015). The data saturation, for this study, entailed controlling the depth of the interviewees' sample and finding repetition in the gathered data throughout the interview, as recommended by other researchers (Park & Park, 2016), and was implemented in interviewing successful barber salon owners in Indianapolis. The attainment of data saturation involved at least two rounds of interviews with each participant. As the aim was to stimulate a free flowing discourse and facilitate participants to share their challenges and successes unhindered.

The explorative multiple case study represents a study of several small cases (Johnson, 2015a) in which researchers seek soft facts from respondents to answer why and even what questions (Barnham, 2015). In the explanatory multiple case study design, researchers look at factors that may help explain the occurrence of a phenomenon through the qualitative analysis of participant experiences (Johnson, 2015a). The main purpose of this study was to discover strategies used by successful barber salon owners to generate knowledge that may serve other enterprises to succeed and grow financially. The explanatory multiple case approach did appear as a fit in fulfilling the goals of this

ISBN: 978-81-948301-9-1

study; however, an explorative design did suit the aim of gaining deep insights into the phenomenon studied.

Population and Sampling Approach

Purposeful sampling, a widely used technique, serves to recruit participants with the depth of association or knowledge sought in a qualitative exploratory study. Duan, Bhaumik, Palinkas, and Hoagwood (2015) have considered its merits, as appropriate for a qualitative multiple case research. In this study, the study three participants recruited, were for their track records of profitably running a barbershop business, beyond the initial three years of formation, considered the period of vulnerability for small businesses.Aside from the potential depth in perspective, Duan et al. (2015) advocated purposeful sampling as ideal when costs are constraints and efficiencies are desired. Although the snowball sampling approach is considered worthy for recruiting potential interviewees via online communication approaches, it can reduce the possibility for a researcher in interacting with selected individuals. Lauritsen and Perks (2015) stated that before choosing any respondent, researchers should assure targeted participants meet the criteria of eligibility. Participants who partook in the study met the study selection and eligibility criteria. Shafi, Baloch, Memon, Fatima, and Shafi (2016) suggested that researchers based on the goals and objectives of the study must establish proper interview questions, and screen participants to meet the eligibility criteria, from the identified population.

In this study, the voluntary consent of participants was achieved through signing a consent form, which also indicated the absence of any known risks for the participation in the study. The primary data collection involved interviews of barber salon owners, with established and selected successful businesses in the city of Indianapolis, Indiana, USA. The advice of Park and Park (2016) was heeded, notably by selecting study participants

ISBN: 978-81-948301-9-1

who had the required depth of knowledge specific to the barber salon business, to elicit quality and meaningful data.

Researchers should choose participants for collecting valuable insights in addressing the researched business problem (Ganesan & Saravanaraj, 2014) in a purposeful sampling approach. Gaining insight into the practical experience of three successful barber salon owners helped in acquiring new knowledge and a deeper understanding of thecritical success factors and business management imperatives in running barbering businesses. Singh (2015) indicated that when assessing data collected in a case study, researchers create new knowledge to help operate the business efficiently. The purposeful sample for this study comprised of selecting only successful barber salons owners located in (a) Indianapolis, (b) registered with the Indiana Chamber of Commerce or PLA. Thestudy participants recruited for this study were targeted barber salon owners over 25 years of age and running and operating barber salon businesses for at least 5 uninterrupted years, which also represented the important eligibility criteria to participate in the study.

The success of a study depends on the crucial responsibility of researchers who show rigor in selecting a sample size to fit the achievement of the expected goals (Kim, Giacomin, & Macredie, 2014). The sample from the population, as well as its size, can also be subject to a reduction to supply researchers with robust and adequate information (Linder, Samawi, Yu, Chatterjee, Huang, & Vogel, 2015) to meet the objectives of the research. Kim, Giacomin, and Macredie (2014) advocated that data saturation occur when researchers after conducting additional interviews are unable to acquire any other new insights from interviewees. Kim et al. (2014) counseled that the saturation of data involves selecting participants who are relevant to the study, precisely those having most practical knowledge in the subject area. A sample of three barber salon owners, with practical knowledge and experience about the researched topic, was adequate to attain data saturation, as this was possible with the richness of experience and insight that the study participants brought to the interviews. A professional research approach, albeit in

ISBN: 978-81-948301-9-1

relaxed settings and outside of business hours, provided the environment for the interviewees to express personal stories of business successes.

Data Collection

Johnson (2015a) argued that in a case study, there are multiple ways for researchers to collect qualitative insights. The approaches may consist of focus groups, interviews, observations, researcher immersion in experiences, and open-ended questions. A case study is a creative and logical approach (Singh, 2015), in which researchers have the latitude to use the subsequent: published reports, Internet, e-mails, websites, media, written documents as reliable means to collect and demonstrate evidence (Ogden & Edwards, 2015; Singh, 2015). Reviewing these documents, as secondary sources, contributed to supporting the findings from face-to-face interviews, reinforced the credibility of gathering data, guaranteed sufficient contrast, analysis, and facilitated methodological and data triangulation. Triangulation is vital to assure research quality (Ogden & Edwards, 2015). The documents, for triangulation and review, included a review of the trends of small business, perusal of several SBA official reports concerning SMEs, and other recent and pertinent sources of information related to barbering industry or grooming businesses.

Data Organization Strategies

Deakins, North, and Bensemann (2015) indicated that organizing the data facilitated identifying themes that emerge through the review of interviews and documents. Glowacki-Dudka and Griswold (2016) observed that researchers achieve consistency and trustworthiness through the discussion and review of all gathered data. Using codes, such as SP1, SP2, and SP3 aided our efforts in identifying and differentiating the three participants, and in assuring the participant confidentiality. In this research study, recurrent insights were grouped under themes, as these related to the overarching central

ISBN: 978-81-948301-9-1

research question, which helped to careful maintain the knowledge sought from the interviewees on the business phenomenon studied. A separate document contained interviewee contact information without any connections with the applied codes or identities, to ensure confidentiality and also to separate any form of participant knowledge which could potentially infringe upon the desired neutrality and biased free intention in the interpretation of results.

Data Analysis

Methodological triangulation is a worthy step in achieving comprehensive and holistic analysis, rather than using just the interviews. Johnson (2015a) asserted that the triangulation tactic helps researchers in overcoming deficiencies to reach convergence in the search for answers to the phenomenon. Using data triangulation, researchers endeavor to increase the reliability by revealing dissimilarities and resemblances of the research results within different respondent replies to the same questions from interviews (Singh, 2015). Methodological and data triangulation were necessary for this study because a comprehensive approach in data collection, perusal and analysis was the aim in validating the findings, using a combination of primary and secondary sources. The member checking enacted in this study, involved presenting participants the freed to review the interview transcripts, and subsequent to analysis, to offer additional views, where they saw the need for clarification, and adding to presented insights and perspectives. Johnson opined, that the implementation of member checking often forces researchers to seek confirmation, conformity, and accuracy in the data collected, and subsequently in interpretation, using the perspectives of participants, with the enactment of these opportunities that enhance credibility, trustworthiness and dependability of the study results.

The qualitative data analysis software NVivo, widely used by researchers (De Oliveira Menezes & Da Cunha, 2016; Johnson, 2015b), facilitated handling and

ISBN: 978-81-948301-9-1

analyzing the data. The uploading of data into the qualitative data analysis software NVivo followed the transcription of interviews. Oliveira, Bitencourt, Zanardo Dos Santos, and Teixeira (2016) defined NVivo as a package of software that researchers could exploit in gathering data to complete a dynamic and vibrant analysis. In a single case study, researchers could add and modify data, conduct cross-reference data or record insights as memos to avoid losing essential details. De Oliveira Menezes and De Cunha noted that the organization and classification of data enable researchers to employ a strategy of using nodal features NVivo. Nodes, as noted by Oliveira et al. (2016), reflect the categorization of collected insights based on criteria, such as participants, places, or organizations to help centralize and code answers before conducting any analysis.

The analysis of the study outcomes helped in developing substantial information for addressing the central research question of this study. The potential participant insights in tandem also aided in relating the findings to the theory of transformational leadership postulated by Burns (1978), in exploring strategies used by some successful barber salon owners to enhance licensed barber skills. We identified, analyzed, and contrasted latent and the key theme, as related to the central research question and compared to those expected from the conceptual framework. The responses of participants to the different interview questions revealed experiences, potential factors, and strategies successful barber salon owners use to exceed customer expectations in the quest for sustainable businesses.

Reliability and Validity

Reliability of qualitative studies refers to the achievement of objectivity in collecting verifiable insights to enhance the quality of the study’s findings (Erb & Pelger, 2015). As researcher, we collected objective, unbiased and qualitative data to assure reliability and validity of the study’s findings. Erb and Pelger argued that verifiable, objective insights assure the dependability in addressing the central research question. Garside (2015) noted that researchers can report justifiable and dependable results through using audit trails.

Qualitative research is dependable when researchers assure quality through the entire process to thoroughly report processes for developing findings (Bailey, 2014). The reliability/dependability and validity of the study outcomes depend on developing and using processes to enhance and ensure reliability/dependability and validity (Hays et al., 2016). In a qualitative research study, trustworthiness is achieved through using principles for demonstrating rigor through addressing the quantitative criteria of dependability, reliability, validity, and impartiality, as discussed, member checking and other such measures, aided in the attainment of these goals.

De Oliveira Menezes and Da Cunha (2016) argued that the methodological triangulation helps researchers compare participants' insights, against data collected from diverse sources, to assure the dependability and validity of the research study. De Oliveira Menezes and Da Cunha stressed also that researchers use triangulation techniques to ensure the accuracy of collecting data in answering the phenomenon under study. For this study, methodological triangulation included data from eligible and screened participants, supplemented with a review of essential documents from credible barbering industry reports. Rodham et al. (2015) noted that following the data collection stage, researchers should have participants review transcriptions to ensure alignment with initially recorded responses. The review of transcriptions by participants helps researchers to demonstrate transparency, credibility, and assure the quality of reporting the study findings to achieve and enhance the desired level of trustworthiness.

When using NVivo software, researchers perform vigorous, descriptive, and qualitative evaluation by analyzing, coding, organizing collected data thematically, and for comparing findings to theories related to the subject (De Oliveira Menezes & Da Cunha, 2016). Using NVivo software can facilitate researchers' efforts and capabilities to assure studies' quality, dependability, and confirmability (De Oliveira Menezes & Da

ISBN: 978-81-948301-9-1

Cunha, 2016).For assuring the credibility for the study, we used methodological and data triangulation, continuous engagement, member checking, relatable observations, and peer debriefing as proposed by Garside (2014). Triangulation, member checking, and constant engagement, relatable observations recorded with noted-taking, served as validation strategies in this qualitative, explorative and multiple case study. Teusner (2016) argued that the control of bias and subjectivity require trusting relationships building between researchers and interviewees to remove possible barriers and reduce any potential threat to validity.

Presentation of the Findings

Two semi-structured interviews served in exploring the strategies favored by successful barber salon owners to enhance licensed barber skills and to achieve financial sustainability and succeeding beyond the first 5 years from business establishment, when many small enterprises are susceptible to failure. The central research question that guided the study was: What are the strategies successful barber salon owners to improve licensed barber skills and achieve profitable financial operations? The data collection process included interviews of three established successful barber salon business owners. The participants in the semi-structured interviews held diverse and specific knowledge, experiences, and approaches in implementing business management leadership strategies, with the aim of ensuring successful and economically viable operations. The data analysis, entailed us using a process of thematic review of dominant conversations in the interviews, through analysis, yielded the critical strategies that the interviewed and successful barber salon owners shared, to achieve business profitability. The business sagacity as discerned from the interviews, reflected the experience to be past the initial 5 years from business establishment, when many small businesses falter. The 2 open-ended questions format provided participants an opportunity to recall, express, and share

ISBN: 978-81-948301-9-1

different insights, knowledge, practices, and experiences in the domain of operating barber salon business in the United States, particularlyin the Indiana region.

All participants met the study eligibility criteria of (a) over 25 years of age, (b) running a successful business for more than 5 years since business formation, and (c) established and registered with the Indiana PLA(see table 2).

Table 2

Selected Participants Meeting Eligibility Criteria

Participants	Eligibility criteria		
	Minimum age (25 years old)	Established and registered with Indiana PLA	Operating for 5 consecutive years
SP1	54	✓	30
SP2	41	✓	14
SP3	45	✓	6

Note. Table indicating the meeting of the eligibility criteria by all selected and involved participants in the research study. The check marks in Column 3 indicated that each of the participants in the study met the eligibility criteria of being registered with PLA.

In 2 weeks, conducting repetitive face-to-face recorded interviews, each of which lasted approximately 30 minutes, provided us as the researchers to acquire an in-depth understanding of business management imperatives and prudence, exhibited by these leaders, and a manifestation of the successful strategies of these successful salon owners. Reaching data saturation after conducting the three individual interviews required completing the four rounds of additional, albeit briefer repeat interviews with participants to ensure solidity in the research study and gathered data. Moridi and Aminshokravi

ISBN: 978-81-948301-9-1

(2018) found that data saturation is attained after questioning interviewees repeatedly and no new insights are developed thereafter.

After the recording of interviews, the transcription of each interview followed, which represented the primary data for analysis in this study. Participants received an individual copy of the interview transcript, with a request to review and confirm the accuracy. After data analysis, each participant also received the interpretation, a crucial step or measure to guarantee trustworthiness and increase validity of the study's findings. Thereafter, coding of data served as a measure to ensure the privacy and confidentiality of participants. For this study, using codes SP1, SP2, and SP3 helped us to identify each participant, with the use of additional sequential codes of C1, C2, and C3 to specify different cases. The codes C1SP1, C2SP2, and C3SP3 also served to complete a thorough analysis and aided in contrasting participant views specific to an interview question. Participant confidentiality, Moridi and Aminshokravi (2018) insisted that it must be through necessary codes, which may aid in portraying a specific semantic unit to extract principal themes. Participant information in this study on the operation of barber salons was confidential, stored on a password-protected personal computer, with data backed up on an external hard drive and stored in a locked safe.

The use of the qualitative data analysis software NVivo 12 facilitates data analysis. The interview transcripts uploaded into the software helps save time, benefit from the software features, and analyze data qualitatively to identify major emergent themes. The review of documents from business and barber salon businesses ensured the triangulation of data to ensure a holistic review and analysis of primary and secondary data. Based on the overarching research question, the data analysis of responses provided by participants guided the identification of 35 codes, which were abstracted into a single core emergent theme of: licensed barber skill enhancement.

Figure 1 is a diagrammatic depiction of reflects a thematic chart on the strategies generated from the analysis of interviews. The key theme, licensed barber skill

ISBN: 978-81-948301-9-1

enhancement, seemingly displayedbroken narrow lines within the barbering industry as referred to the three selected barber shops and barber salon business owners and leaders. The interviewed participants had no specific and implemented strategies to enhance employed or contracted licensed barber skill to achieve operationeffectiveness and financial sustainability, which is represented by arrows with broken and bidirectional lines, in Figure 1.

Figure 1. Diagrammatic representation of strategies implemented by interviewed participants in enhancing licensed barber skills.

The results from this study, where the aim was to explore the business management leadership strategies of the interviewed and successful barber salon owners, could contribute to knowledge and serve as a resource for successful and struggling businesses in this domain. The core and emerging theme from the data analysis of the study may reflect some critical and essential strategies needed to operate barber salon business successfully. The results from the research study showed that all the interviewed participants were likely familiar with challenges faced by the barber salon industry, willingly expressed and shared thoroughly detailed experiences and insights of approaches to negotiating these challenges. Using a combination of innovation and business acuity, participants expressed favoring customized and developed specific business structures, with diverse approaches of operation to overcome industry and other challenges and be successful. Below is the presentation of key emergent theme and the study findings, from the interpretation of responses to the interview questions.

ISBN: 978-81-948301-9-1

Theme : Licensed Barber Skill Enhancement

The emerged theme represents the findings derived from participant insights shared in responding to questions1 and 2, while expressing opinions concerning training programs, they respectively implement to enhance licensed barber skills. Table below encapsulates the approaches taken by salon owners, under operating models to improve contracted and employed barber skills to achieve business goals and results.

Table

Licensed Barber Skill Enhancement (Interview Question 1 & 2)

Salon Operating Structures	**Types of Training Program**	**Interpretation & Analysis**	**Observations**
Barber shop	C1SP1: "Licensed barbers went through 1,500 hours of training at school, so they should know everything. However, they can learn by watching me cutting hairs sometimes." C2SP2: "Most of employed barbers know what we give, so they try to give it in the same way." C3SP3: "I make sure all contracted barbers participate in	The interpretation of participant responses indicated that since licensed barbers receive training at a barbering school, they are skillful and knowledgeable. An interpretation of participant views indicated that most contracted barbers take active part in	There is no structured and scientific training program designed to enhance licensed barber skills within the salon. Although contracted barbers are often considered by many salon owners as co-partners,

ISBN: 978-81-948301-9-1

	yearly hair shows, such as Team Indiana Barbers. This is a continued education program for barbers."	job and hair show events, ostensibly to increase skills and to keep abreast of industry trends.	some owners request mandatory participation to hair shows for increasing barbering skills.
Barber salon business	C3SP2: "We also have on job training. One barber may be doing a demonstration of a new way to cut hair or trim bear and the rest of employees may be watching. Nevertheless, employed barbers may participate to hair shows, which is not mandatory."	The analysis of participant responses revealed that in the barber salon business, there is no appropriate training program, but the salon leader demonstrates a new approach of cutting hair, attempting to increase employee skills.	The demonstration of new ways of cutting hair or trimming beard, reflects on strategies used by salon owners to increase the skills of employed barbers.

Note. Table designed based on data collected from participants involved in the study.

ISBN: 978-81-948301-9-1

Citing the importance of training programs, 92% of participants did not implement any specific training strategy for enhancing licensed barber skills, which is represented by broken and bi-directional arrows in Figure 1. Participants, however, did value licensed barber skill enhancement in running successfully the salon activities, based on the analysis of collected responses. C1SP1 stated that “Barbers should know everything” therefore, as contracted barbers are co-partners or co-owners, there is no need to implement a specific training program to increase licensed barber skills. C2SP2 emphasized, “Employed barbers may go to hair show events, which is not mandatory, as they know our way to do things here.” These insights analysis revealed that salon owners and leaders strongly believed in the mandatory 1,500 training hours to professionally trained licensed barbers to run successfully business. C3SP3 opined that “Professionalism and continued education is required for barbers, on cutting hair.” An interpretation of this response may indicate that for contracted barbers or co-partners to be effective at operating barber salon, they must mandate further education to promote a climate of continuous improvement within the enterprise. The BLS (2018) reported that licensed barbers willing to open and run salon business need additional training in sales and marketing. The mandatory or voluntary participation of licensed barbers to hair shows may not be adequate to increase barber skills, which C2SP2 confirmed in stating “Demonstrating new ways of cutting hair or trimming beard, through on job training.” C3SP3 argued that “The hair event gives an opportunity to take additional classes to refresh knowledge and increase skills.”

In the barbering industry, participants developed diverse strategies based on the favored management and operating structure of the salon, evolved and currently in place to seem suitable to generate business growth and profits. Two of the participants in this study mentioned operating in collaboration with contracted barbers, as they rent and book chairs in advance and per week. C1SP1 stated that “I successfully addressed the key challenges by contracts.” C3SP3 emphasized that “I look at my contracted barbers not as

ISBN: 978-81-948301-9-1

employees, but as business owners." These two participants use self-motivation and charge booking fees per contracted barber in running their salon shop, as strategies to increase profitability and financial sustainability. C3SP3 mentioned, "I charge $85 and $65 respectively to contracted barbers who open four and three days per week." The BLS (2018) indicated that barbers who are self-employed, often schedule flexible working hours. C1SP1 noted that "I remind them the contract they sign." Although these participants are in co-partnership with contracted barbers, they paid great attention to how contracted barbers operate barber shop services. C1SP1 observed that "If barbers show up late and cannot respect the contract, I let them go." C3SP3 reinforced by saying "I make sure we all stick with the pricing policy….and I guarantee whoever cut the client's hair, the client will get great service." C1SP1reasoned, "My co-partners must understand that we are uniform."

The last and third participant, as a sole boss or leader of the barber salon business, declared that " I conduct one-o-one meeting and sometimes group meetings" but "I am not sure if I have addressed the key hurdles successfully…. and things happen again" C2SP2. The participant coaches and conducts meetings to ensure employed barbers completing missions efficiently. C2SP2 added, "I treat employees as they want to retain many as I can." This participant believes in and valuing employees to ensure customer retention. C2SP2 said, "You can build the business by retaining barbers and sustain financially from there; it is crazy!" This participant also coaches, offers bonuses to employees to assure commitment to work, but things keep happing. C2SP2 stressed, "I have to fire two of my employees, as they keep coming late…Sometimes, I have to be a firefighter to be successful." To achieve business success over time and through the years, C2SP2 mentioned, "My best strategy is: take great care of people, and they will take care of you."

ISBN: 978-81-948301-9-1

Study Findings Analyzed Usingthe Lens of Transformational Leadership

From the analysis of the interview data, the commonality of some business and management strategies formulated and implemented by participants, perhaps may indicate that there are imperatives and best practices to achieve business growth and success. The implementation of the mentioned strategies appeared to be common when looking at the commonalties in business management approaches across the data set and may be specific to the imperatives for what may be essential in the strategies to run a business in the state of Indiana. The data analysis in this study involved using a process of careful perusal of data using a process of constant comparison of responses, from which the dominant theme emerged, and represented the outcome of categorizing all the 2 open-ended interview questions into one group.

Using the lens of the theory of transformational leadership helped as a theoretical underpinning supplemented the qualitative data collected and analyzed from the interviews. A blend of theory and practice enhanced knowledge and advanced insight into the strategies these successful barber salon owners used to contend with the challenges of low wages, high turnover, and the shortage of skilled barbers. The study results therefore led to the awareness of the pitfalls and the strategies to surmount in the initial years, when new businesses are prone to failure. The findings from the data analysis helped to appraise factors related and congruent to the theory of transformational leadership. For example, the barber salon owners demonstrating the willingness to empower employees, collaborate, train, coach, and motivate employees are consistent with the theory of transformational leadership. The essential outcome of this study was that innovative, diverse, and customized strategies are critical for the barbering business, reflecting the ability to change and innovate in an environment where critical thinking and leadership is often the differentiator of success and failure.

ISBN: 978-81-948301-9-1

The finding in this study in many ways reflected that strategies used by successful barber salon leaders and owners appear mirrored in the essential qualities and traits of transformational leaders, as postulated in this leadership theory. The leadership attributes of charisma, individualized consideration, inspiration and intellectual stimulation components as manifested in the responses of successful barber salon leaders, depicts the important skills needed to achieve efficiency and business success in this industry and also serves to indicate the value of using an important leadership theory in a business assessment. From the data analysis, the clear implication is that diverse and innovative approaches to running a business salon aided the owners to overcome challenges and seemed to be the hallmark of the interviewed barber salon owners in enhancing licensed barber skills and to achieve sustained business profitability.

Recommendations for Licensed Barber Skill Improvement

From the analysis of the theme, the recommendations, which emerged from the responses of participants to the 2 open-ended interview questions, may aid advance the aspirations of barber shop, barber salon business owners seeking the continuous quest to achieve business growth and sustainability.

The first recommendation is that barber salons must shed the servant leader mindset and strive to develop transformational leadership qualities, retaining the service quality disposition of the latter style. A professional and managerial approach within the enterprise will help to avoid employees taking advantage of the leader's friendship. In developing transformational leadership skills and characteristics, barber salon business leaders and owners may develop the abilities to inspire, motivate, and stimulate contracted and employed barbers. Transformational leaders are role models, and in this setting would require the business manager and owner to playing a role model of salon leader, to foster a culture of engagement and leadership to spur employees to develop business and technical skills. Vatankhah et al. (2017) suggested organizational managers

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must demonstrate the leadership to inspire and motivate employees in achieving business and productivity goals.

Another recommendation is that barber shop or barber salon business owners need to implement specific and periodic training and coaching programs, through which they could improve the skills of contracted and employed barber skills related to customer service and the art of haircutting and grooming. This training program must include developing entrepreneurship knowledge to ensure developing the technical abilities and managerial and for-profit mindset of licensed barbers in employment. Church, Rotolo, Ginther, and Levine (2015) opined that it is possible to craft a single process or program to develop the talent and potential of employees.

Opportunities for Further Research and Strategic Recommendations

Researchers in the future can use this study as a guide to expand and extend the goals and objectives of this study. The first recommendation for future research, would be to replicate this study to include barber salon owners in other states within the United States, such as those with a large population, such as Illinois, New York, Florida, California, and other states. These states could yield new knowledge, as participants may have additional insights, and the experiences may be unique and different. The results of this study indicated that all participants had identified employee punctuality as one of major challenges faced in the barbering industry, therefore research could explore the incentives which can deepen understanding of this weakness and the solutions in rewards and other measures to increase customer commitment and the commensurate return on investments of skill and knowledge on business growth and development.

The second recommendation is to replicate this study to focus only understanding more extensively, critical success factors such as employee punctuality, workforce management and staffing challenges, as both are crucial to achieving the sustainability of barber salon businesses. Another recommendation is to conduct a study, to understand the

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entrepreneurial mindset, commitment, and explore the skills, and characteristics of managers, co-partners, and skilled staff, who could contribute to success, and may enhance the survivability of individual salons.

The participants in this study suggested the importance of contracted or employed barbers to voluntarily, or compulsorily attend hair events or shows, citing the priceless learning opportunities in business and skill development and also the industry trends and competitive dynamics that exposure to such events result in. The third recommendation is to replicate this study to ascertain how the strategies formulated by salon owner and leader are effective in enhancing barber skills and increasing managerial knowledge and aptitude in operating a successful business enterprise.

Summary and Study Conclusions

The knowledge from this qualitative multiple case led to the identification of strategies that the interviewed and successful barber salon owners used use to enhance licensed barber skills, increase profitability and achieve the growth of business operations beyond the first 5 years from business establishment. Using a blend of theory and practice, the lens of the theory of transformational leadership provided deeper and supplementary understanding, rationale, and holistic perspective of the phenomenon. The invocation of a qualitative methodology and a case study design served to collect and analyze pertinent primary data using face-to-face semi-structured interviews. The analysis of the interview data in the form of transcriptions, entailed the use of the qualitative research software of NVivo 12. From the thematic analysis using a process of data reduction and constant comparison led to the emergence of the theme, notably: licensed barber skills enhancement. The key learning from this study was that innovative approaches, as exhibited by the interviewed business owners may be a solution for sustainable businesses. The innovation and transformational skills can help overcome the challenges identified, of low wages, while investing in greater training of staff, can also

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help to overcome that limitation of a limited pool of skilled licensed barbers in the workforce. The recommendation would be to provide training, and commensurate performance based remuneration, which could manifest as competitive wages, with bonuses to employees, albeit with the requisite accountability in staff for achieving business growth, through skills and earning optimal customer satisfaction. The industry and business can be a career to prevent turnover, as these successful business owners demonstrated and the lessons can be applied by other salons, with the implementation of the strategies brought forth in this study. Successful businesses serve a vital social cause in ameliorating quality of life and the barber business can be valuable as it plays a vital role in personal appearance and grooming of society.

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TRAVERSING THE HISTORY OF MEDICAL SCIENCESTHROUGH ENGLISH LITERATURE

by

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Abstract

This interdisciplinary paper represents an overview of the various works inEnglish literature, originally in the English language,wherein there is documentation of the medical practises and advances of the times. The paper is a review of Anglo-Saxon documents related to healing, before passing on to the milestone work of Reginald Scot in establishing medical sciences as a rational field of study, distancing itself from witchcraft.The discussion in the paper is of *Macbeth* as a study in mental health disorders like schizophrenia, obsessive compulsive disorder (OCD) , sleep disorders and the use of hallucinogens.*Romeo and Juliet* isalso discussed as a text, as there is reference to the use of drugs to cause paralysis, coma or sleep, as per regulation of dose. The critical review of English Literature during this period, includes Wordsworth and the benefit of taking a vacation to lessen cortisol levels, before placing *Frankenstein* as a pioneering work, taking up the experiments of Galvani, Aldini and Darwin and showing the use of Physics in medical sciences to (re)create life. The paper finally is an examination of psychological health issues such as personality disorders and split personality types (*Dr. Jekyll and Mr. Hyde*), and includes a discussion on *Dracula* as a text, which documents the transfusion of blood.

Keywords

Anglo-Saxon charms;Dracula; Dr. Jekyll and Mr. Hyde;Frankenstein; Medical sciences, Shakespeare.

1. **Introduction**

The reviewof literature is a study of almost all the subjects – as subject matters have been treated by authors down the ages. The aim of this writer is to show the collaboration that has existed between English Literature and Medical sciences down the ages, by choosing seminal texts which feature the medical ideas and practises of the times, as well as scope for future researchers.

Due to the limited scope of the paper, the uses of medicine and medical sciences are discussed in texts which were originally written in the English language, and not the subsequent works of translation.

2. **Anglo-Saxon Nine Herbs of Charm**

Anglo-Saxon documents are well-known for providing one of the earliest English epics in the form of a heroic poem, *Beowulf*, but the Anglo-Saxons were also famous for documenting at herbs and charms which would have medicinal values. Grendon (1909) lists the "Leech book", found in Regius Manuscript and Harley 585 and 6258B to document the herbs and charms. In 1864, T.O. Cockayne published a collective work, "Leechdoms, Wortcunning and Starcraft of Early England" in 3 volumes (London, 1864), where two sections were devoted to charms. However, it was in 1705 that a specific work related to Anglo-Saxon charms was published by Humphrey Wanley in *AntiquaeLiteraturaeSeptentrionalis, Liber Alter* (Oxford, 1705). Following are the famous "nine herbs of charm" (along with their scientific names) propounded by Anglo-Saxon herbologists.

Mugwort***Artemisia Vulgaris***

Waybread (Plantain) ***Plantago Major***

Watercress (Hairy Bittercress) ***CardaminaHirsuta***

Adder-loather (Betony) ***Stachys Annua***

Mayweed (Chamomile) ***MatricariaDiscoidea***

Weregulu (Nettle) ***Urtica Dioica***

Crab-Apple ***Malus Domestica***

Fille and Fenule (Chervril and Fennel) ***Anthriscus Sylvestris, Foeniculum Vulgare***

It would not be surprising to know that most of the charms related to healing from poison and snake-bites, as life in Anglo-Saxon times in England was in the midst of Nature, and so, the most dangerous (and common) way to die was from a snake-bite.

3. Reginald Scot and *The Discoverie of Witchcraft*

The Discoverie of Witchcraft (Scot, 1584) expresses scepticism; regards magic and witchcraft as irrational and unscientific. In this work, Scot lashes out not just against the superstitions of the people, but also against the "unskillful physicians" who are responsible in maintaining the prejudice of the people:

> Yea and their opinions and conceits are confirmed and maintained by unskillful physicians: according to the common saying; Inscitiae pallium maleficium&incantatio. Witchcraft and enchantment are the cloak of ignorance: whereas indeed evil humors, and not strange words, witches, or spirits are the causes of such diseases. Also some of their cattle perish, either by disease or mischance. Then they, upon whom such adversities fall, weighing the fame that goeth upon this woman (her words, displeasure, and curses meeting so justly with their misfortune) do not only conceive, but also are resolved, that all their mishaps are brought to pass by her only means (Mallik, 2018, p. 197).

This work is important as it asks doctors to distance themselves from belief in magic and witchcraft and make their study of the world more rational explanation. The work also holds the "witches" to be mere victims at the hands of narrow-minded people and urges all to treat the so-called witches with sympathy.

4. *Macbeth* – A Study in Mental Health Disorder

Macbeth is often seen as a political drama – and it is so – but not always is it studied as a drama which depicts mental health disorders in a cutting-edge manner. The drama depicts conditions of Schizophrenia, OCD (Obsessive Compulsive Disorder), sleep-walking, and hallucinogens.

Let us look at each of these briefly.

4.1. Schizophrenia

It is now held by modern medicine that a schizophrenic patient, who suffers from hallucinations, can have personal hallucinations triggered by trauma or excitement. That is what we find in Act II, Scene I of the play, when Macbeth is about to kill the king, and is visibly nervous about the task, and sees a dagger suspended in the air – on which blood appears – and then the dagger begins to move. Macbeth realizes it to be a hallucination, and what the next remarks is not just about the dagger, but about the very nature of hallucinations itself:

> Art thou not, fatal vision, sensible
> To feeling as to sight? Or art thou but
> A dagger of the mind, a false creation,
> Proceeding from the heat-oppressèd brain?" (Mac. II.1).

It must be told here, that during the Renaissance, heat was considered a fluid that could literally press on the brain and cause fever and delirium (Mabillard, 2000).

Schizophrenic tendencies, although noticed by others at a later stage, are often manifested from childhood, and this too, is stated in the drama by Lady Macbeth in the Banquet Scene:

> "My lord is often thus/And hath been from his youth. Pray you, keep seat./The fit is momentary; upon a thought/He will again be well. If much you note him,/You shall offend him and extend his passion" (Mac. III.2).

Her advice to the others – not to regard Macbeth and ignore him completely – is of course not to be listened, as individuals who are schizophrenic and ignored completely might come to self-harm.

4.2. Sleep disorders

Macbeth offers a lot of advice on the benefits of sleep.

> Sleep that knits up the raveled sleave of care,
>
> The death of each day's life, sore labour's bath,
>
> Balm of hurt minds, great nature's second course,
>
> Chief nourisher in life's feast" (Mac. II.2).

It is known that melatonin is produced when the lights are off, and that (among other causes), triggers sleep. Another chemical released during sleep isgamma-aminobutyric acid (GABA). "GABA is associated with sleep, muscle relaxation, and sedation" ("Brain Basics: Understanding Sleep", 2019).Brooks and Peever found that GABA "switches off" the "specialized cells in the brain that allow muscles to be active" (2012). This would result in cessation of pain from sore muscles. If one examines the words of Shakespeare, it would be evident that sleep is stated to heal the "sore" parts of the body after "labour" and soothe the mind.

Sleep disorder is made most spectacular in *Macbeth* in the sleepwalking scene of Lady Macbeth. Here, Shakespeare combines sleep-walking with OCD and hallucinations. Not only does Lady Macbeth sleep-walk, she also washes her hands for fifteen minutes, and rambles disjointed thoughts, and hallucinates seeing drops of blood (and smells them, too)!

It is known to science that the centre for smell is close the centre for processing memory in the brain, so, often, a smell brings back a long-forgotten memory. Here, Shakespeare uses it the other way around.

4.3. OCD

Obsessive Compulsive Disorder (OCD) results in repeated action (which often appears irrational to others) for a regular and, and often, fixed duration of time. This is seen in Lady Macbeth's washing of hands, which she does for fifteen minutes. Rosenberg states, "Those with hand-washing compulsions are obsessed with fear of contamination and often wash their hands repeatedly until they are chapped, raw and sometimes even bleeding. They may also ritualize the process, for example, by washing each finger individually and in a specific order" (2017). She goes on to say, "Even after multiple washings, the anxiety associated with fear of contamination will continue to interrupt their thoughts to the point of disrupting their lives—and washing their hands does little to relieve the anxiety" (2017). This is what we see in Lady Macbeth, who, after rigorously washing her hands for fifteen minutes, declares with agony, "Yet here's a spot!" (*Mac*. V.I).

4.4. Hallucinogens

Although the text does not mention cannabis, it does state that certain roots and herbs can cause hallucinations

"Have we eaten on the insane root/That takes the reason prisoner?" (*Mac.* I.3)

Hemlock, Mandrake, Henbane have been offered as choices, and this might also be wild mushroom. The apparitions conjured by the witches might also have been the result of the concoctions of the witches prepared in the cauldron. Productions such as SYP's Macbeth (dir.

Mallik, 2019) show Macbeth to be drinking from the liquid prepared by the witches which causes the hallucinations ("Macbeth (Mallik, 2019)", n.d.).

5. Drugs in *Romeo and Juliet*

Popularly known for its romance, gang wars and tragic ending, *Romeo and Juliet* is also a text which shows the use of drugs to induce sleep, paralysis or coma-like state. Friar Lawrence gives a drug to Juliet, which shows her pulse and paralyses her for over forty hours.

"for no pulse / Shall keep his native progress, but surcease: / No warmth, no breath, shall testify thou livest; / The roses in thy lips and cheeks shall fade / To paly ashes, thy eyes' windows fall, / Like death, when he shuts up the day of life; / Each part, deprived of supple government, / Shall, stiff and stark and cold, appear like death: / And in this borrow'd likeness of shrunk death / Thou shalt continue two and forty hours / And then awake as from a pleasant sleep" (*Rom.*IV.1)

In a BBC article, Hammond (2014) suggested this to be nightshade (*Atropa belladonna).*Gerarde (1597) opined, that a small quantity causes madness while a moderate dose would cause deep sleep, or even death. So, this play is important not just in its mention of a drug which can cause paralysis and slow down all bodily functions, but also in its implication that drugs need to be administered as per dosage and needs to be regulated, so as not to prove fatal.

6. Wordsworth and the Restorative Power of Vacation

Modern medicine is not just about tablets, capsules and injections. It also includes therapy and, less often, allowing nature to heal. In the stress of contemporary life, it is advised that going on a vacation helps, as it lowers the levels of stress hormone, cortisol. We find Wordsworth to be a strong advocator in the rejuvenating power of Nature to restore one back to health. Dickstein stated, thatJohn Stuart Mill, who suffered from a nervous breakdown, tells in his *Autobiography* that "What made Wordsworth's poems a medicine for my state of mind, was what they expressed, not mere outward beauty, but states of feeling, and of thought coloured by feeling, under the excitement of beauty" (Dickstein, 1987).

7. Electricity, Anatomy and *Frankenstein*

Mary Shelley's magnum opus is mostly viewed as the horror novel that it is, but it is based on pioneering medical researches of the times. The appalling story of Dr. Frankenstein (sadly, misidentified by people in general with his unnamed creature) re-creating life by resurrecting a corpse is based on the experiments of Aldini, the nephew of Giovani (the famous scientist who experimented with the passing of electricity through the limbs of a dead frog, later resulting in his phrasing of the term “animal electricity”). In 1803, Aldini experimented with a dead criminal, passing electricity through his lifeless body, to produce movements. The following is that *The Times* reported regarding the experiment, as quoted by Professor Morus:

“On the first application of the process to the face, the jaw of the deceased criminal began to quiver, the adjoining muscles were horribly contorted, and one eye was actually opened. In the subsequent part of the process, the right hand was raised and clenched, and the legs and thighs were set in motion” (Morus, 2020).

Mary Shelley also took from Erasmus Darwin’s "Spontaneous Vitality of Microscopic Animals” (*The Temple of Nature; or, the Origin of Society: A Poem, with Philosophical Notes, 1803).* Darwin wrote, “There is therefore no absurdity in believing that the most simple animals and vegetables may be produced by the congress of the parts of decomposing organic matter, without what can properly be termed generation, as the genus did not previously exist; which accounts for the endless varieties, as well as for the immense numbers of microscopic animals” (Darwin, 1803, n. 8). Based on this, we have the following entry my Mary Shelley, “They talked of the experiments of Dr. Darwin, (I speak not of what the Doctor really did, or said that he did, but, as more to my purpose, of what was then spoken of as having been done by him,) who preserved a piece of vermicelli in a glass case, till by some extraordinary means it began to move with voluntary motion. Not thus, after all, would life be given. Perhaps a corpse would be re-animated; galvanism had given token of such things: perhaps the component parts of a creature might be manufactured, brought together, and endued with vital warmth” (Shelley, 1831). As can be seen, she takes the words of Darwin and applies it in a different context, fusing with the experiments of Galvani and Aldini, and coming up with her work of fiction. Her application shows a scientific temperament and analytical bend of mind. It would not be wrong to say that the world gained a brilliant author, but lost a female scientist in the making!

8. Split Personality Disorder in Dr. Jekyll and Mr. Hyde

This popular novel by Robert Louis Stevenson is about the scientist Mr. Hyde who sets out to distance the two sides of conscience – the good and the bad – and ends up creating two individuals, each representing polar opposite personalities. In medical terms, split personality

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disorder is called dissociative identity disorder. “Dissociative identity disorder is characterized by the presence of two or more distinct or split identities or personality states that continually have power over the person's behavior” (*Dissociative Identity Disorder (Multiple Personality Disorder)*, 2020). The novel links personality types with conscience, which, one might call the cognitive processes at work, shaped by our ethical values. Stevenson states through his character, “…man is not truly one, but truly two…even if I could rightly be said to be either, it was only because I was radically both” (Stevenson, 1886, p 108).

The novelist seeks to reconcile the disorder by dissociating the personality traits into separate “identities”A little later, he writes, "“If each, I told myself, could be housed in separate identities, life would be relieved of all that was unbearable; the unjust might go his way, delivered from the aspirations and remorse of his more upright twin; and the just could walk steadfastly and securely on his upward path, doing the good things in which he found his pleasure, and no longer exposed to disgrace and penitence by the hands of this extraneous evil” (Stevenson, 1886, p. 109).

This novel proposes a unique idea for future research into solving – or coping with – split personality disorder. It suggests a medicine which might be used to make a person completely display a certain personality. Therefore, if such a medicine is produced, it would enable patients to inhibit triggering the personality traits which they do not wish, and be the person they want to be.

9. Dracula and the Transfusion of Blood

The extremely popular Gothic novel, resulting into ever-increasing Vampire-fiction, documents the use of transfusion of blood, as was practised in the times – not in the way Dracula drinks blood, but in the transfusion carried out by Dr. Van Helsing.

Dracula was written in 1897, before the discovery of blood-compatibility by Karl Landsteiner.James Blundell, one of the earliest successful performers of blood-transfusions in early 19th century, recounts the problems of transfusion by stating that patients “suffered fever, backache, headache and passed dark urine” (Smith, 2019). In Dracula, Bram Stoker identifies blood as vital for life. This too, follows the observations of Blundell, who records that after administering blood, a certain “…patient expresses herself very strongly on the benefits resulting from the injection of the blood; her observations are equivalent to this—

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that she felt as if life were infused into her body" (Blundell, as cited in Smith, 2019). Keeping in tune with this statement, Stoker writes, "The blood is the life!" (Stoker, 2001).

10. Benefits and Conclusion

The writer in this paper endeavors to show how literature is a manifestation of society and how society is a manifestation of literature. It fosters inter-disciplinary research across subjects of different streams. The paper may serve the development of students in different disciplines, to think outside the box, and aim at continued and better representation of the medical sciences through English literature by future writers. This paper may also be useful for film-makers who wish to work on various works of literature – particularly, the ones discussed here – in showing a better representation of the medical practices of the times.

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