

Volume 5

Issue 1

Fall 2021

Westcliff International
Journal of Applied Research

WIJAR



WIJAR

DECEMBER 2021

ISSN 2572-7176

wjournal@westcliff.edu

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ABOUT WIJAR

Westcliff International Journal of Applied Research (WIJAR) is a multidisciplinary, double-blind peer-reviewed, open access journal pioneered by the faculty at Westcliff University. The journal was founded in 2017 and provides an opportunity for students, academics, and industry professionals to publish innovative research that offers insight into practical implementation. In order to widely disseminate new knowledge and scholarship, WIJAR advocates for all submissions to be written in a style that is accessible/available to a broad audience or readership, including those readers who may not be familiar with either research or the topic studied. The journal aligns with Westcliff University's mission to educate, inspire, and empower individuals through its dedication to supporting authors in the review and revision process to produce the highest quality content possible.

Distinguishing this journal from others similar is the strong support offered to contributors, especially first-time authors who may need additional writing or structural assistance. All contributors have access to the Westcliff University Online Writing Center where dedicated research/writing specialists are able to offer support and suggestions.

Published by: Westcliff University, 17877 Von Karman Ave #400, Irvine, CA 9261
Tel: 888-491-8686 | Fax: 888-409-7306
<http://wjar.westcliff.edu> | wjournal@westcliff.edu

LETTER FROM THE EDITOR-IN-CHIEF

As Editor-in-Chief for the Westcliff International Journal of Applied Research, I am consistently inspired by the individuals I work alongside, the authors who put so much intention and dedication into their work, and the way in which the academic community as a whole perpetually strives to find new connections and ways of contributing to growth and change. I would humbly like to thank Dr. Evelín Suij-Ojeda and Dr. Mary Broding, Associate Editors, for their commitment to our journal and its success. This journal, and the development and growth of it, is truly a team effort.

On behalf of the WIJAR editorial board, we hope that you enjoy this issue. We are grateful for the contribution that each of the authors has made to the field of academia and are proud to publish their work. May these contributions inspire depth of thought and consideration of publication in future WIJAR issues.

Christa L. Bixby

Editor-in-Chief

ACKNOWLEDGEMENTS

The publication of Westcliff International Journal of Applied Research cannot happen without the contribution of many dedicated individuals. On behalf of the journal, we would like to thank:

Dr. Anthony Lee and Professor Hirashiki, for their perpetual support of the journal and belief in the value it possesses for Westcliff University and the wider field of academia.

The WIJAR editorial board, internal review board, and external review board members. Each member has been dedicated to engaging in the process of review to evaluate and select quality research articles.

The Westcliff University Marketing Department for their contributions to the development of the journal's website, marketing of information regarding the journal, and overall involvement in the success of this publication.

The Westcliff University Writing Center, for their collaboration and support of each author in the process of review and revisions.

Last, but definitely not least, each of the authors who have put in the time and effort to contribute their ideas and insights in this publication. We are honored to share your work.

Psychotherapists Working in Private Practice During a Pandemic: A Literature Review

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ABSTRACT

Psychotherapists in private practice provide services to an ever-growing client population. The 2020 novel Corona Virus (COVID-19) pandemic was a catalyst for emerging and exasperated mental health concerns among the U.S. population. The result was an increase in demand for services and private practitioners stepping up to meet this growing need. Little is known about the psychotherapists who embark on independent practice and less is known about the nuances of practicing during a global pandemic. The aim of this review was to exhaust the literature on private practice psychotherapy and the practice of psychotherapy during COVID-19, synthesize the findings, report on themes in the literature, and provide recommendations for future lines of inquiry. Themes from this review included the impact of COVID-19 on public mental health, telemental health, private practice shifts, and private practice careers.

Keywords: psychotherapists, private practice, COVID-19, telemental health, pandemic psychotherapy

Psychotherapists Working in Private Practice During a Pandemic: A Literature Review

Psychotherapists are employed in a variety of treatment settings and among the top is a private practice office. Unfortunately, little is known about those psychotherapists who embark on practicing independently, in a private practice setting. The personal, professional, and contextual variables that influence the decision to work independently in private practice have not been adequately explored. Research historically centers on the patient, not the practitioner and the modality, nor the course of professional development. While the study of patients, their presenting problems, and the search for effective treatments are critical to evidence-based practice, the practitioner and

professional identity are important variables to consider.

Many therapists dramatically changed the way they deliver services, and some opted to transition to private practice following the onset of the 2020 novel Corona Virus (COVID-19) pandemic (Polovoy & Kornak, 2020). The reach of COVID-19 extended to all facets of life, and people had to pivot in order to accommodate widespread global change. On March 17th, 2020, the Centers for Medicare and Medicaid expanded and relaxed previous telehealth rules allowing for full telehealth services and reducing or eliminating patient cost-sharing in the form of deductibles and co-pays (Inserro, 2020). Other private insurance providers followed suit initiating similar changes (America's Health Insurance Providers [AHIP],

2021). Taken together, these changes had significant implications for mental health services, including who needed services, how services were delivered, where services were delivered, and how service providers were mobilized to meet the needs of a growing client population. Psychotherapists who followed the previously standard model of in-office and in-person visits (i.e., offices, health care facilities, treatment centers, and myriad other mental health settings) shifted to providing telehealth, often from their homes (Aafjes-van Doorn et al., 2020). The pandemic proved to be a call for therapists to meet a growing need for services, and yet little is known about how therapists work in private practice and even less about how they prepare for change to support clients during global unrest and pandemics.

The dearth of research on practitioners may be influenced by the clinical truism that practitioners are or should be blank slates for their clients. The gaps in the literature include motivations for career choice, career sustainability, and how private practitioners specifically support clients during global crises. Additionally, it is difficult to conceptualize roles and constructs such as psychotherapist, private practice, and varying ways of practicing among innumerable licensure statuses. For the purpose of this review, the term psychotherapist refers to an independently licensed masters or doctoral level practitioner who provides psychotherapy to clientele. The terms practitioner, provider, psychotherapist, and therapist will be used interchangeably.

The aim of this review is to explore the current theoretical and practical understandings of psychotherapeutic private practice during a global pandemic, synthesize and report on the overarching themes, and provide recommendations for future research that may lead to a better understanding of the nuances of the role and impact of work done by providers in this setting, especially during times of rapid change and unprecedented crises. The following databases were utilized for this review: Proquest, Google Scholar, EbscoHost, and ERIC. In order to be included in this review, articles must have been written in English, peer-reviewed or published from a direct source (eg. Insurer or licensing board) and published within

the last ten years. The following key terms and phrases were used: psychotherapy/ists in private practice, psychotherapy during COVID, therapists in private practice, COVID and mental health, motivation for private practice, psychotherapy and pandemics, and COVID and psychotherapy changes.

The Impact of COVID-19 on Public Mental Health

COVID-19 brought on major disruptions in the lives of many individuals and is projected to result in long-term negative mental health outcomes across the globe (Boden et al., 2021; Lie et al., 2021). Measures taken to respond to the pandemic have considerably shifted everyday life including routines, occupational and academic obligations, and shared spaces in the home; the result has been a complex array of stressors with negative impacts on public mental health (Javakhishvili et al., 2020; Khan et al., 2020; Lewis et al., 2021). The pandemic created specific issues related to both mental health and the people who provide mental health services (Lu et al., 2020; Soklaridis et al., 2020). The outbreak of COVID-19 has resulted in a growing body of research around the psychological impact of infection, fear of infection, and quarantine. Itrat et al. (2020) asserted that quarantine has had a clear negative impact on public mental health. Lee (2020) noted that as school was often a conduit for children and adolescents in need of mental health services, COVID-19 and related school closures left many children and families abruptly without necessary services. Taylor et al. (2020) went so far as to coin the term COVID stress syndrome to describe five factors of COVID-related distress, including fear of getting COVID-19, socioeconomic worries, xenophobia related to fears of foreigners spreading the virus, symptoms of traumatic stress, and compulsive checking and hypervigilance.

The demands of responding to the virus itself may have diverted resources away from mental healthcare (Mauro et al., 2020; van der Miesen et al., 2020). As governments responded to the global threat, restrictions like travel bans, business and school shutdowns, strict social distancing, and stay-at-home orders led to an uptick in the experience of mental health symptoms (AJMC, 2021; Rothe et al., 2021).

These restrictions, in turn, resulted in several added stressors for many individuals and families, including employment challenges, income loss, financial difficulties, isolation, greater tension between people sharing households, stress over the virus itself, and a barrage of conflicting information, all adding to an already weighty burden (Davulis et al., 2021). Javakhishvili et al. (2020) noted that among many of the COVID-19 related changes in life circumstances, cultural constructs ranked highly and included further stigmatization, discrimination and community fragmentation, and even the loss of culturally significant mourning rituals.

Stress, anxiety, depression, sleep disorders, fatigue, boredom, feelings of isolation, and anger are among the most reported mental health systems related to COVID-19 (Davulis et al., 2021; Javed et al., 2020). A July 2020 health tracking poll from the Kaiser Family Foundation found that many adults reported specific negative impacts on their mental health related to the coronavirus, including sleep issues (36%), eating issues (32%), and increases in alcohol consumption and/or substance use (12%) (Panchal et al., 2021). Additionally, a National Health Interview Survey (NHIS) found that from January to June in 2019, just 11% of adults reported symptoms of anxiety or depressive disorder, with that number rising to 41.1% in a January 2020 household survey conducted by the U.S. Census Bureau (Panchal et al., 2021). A cross-sectional study using data from the Centers for Disease Control and Prevention National Syndromic Surveillance Program examined nearly 190 million emergency department visits finding higher rates of visits associated with mental health conditions, suicide attempts, drug overdoses, and child abuse and neglect from mid-March through October 2020 than the same period in 2019 (Holland et al., 2021). The Federal Disaster Distress Helpline, run by the Substance Abuse and Mental Health Services Administration and the nonprofit Vibrant Emotional Health, received a surge in calls and texts, answering over 25,000 calls and texts in March of 2020, more than eight times the number of calls and texts from February 2020 (Hopkins & Russell, 2020).

Discussions centering around inequity in access to and general availability of mental

health services were already taking place prior to the onset of the pandemic. To this point, a Kaiser Family Foundation analysis of the Substance Abuse and Mental Health Services Administration (SAMHSA) restricted online data analysis system (RDAS), the National Survey on Drug Use and Health (NSDUH), and the 2018 and 2019 Substance Abuse and Mental Health Data Archive showed that 6.2% of adults reported an unmet need for mental health services between 2018 and 2019 (Kaiser Family Foundation, n.d.). A 2016 report from the U.S. Department of Health and Human Services examined projections for the supply and demand of behavioral health practitioners utilizing an integrated microsimulation model and found that shortages were predicted for clinical, counseling, and school psychologists; marriage and family therapists; substance abuse and behavioral disorder counselors; psychiatrists; mental health and substance abuse social workers; mental health counselors; and school counselors; and that these predicted shortages exceeded 10,000 full-time employees in each of the various positions (U.S. Department of Health and Human Services, 2016). These simulations were conducted utilizing multiple models, one with a baseline assuming equilibrium with 2013 provider supply and a second scenario estimating current shortages and projected demand. Neither scenario accounted for a global pandemic and the demands that might put on both the demand for behavioral health services and the supply of practitioners (U.S. Department of Health and Human Services, 2016).

Individuals who had previously experienced mental health problems reported worsening symptoms as pandemic stressors and other risk factors increased negative mental health outcomes, particularly among already vulnerable populations (Boden et al., 2021). Some populations were particularly vulnerable to COVID-19 including those with chronic illnesses and pre-existing medical conditions, the elderly, and frontline workers (Davulis et al., 2021). Patients who contracted COVID-19 reported feelings of regret, resentment, isolation, helplessness and new or worsening symptoms of depression and anxiety. Even in patients with no previous history of mental illness, COVID-19 was associated with an increase in the onset of the first presentation of psychiatric symptoms

(Taquet et al., 2021; Tingbo, 2020). Other socially disadvantaged populations were considered at heightened risk for greater mental health effects including those with disparities in education, income, employment, occupation, age, immigration status, sexual orientation, cultural/racial background, sex, and gender (Gibson et al., 2021; Litam & Hipolito-Delgado, 2021). Preliminary studies suggested that the COVID-19 pandemic is likely associated with rises in reports of stress and anxiety (Ahorsu et al., 2020; Pierce et al., 2021), symptoms of post-traumatic stress disorder (PTSD) (Tingbo, 2020), and increased substance use issues (Rehm et al., 2020). The impacts of quarantine on those individuals with pre-existing mental illness showed while the symptoms themselves were similar to pre-pandemic, they were much more severe (Itrat et al., 2020).

Notably, many individuals reported new symptoms and instances of mental health impairment, despite having no prior symptoms or treatment episodes (Holingue et al., 2020; Rothe et al., 2021). In light of this, there was a rapid and marked increase in requests to initiate mental health services. Mental health services, similar to most other medical services during COVID-19, were recommended to be provided remotely when possible, and so, the majority of outpatient providers shifted their practices online (Punia et al., 2020). Many of the traditional therapeutic or intervention models were not scalable to meet the increased demand for mental health services (Boden et al., 2021). Duan and Zhu (2020) noted that mental health responses in emergency conditions require flexibility to meet rapid change and manage any inherent constraints. More people were looking for services just as access to services narrowed with the abrupt shift away from in-person services.

Telemental Health

Etymologically speaking, the word pandemic is related to pandemonium (Szasz, 2020), and pandemonium accurately described the early days of psychotherapists transitioning their practices to telemental health. In the immediate aftermath of COVID-19 restrictions, there was tremendous confusion about how to follow state and federal mandates, stay safe, keep the public safe, deliver services, limit

liability, assure insurance reimbursement of services, maintain the integrity of legal and ethical guidelines, and operate within the law, or at the very least, within the "spirit" of the law. Clinicians, supervisors, clinical directors, educators, and those in similar roles were all doing this in tandem with managing their own personal and professional challenges around the pandemic.

Telemental health was already a modality that some practitioners opted to use pre-pandemic with studies attesting to its usefulness and efficacy (Andersson et al., 2019; Titov et al., 2018; Webb et al., 2017). The introduction of high-speed Internet and greater access to laptops and smartphones has made telehealth increasingly feasible (Sammons et al., 2020). Still, telehealth coverage before the pandemic was minimal and limited, with a complex regulatory framework, more of a niche healthcare delivery model in part due to the absence of uniform coverage from insurance providers or between states as well as adoption/implementation barriers like high startup costs, shifts in workflow, practitioner buy-in, and patient interest (Weigel et al., 2020).

In March of 2020, soon after the federal government declared a public health emergency, Medicare and Medicaid coverage of telehealth was expanded allowing for full telehealth services and reducing or eliminating patient deductibles and co-pays (Inserro, 2020). COVID-19 spurred greater interest in telemedicine as policymakers, insurers, and care providers sought out ways to deliver services with limited risk of virus transmission (Weigel et al., 2020; Weineland et al., 2020). The federal government was instrumental in expanding coverage by allowing Medicare beneficiaries from any geographic location to access services from their homes, waiving HIPAA enforcement for telemedicine, and even relaxing requirements on the prescription of controlled substances (Weigel et al., 2020). The state governments also had a role in expanding telehealth access and coverage by relaxing many of the provider licensing requirements, supervision requirements, and written consents, with some states even mandating telehealth reimbursement for fully insured private plans (Weigel et al., 2020).

Other private insurance providers followed in step initiating similar changes (America's Health Insurance Providers [AHIP], 2021). The pandemic accelerated the use of telemental health making it significantly more ubiquitous as insurance companies followed Medicare/Medicaid in adjusting behavioral health services and expanding coverage of telehealth beyond traditional parameters to meet the increased need and limited access to face-to-face services (Blue Cross Blue Shield, 2020). Taken together, these changes had significant implications for mental health services including who needed services, how services were delivered, where services were delivered, and how service providers were mobilized to meet the needs of a growing client population.

Private Practice Shifts

Due to the risk of infection transmission from face-to-face psychotherapeutic care, telehealth was the most recommended solution to offer clients continuation of care and access to care providers for those seeking to initiate services (Humer et al., 2020; Markowitz et al., 2020; Sampaio et al., 2021). The rapid shift to telehealth has been described as amounting to 10 years of change taking place over one week (Mueller, 2020). Sammons et al. (2020) noted that prior to the pandemic, only 29% of providers were using online platforms for a portion of their practice to current estimates of over 80% of providers practicing almost exclusively via telehealth. Barney et al. (2020) also noted a dramatic surge in telehealth visits at their Adolescent and Young Adult Medicine Clinic, increasing from zero to 97% of patient meetings in a single month. In fact, researchers contended that COVID-19 presented a turning point for the adoption of telemental health, offering a greater catalyst for the rapid implementation of telehealth than decades of research promoting the efficacy and economics of telehealth (Mohr et al., 2018; Pierce et al., 2021; Wind et al., 2020).

While telehealth can include various media platforms and phone systems, videoconferencing (e.g., Zoom, Doxy.me) was the most widely utilized medium (Fernández-Álvarez & Fernández-Álvarez, 2021; Smoktunowicz et al., 2020). Changes in insurance coverage of telehealth opened the

door to service continuity but presented challenges to therapists who were less comfortable with the technology associated with telehealth. Cataldo et al. (2021) acknowledged that for clinicians with a long history of face-to-face talk therapy, shifting sessions was not a simple task. Additionally, with the relationship being a significant factor in positive therapeutic outcomes (Rogers, 1979), psychotherapists maintained reservations that telemental health would impact the rapport-building process and capacity (Cataldo et al., 2021). Boldrini et al. (2020) found that psychotherapist satisfaction with telehealth was influenced by the rate of interrupted treatments, their previous experience with telehealth, their beliefs about telehealth with their specific theoretical orientation, and the use of video conferencing over telephone-delivered services.

Despite therapist concern about telehealth and its efficacy, a mounting body of evidence suggests that telehealth offers comparable results to in-person psychotherapy (Lopez et al., 2019; Norwood et al., 2018; Simpson & Reid, 2014). Simpson and Reid (2014) assert that the therapeutic alliance, a critical part of the therapeutic process, can be fostered in psychotherapy via videoconference, as clients rated connection and presence at least equally as strongly as face-to-face services across a number of different diagnostic groups. Norwood et al. (2018) asserted that while there was some indication that the therapeutic alliance was not as strong in telehealth, that target symptom reduction was equivalent. Lopez et al. (2019) found that practitioners generally have more reservations about the limitations of telehealth than patients do.

Psychotherapists also worried about telehealth in relation to HIPAA, security and confidentiality, technical logistics and failures, regulatory and legal changes, and managing insurance and reimbursement (Fernández-Álvarez & Fernández-Álvarez, 2021). As Markowitz et al. (2020) explained, telehealth presented some major technical hurdles like challenges connecting, frozen screens, delayed audio, dropped calls, and more, all adding to therapist attitudes about telehealth and its efficacy. Thompson-de Benoit and Kramer (2020) noted that good connectivity, a good

microphone, adequate lighting, a camera at eye level to enhance eye contact, and limiting distractions like notifications and email were critical to successful teletherapy.

Furthermore, some psychotherapists expressed fear of managing high-need patients via telehealth (Cataldo et al., 2021; Cullen et al., 2020). For example, suicide risk is often higher during a disaster or global threat like COVID-19, and this paired with a lack of face-to-face contact can lead practitioners to feel like they are inadequately prepared to manage risk (Gunnell et al., 2020). Additionally, some diagnoses like severe eating disorders are managed with regular weighing and other interventions that are not as easily delivered remote without thoughtful and creative adjustments (Matheson et al., 2020). Still, there is mounting evidence that many serious disorders like obsessive-compulsive disorder, bipolar disorders, suicide ideation, psychosis, and post-traumatic stress disorder are treatable via telehealth (Aafjes-van Doorn et al., 2020; DeLuca et al., 2020; De Siqueira et al., 2020; Hasson-Ohayon & Lysaker, 2020; McGinn et al., 2019).

While therapists reported appreciating elements of telehealth, like a reduced commute, they also missed the transitional buffer that working outside of their home provided them and reported greater fatigue and physical discomfort with telehealth (Markowitz et al., 2020). At times, telehealth could offer a window into a client's life that could not be seen via traditional office visits; however, some therapists reported this as distracting or disruptive as client behavior, pets, children, and family complicated sessions (Gabbard, 2021). Additionally, video conferencing seemed to require greater attention and focus than face-to-face sessions, as there is more difficulty in processing nonverbal cues leading to additional therapist fatigue (Gabbard, 2021).

Private Practice Careers

While private practice therapists make up a substantial percentage of mental health providers, there is a dearth of literature specific to this population. Harrington (2013) reviewed a decade of noted journals related to major licenses in the field of psychotherapy, which

included the American Psychological Association (APA), the National Association of Social Workers (NASW), and The Journal of Marital & Family Therapy and found that no special issues centered entirely on private practice and a scant number of articles specific to private practice. A review of the more current available research reveals limited progress in this area. While there are some estimations of the various numbers of behavioral health practitioners, there is almost no information on how many psychotherapists are in private practice, and it was found that most state licensing boards do not maintain easily accessible data about how many licensed or pre-licensed therapists work in private practice (Harrington, 2013). Given the extent to which mental health services are provided in outpatient settings, it is surprising that this data is not further studied and that the decisions leading up to and experiences of maintaining a private practice are incredibly underexplored. Even less is known about practitioners who pursued private practice during the global pandemic. The aim of this research is to address these gaps in the literature.

Discussion

Many psychotherapists will go into private practice during the course of their careers as an independent practice may offer autonomy, professional growth, scheduling and workload flexibility, relief from burnout in previous employment, and higher compensation. Unfortunately, very little is known about how many clinicians identify as private practitioners and why they choose that role for their work (Harrington, 2013). While private practice can be enticing, there are barriers to establishing a private psychotherapy practice, including startup costs, commercial office leasing, the complexities of insurance and managed care, the absence of benefits like healthcare, and the perceived isolation and lack of support (Harrington, 2013). COVID-19 led to widespread adoption of telehealth and resulted in shifting attitudes regarding the implementation and efficacy of telehealth (Békés & Aafjes-van Doorn, 2020). Given that a large percentage of psychotherapeutic services are provided in private practice settings and therapists support clients through a variety of micro and macro

level issues and crises, it is important to understand career motivations, barriers and benefits of independent practice, treatment approaches and outcomes, and the experiences of the providers.

Future research could explore the experiences of private practice therapists during the COVID-19 pandemic. This may provide insight on motivations to start or sustain independent practice and the impact of supporting clients during a pandemic. Additionally, a quantitative design could explore the relationship between variables such as competency, treatment approach, time in practice, and geography and treatment outcomes. Finally, educational programs preparing clinicians to enter the workforce can expand their focus on work preparedness and treatment populations to better encompass the nuances of private practice and pandemic counseling as both separate and overlapping phenomena.

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Living Theory Action Research: A Methodology for Improvement in Practice and Generation of Knowledge in Education

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ABSTRACT

This paper will provide an overview of the philosophical premises, the generation of research questions, data collection and analysis process, potential ethical issues, and quality of inference of living theory action research methodology. Based on the ontological value that everyone has knowledge within themselves, living theory action research considers knowledge to be the creation from evaluation and reflection as part of actions to improve educational practices. This paper suggests a way to move ahead with living theory action research by shedding light on the significance of multimedia use and the role of educational influence in its methodology to communicate the meanings of expression of embodied values and for the validation process. This paper aims to help emerging educational action researchers understand living theory action research as an innovative methodology to address the gap between values and practical implementation for action researchers.

Keywords: educational influences, educational practices, living theory action research, methodology, philosophical premises, multi-media

Living Theory Action Research: A Methodology for Improvement in Practice and Generation of Knowledge in Education

The role of an educator's action is significant in breaking dominant practices and facilitating change through learning inside the classroom and beyond. An educator's action, according to Haley and Wesley-Nero (2002), includes their engagement in self-reflection, critical analysis of their own practices, construction of knowledge, and dialogic perspectives. Armstrong and Moore (2004) claim that action research helps educators bring about change through a conscious effort to raise awareness about democratic and social implications. Action research enables stakeholders to move toward reconsidering the role of academics and the role of academic institutions within community practice that can transform the pathway of the future of education.

In this context, living theory, as a methodology, claims to have influence on everyone's lives and learning, either for better or for worse (Whitehead, 2018). Whitehead (2008) considers living theory as an explanation of an individual's educational influence in their own as well as other's learning and in the understanding of the social formation of the context where they live and work. Living theory action research establishes the relationship between the individual and the social context with the explicit use of action-reflection cycles in moving forward the inquiry that includes the expression of concerns if the values of the individual are lived fully in practice or not. Dewey (1933) explains this overall process as a reflective thinking process that includes a phase where the researcher comes out of doubt and hesitation through the act of searching and inquiring (as cited by Leitch & Day, 2006). This paper will explore how this educational inquiry shifts from personal experiences to social orientation in

living theory action research as a methodology that generates knowledge in education by focusing on its philosophical and methodological aspects.

Philosophical Premises of Living Theory Action Research

Living theory as a methodology was developed by Jack Whitehead to address the tension he discovered while conducting research between 1971-1972 for his master's degree in psychology of education. Whitehead (2008) determined that the disciplines of education were unable to incorporate the educational influences which equated to life experiences for both his, and others', learning. Dewey (1938) argued the importance of explaining life experiences in the disciplines of education is important for the improvement of the educators since understanding the experiential continuum of life leads to change and growth, reinforcing the individuals to develop the habitual ways of thinking to address new and different situations (as cited by Altan & Lane, 2018). Whitehead (2008) stated that the process of inquiring about his own learning specifically in relation to his values led him to clarify the meanings of his values through practice. Whitehead (2019) argues that the educational influence in learning focuses attention on the idea that what is educational necessarily involves learning, but that learning, to be educational, must include values that carry hope for the flourishing of humanity. Durden-Myers and Whitehead (2019) describe the flourishing of humanity as the thriving of individuals encompassing the notion of wellness, ideally in happiness and life satisfaction, mental and physical health, meaning and purpose, character and virtue, and close social relationships. Thus, the contribution to humanity signifies the growth of practitioner-researchers studying their own learning and their educational influence to inform an educational theory. Foucault (2013) uses the term 'archaeology of knowledge' to suggest this process as the enunciative function that operates within the general excavation of consciousness and designates questions beyond what is already said. Thus, Foucault (2013) focuses on the importance of new measurements, guidelines, and rigor.

Living theory action research has been emerging as a popular discipline in response to the social science forms of action research (Gearty & Marshall, 2020). Any quality action research has both a disciplined process of intervention and a quality avenue to communicate the findings of the research (Hughes et al., 1998). The basic underlying philosophical difference between action research and living theory action research is in the ontological assumptions (Whitehead & McNiff, 2006). While action research separates the position of the researcher and the researched by limiting the responsibility of the researcher to create the action plans to implement, living theory action research provides the researcher with the freedom to incorporate their values and find a common ground to negotiate between their desire to improve themselves with that of the others who wish to do the same (Gearty & Marshall, 2020; Manfra, 2019). The integrity of living theory action research, which Marshall (2005) terms as "first-person action research," addresses the ability of the researchers to hold an inquiry into their own lives, explore their practices, and provide a point of reference and accountability as they periodically check back to their dialectical engagement. Polanyi and Sen (2009) explore this as the nature and implication of "tacit knowledge" and explain it as the valid knowledge of the problem, the researchers' ability to sense and pursue the solution, and the valid anticipation of the implication of the solution after the inquiry. The ontological value of the methodology is that everyone has a vast store of tacit knowledge within themselves, thus having the faith in their capacity to come to know the truth as their life-affirming energy through which they derive meaning and purpose for their lives (Polanyi, 1998).

The potential of living theory action research has been explored in a variety of forms in the field of education and is considered a major component of practitioner research (Mandell & Herman, 2005; Whitehead, 2019). Schon (2008) terms this methodology as "reflective practice" where the practitioner acknowledges the tacit process of thinking in its "reflection- in action" process where the doing is accompanied by the researcher with constant interaction and modification on the ongoing

practice in such a way that learning takes place. Dewey (1997) argues that not all experiences are equally educational nor independent of the desire or intent to have “every experience live on in further experiences” (p. 27).

Epistemology is that knowledge exists in different forms. Rather than regarding delivery of information as acceptable knowledge, it considers knowledge as the creation from the evaluation and reflection of our actions that allows us to imagine our future actions where we enact our values and draw insights from others’ knowledge and values (Whitehead & McNiff, 2006). The values in living theory are the commitment to promoting equality and democratic practices and to promoting inclusion and caring relationships (Whitehead, 2018). The researchers embody their ontological values which later transform as their epistemological standards of judgment, which will lead them to realize the need for the effective use of language and help them turn their research into an educational theory. Ilyenkov (1977) argues that “understanding falls into a state of logical contradiction (antinomy) here not only because, and even not so much because, experience is always unfinished, and not because a generalization justified for experience as a whole has been drawn based on partial experience” (p. 34). Given that the profession of education requires a professional knowledge base, the living theory action research approach provides immense ground as well as respect for the educational researcher as an agent of educational improvement and change (McNiff & Whitehead, 2009).

Standing on these philosophies, living theory action research attempts to address the contradiction that a researcher can hold certain educational values, while at the same time, deny them in practice. In that sense, its axiology, just like other action research, is that it acknowledges the emancipatory practices directed towards both the individual as well as collective empowerment. The practices are based on the initiation of research by the researchers’ doubts and beliefs through their reflection, which gradually focuses more on the contradiction.

Generating Research Questions for Living Theory Action Research

Living theory action research involves self-study practitioner inquiry for transformation in an institution. Self-study practitioner inquiry is characterized by the inquiry of the roles of the self in the research project or the transformation of the institution through written reflections as well as critical conversations before, during, and after the action project (Kitchen & Stephens, 2005). Gearty and Marshall (2020) argue that self-study practitioner inquiry is “first-person action research” where the inquirers are the aspiring change agents for the systemic practice who have the responsibilities to pay heed to what they are doing. Wood et al. (2007) argue that sustainable transformation is possible only at the micro-level if we question our own practices to ensure the representative value of the institution. The systemic inquiries of action-reflection cycles in living theory emerge from the practical research question, “How do I improve what I am doing?” (Whitehead, 2008, p. 107). Thus, all research questions that stem from this insider view require emergent understanding throughout to ensure that the espoused values are supportive for the process of transformation.

Hyslop-Margison and Sears (2016) argue that the need for generating research questions as meaningful democratic dialogue to foster critical thinking in the premise of current neo-liberal ideology that regards the primary purpose of education is only to help them find appropriate places in the labor market without considering moral and social discussion through the shift in perspective. Whitehead and McNiff (2006) differentiate the generation of research questions as different from other questions through the disruption of the epistemological hegemonies of the social sciences that are more performance-management oriented and through their focus on the quality of the work of the practitioners, specifically through rigorous peer and wider academic educational research community feedback. Research questions are thus generated based on the dialogic logic with the assumption that every statement is a response to a question that may be unspoken but is there in a tacit form, making it significant to ask the right kind of question which improves performance and perpetuates conversation (Gladwell, 2005).

The idea of living logic in living theory highlights its emergent property of the research

questions. However, the research questions are formulated based on something that the educators experienced previously as the living contradiction, which Mezirow (1990) calls a “disorienting dilemma” (p. 14). It is a state when the educator holds two mutually exclusive opposites together in practice: one when they are practicing their educational values, and the other when they are denying the same values (Ilyenkov, 1977). The researchers trace their journey of growth to understand and improve the circumstances of the ones they hold responsibility for by exercising their methodological inventiveness and asking the research questions internally to oneself and discussing collectively with others and engaging in the process of transformation (Dadds & Hart, 2002). The methodological inventiveness signifies working beyond action planning and assessing and integrating the content, context, and values of the researcher in the inquiry. The integration is meant to provide a descriptive, original representation of the search of the researcher’s own understanding of an issue and their educational development. For example, the researcher will ask themselves, “How can I adapt my teaching to encourage students to prepare for class?” rather than asking “Why do the students not prepare for class?” (Wood et al., 2007, p. 69).

McNiff et al. (2009) claim that living theory action research is a distinctly human endeavor where individuals act with the best interest of others at heart “combining the ideas of taking purposeful action with educational intent and testing the validity of any claims we make about the process” (p. 18). According to Wood et al. (2007), possible examples of the research questions that enable us to reflect and interrogate our everyday practices and then ensure affirmative responses through critical continual reflection are:

- What do I do to improve my leadership skills to foster equality in my institution?
- Am I treating my teammates with humility and respect?
- How does my cultural background benefit/hamper my students when I am teaching?
- How can I encourage diverse perspectives in my classroom?

The two major objectives of quality research questions for action research, according to Whitehead (2008), are to: (1) help the researcher identify their potential, and (2) help the researcher acknowledge their flaws and limitations in terms of their theorizing and communication of their lived experiences.

Data Collection and Analysis in Living Theory Action Research

Data collection happens systematically throughout the process of practice. Embodied knowledge of practitioner-researchers is the primary data source in living theory where the researchers create and share the report of their educational influences to support and explain their ongoing cycles of research. Thus, data collection can be done through observation, interviews, tests, and surveys. Similarly, it can also include video/audio tapes, musical performances, transcripts of conversations, as well as other artwork. Whitehead et al. (2020) argue that the most important aspect of data collection is producing an evidence-based validated explanation for educational influence through a visual narrative.

Multimedia Presentations Using Digital Technology

Living theory methodology differs from other educational theories because it uses visual data to clarify the meaning of associated values and to enable empathic resonance. Blikstad-Balas (2016) argues that the use of video helps to dissect the complex and multifaceted phenomena into smaller entities which helps the researchers to look for patterns that are otherwise difficult to observe directly. Given that education is a value-laden practical activity, the personal knowledge of the researcher can be both powerful in expanding competence while also challenging. The challenge is not just to understand its limitations but also to communicate them. One of the challenges of communicating the meanings of embodied values in the data collection process of educational research is also related to the limitations of the words in print. Therefore, the need for the researcher to make video data accessible for the process of validation is a crucial step of the data collection process. Whitehead (2018) argues that “the use of digital

data in living theory is different than that from a coding or category system” (p. 45), and highlights the significance of reflective writing in the contexts where there are problems of collecting video data because of physical or psychological challenges.

Explanations of Educational Influences in Learning

Living theory requires a researcher to collect data and produce concrete evidence to demonstrate that they have improved their practice as an educator through ostensive and lexical expression (McNiff & Whitehead, 2009). Ostensive expression refers to the expression of the values and the principles that the researcher is associated with in their originality of mind and their critical judgment during their practice. Lexical expression refers to the meaning of words or values defined in terms of other words or values. Whitehead (2013) provides an example to clarify the significance of the use of both the ostensive expression and the lexical expression in the research by explaining how he would make his readers comprehend the solutions for the poverty in print-based academic text is. First he would focus on explaining ostensive expressions of meaning to show how the poverty in print-based academic texts can be overcome through digital narratives. Then, he would use lexical definitions to draw the readers' attention to academic texts to explore their implications for overcoming the poverty in print-based text. The idea of giving importance to both the ostensive and the lexical expression is to focus on the diversity and ecological complexity of the living spaces of the researcher to explain possible educational influences. Whitehead (2018) argues the importance of educational influences by connecting data with the educational responsibility. Polanyi (1998) claims educational influences as personal knowledge and trying to understand the world from both the individuals who acknowledge the importance of creative response and from the ones who resist it. The principle of action research in education is a value-laden practical activity that demonstrates the historical and socio-cultural influences associated with the continuous professional development of the researcher.

Action Planning in Improving Practice and Generating Educational Knowledge

Action-reflection cycles are a transformational process “used to transform the embodied expressions of ontological values, in explanations of educational influences in learning, into publically communicable, epistemological standards of judgment” (Whitehead & Huxtable, 2010, p. 7). Whitehead (2010) provides the following examples of reflective questions that researchers can answer individually or in a conversation with others as a part of the action planning process:

1. What do I want to improve? What is my concern? Why am I concerned?
2. What are the possible strategies for improvement and which one should I choose to act on my action plan?
3. What data will I collect to enable me to judge my educational influence in my professional context as I answer my question?
4. How should I evaluate the influence of the actions in terms of values and understandings?
5. How should I modify my concerns, ideas, and actions in the light of evaluations?
6. What should I consider while making public a validated explanation of educational influences?

The action planning process of living theory overlaps and connects with adult learning theories like transformative learning theory and critical theory. Similar to the framework of living theory, practitioner-researchers employ a dialectic approach for finding solutions to concerns (Wang et al., 2019). They further argue that we are all surrounded by developmental tasks and life problems and different personal as well as institutional ideologies necessary to critically reflect on living theory's idea of “living contradiction.” Mezirow (1990) emphasizes transformative learning through service-learning projects and reflective practice similar to the action-reflection cycle by focusing on the re-assessment of the assumptions that one gains over their developmental years.

The key actions for preparing a project, according to McNiff (2008), are classified into a set of phases: planning, designing, doing, evaluating, explaining, modifying, and

communicating. The planning phase involves finding the issue to investigate, which is then refined in the designing phase where the researcher brings in research participants, critical friends, validation groups, and identifies resources, timeline, ethics, as well as feasibility. In the doing phase, relevant data is collected while emphasizing the monitoring action, leading to the evaluation phase where the researcher focuses on the quality of the generated evidence of the data. Then, in the explanation phase and the modifying phase, the significance of the action is explained in terms of the educational influences in learning, and new ideas for action are developed, respectively. Finally, in the communicating phase, the planning for the multimedia representation is done to ensure the quality of the project. The generation of knowledge continues throughout the process where the researchers are thinking actively and critically reflecting while asking for feedback from their colleagues and supervisors for systematic ongoing reflection. The generated knowledge goes through critical scrutiny of others to ensure its rigor and validity.

Potential Ethical Issues in Living Theory Action Research

Action research findings can shift from its emancipatory purposes if the researcher is not morally and ethically aware about the social, political and economic conditions of educational practices (Van Manen, 1990). Apart from that, prior ethical considerations avoid the risk of harming both the participants and the researchers and minimizes the risks of leaving negative legacies. It also helps the researchers demonstrate respect for the participants by being conscious about protecting intellectual freedom by understanding that an individual has the capacity for originality and critical engagement (McNiff & Whitehead, 2005). Intellectual freedom protects the voices of diverse communities and helps foster interpersonal relationships, empathy, and respect. Moral and ethical considerations should be a priority right from the planning stage and should be documented properly.

Whitehead and McNiff (2006) provided three basic categories for an ethical framework in living theory action research: access, safeguarding rights, and assuring good faith.

This involves obtaining both the oral and written permission of participants and safeguarding their rights of voluntary withdrawal from the research process at any time if they wish to while assuring their confidentiality. Because the nature of educational research asks both the researcher and the participants to explore sensitive topics, like reflecting on educational influences and values, it is important to negotiate access and make the publication and distribution limited if needed. Thus, it is always important to contact all the participants and secure their permission prior to publication.

Meanwhile, owing to the importance of visual data in living theory action research, the researcher must be specifically conscious regarding the potential ethical problems that might arise if they did not obtain permission for making parts of a video public. Similarly, Brandenburg and Gervasoni (2012) highlight how dealing with sensitive issues and reporting them mindfully demonstrates trust in the self as well in the practitioner-researchers throughout the process. The ongoing need for critical appraisal extends beyond the associated institutions and ethical standards and goes much farther than commonly accepted criteria. Ernest (2012) provides a framework for ethical consideration which asks the researchers to critically reflect on the outcome of the presentation and publication in public forums and to observe how the researchers' assumptions and beliefs have been challenged, supported, or altered throughout their practice.

Quality of Inference

Validity in action research involves multiple people, techniques, and processes, thus including personal validation, social validation, and public legitimation (McNiff & Whitehead, 2009). When it comes to validation, it is important to consider the nature of knowledge, the embodied values, the methodology used in educational research, educational influences and the logic of educational inquiry. The nature of living theory action research is characterized by the inclusion of "I" as a living contradiction and is, therefore, associated with the self-study of teacher education practices (S-STEP). Whitehead (1972) argues that the researcher should perpetually ask questions related to the

validation of the knowledge that they are claiming.

Campbell (2013) has used empathetic resonance to communicate the meaning of the researchers' ontological values of "being loved into learning" in their explanations of educational influence. The use of visual data, therefore, is considered an important measure to look into validity and ethical consideration as it focuses on the significance of the relational dynamic awareness to comprehend the relationship between the researcher and participants. Living theory action research focuses more on the educational influences of the researcher and keeps the researcher at the center by focusing on their improvement of practice. Whitehead (2008) emphasized the importance of the validation groups as an important aspect of validation for the self-study practitioner-researcher. Habermas (1976), as cited in Niemi (2005), claims that the connection between understanding and reason normally consists of moral righteousness, reasons, belief that the action is the right thing to do, and the demand of the context. The validation groups consist of between three to eight peers and use four questions derived from the four criteria of social validity provided by Habermas (1976) on comprehensibility, rightness, truthfulness, and authenticity (as cited in Whitehead, 2008).

Conclusion

This paper highlighted the methodological and philosophical premises of living theory action research that is based on the professional practice question, "How do I improve what I am doing?" Living theory action research is based on the living logic of educational inquiry and embodied values of the researcher to promote quality-based practice in education, and it is important to make the findings public for the contribution of improving educational practices. The paper also provided considerations for attempting living theory action research by explaining its data collection and analysis process, potential ethical issues, and quality of inference. Finally, this paper shed light on the significance of the use of multimedia in action research to communicate the meanings of expression of embodied values in educational practices. Overall, the paper emphasized the use of living theory action research for the extension

and transformation of the educational practices by helping the researchers generate their living theory through the systemic use of reflective data, multimedia data, as well as the validation group.

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Predictive Value of Estimated Beta

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ABSTRACT

The Capital Asset Pricing Model (CAPM) is widely used in corporate finance to assess expected returns of securities and return on equity, and beta, a measure of systematic risk, is a component of the CAPM equation. Previous studies appear not to have addressed whether beta as a stand-alone metric allows individual investors to effectively assess returns relative to the market, and this study aims to address this. Exchange-traded funds (ETFs) reflecting a range of expected volatilities relative to the S&P 500 index were selected. Betas of XLK (Technology sector), XLE (Energy sector), XLU (Utilities sector), and XLY (Consumer Staples sector) were estimated by regressing their weekly returns over five years against those of the S&P 500 index. Three five-year periods were used (ending in 2005, 2010, and 2015). The betas largely conformed to anticipated values with the exception of that of XLY which was surprisingly greater than the market beta. Estimated and observed betas were compared using a two-tailed paired T-test and no difference was found, suggesting that estimated beta is statistically a good proxy for actual beta. In practical terms though, there were relatively large variances in several instances between estimated and observed betas, and this could be a concern for investors. Returns using estimated beta and actual returns were also compared over one, two, three, four, and five years with regard to the three five-year periods. Significant variation was observed for expected minus observed returns both in sign and magnitude. A two-tailed paired T-test suggested there was a difference between returns using estimated beta and actual ones over the three five-year periods for all funds except XLE. The observations suggest betas are volatile and individual investors should incorporate additional metrics to forecast returns relative to the market.

Keywords: beta, Capital Asset Pricing Model (CAPM), individual investor, sector funds, volatility transmission

Predictive Value of Estimated Beta

The riskiness of a portfolio is an important consideration for an investor. Standard deviation and variance are measures of absolute risk (Baltuttis et al., 2020). These measure volatility, but a better context is provided if volatility of a portfolio is benchmarked relative to the market. Assuming the investor has fully diversified away unsystematic risk, the systematic risk, pertaining to the market as a whole can be measured by beta, which is

incorporated in the Capital Asset Pricing Model (John, 2017).

The Capital Asset Pricing Model (CAPM), originating in 1965, is widely utilized, whether as theoretical underpinning in finance courses or applications in corporate finance. It is used to estimate the returns of portfolios adjusted for risk. In addition, corporations need to determine the weighted average cost of capital (WACC) in order to evaluate feasibility of capital projects (Khan et al., 2021). The WACC is used as a benchmark against the internal rate of return (IRR), or to discount cash flows of

prospective projects to ascertain net present value (NPV) to evaluate attractiveness of capital projects.

Capital structure varies across firms and industries, but typically, capital is raised by issuing some form of equity and debt. The cost of raising capital depends on the components of the capital structure and the cost of each component is factored into WACC. Common equity then, is usually an important component of capital structure, and its cost can be computed using the dividend growth model (Frank & Shen, 2016).

However, in cases where a firm issues no dividends the CAPM model can be used, and as suggested by a study reviewed by Khan et al. (2021), the CAPM is the method most used by Chief Financial Officers for determining the cost of equity. The CAPM model can be described by (1), where K_e is the cost of equity, R_f is the risk-free rate, R_m is the expected market return, $(R_m - R_f)$ is the market risk premium, and β_e is the equity beta, denoting market risk (Chen, 2021; Finch et al., 2011; Graham & Harvey, 2001). K_e can then be used to represent the cost of common equity in WACC.

$$K_e = R_f + \beta_e (R_m - R_f) \quad (1)$$

In addition to determining the cost of common equity, the CAPM equation can also be represented by (2), as follows, to compute the expected return on a security or portfolio.

$$R_i = R_f + \beta (R_m - R_f) \quad (2)$$

In order for the CAPM to provide reliable estimates, three factors, the risk-free rate, the beta, and the expected market return have to be determined. The ease of assigning values to these variables has been questioned. For example, whether there exists an asset from which a risk-free rate of return could be established was a seminal criticism of the model, and this factor has been the focus of many studies scrutinizing the efficacy of the model (O'Sullivan, 2018).

According to O'Sullivan (2018), subsequent criticisms have focused on two main strands; unsatisfactory performance of the model in empirical settings and the assumptions it rests on. Fama and French (1993, 1996) realized that both small firms as defined by market capitalization, and value firms, which had low market to book ratios, had higher performance than predicted by beta vis-à-vis

that of their counterparts. The incorporation of two dependent variables to capture size and value, in addition to beta, forms the three-factor CAPM model which made a limited improvement on the original one. Roll (1977), further deliberated on the empirical strand, questioning how the market portfolio, which is part of the portfolio, should be defined; for example whether or not returns on reputation and goodwill ought to be included.

Moving on to perceived theoretical flaws, a central assumption of the model is that investors are risk-averse; thus, compensation in the form of above-average returns is expected for riskier assets. O'Sullivan (2018) suggests that this assumption is axiomatic only. He posits that there is a wide spectrum of risk preferences in addition to risk aversion, and that the financial crisis of 2008 illustrated the risk appetite when sufficient gains could be contemplated.

Objective of Study

The CAPM's predictions have been falsified continually, but it remains a popular model. Brokerages and other personal finance websites that cater to the individual investor, however, do not expect the typical retail investor to use the full model by first estimating the variables that form the CAPM, and then compute expected returns across various portfolios. This is suggested by the fact that neither the equation nor the inputs to it are available on the websites.

The underpinnings of the CAPM are however, described by some brokerages. For example, Fidelity described factors with respect to the CAPM and its improved subsequent variations (Nielson et al., 2016). The article illustrated that factors such as size, value, momentum, quality, and low volatility could be weighted more in the portfolio to suit investing styles through the use of smart beta funds. There was no expectation though that the individual apply the CAPM model in one of its forms directly.

However, one element of the CAPM model, beta, is typically made available within standard quotes on personal finance sites such as Yahoo Finance, Marketwatch, MSN Money and Motley Fool, implying that the metric is of use as a singular measure. Beta is a measure of the systematic risk of the asset (Löffler &

Raupach, 2018). It affords an improved context for measurement of risk as investors are assumed to be rational and will have diversified away unsystematic risk. Assuming the investor is diversified and wishes to invest in the market fully cognizant of its vulnerabilities to economic, political and other events, beta should provide a meaningful measure of the volatility of the asset in relation to the market. Further, by removing the other factors viz. risk-free rate and expected market returns, the utility of beta as a stand-alone metric can be viewed.

The purpose of this study is not to evaluate whether asset returns adjusted for risk can be determined accurately via the CAPM model, but rather, whether beta as a singular measure, has practical value for investors in estimating volatility. The study will make a preliminary examination as to whether beta values, computed or extracted from websites, afford utility to the investor willing to bear a given systematic risk, and who can thereby employ the statistic to form a reasonable forecast of returns relative to market. By definition, the market has a beta of one, and a security with a beta of less than one will be expected to move in a narrower range than the market; whereas, a security with a beta greater than one would have magnified moves compared to the market (Anghel & Paschia, 2013).

The following research questions (RQ suffixed by its number) guide this study. Where a statistical test is used, only the null hypothesis, which is tested, is stated.

RQ1: "Do the beta values of the diversified portfolios reflect expectations?"

RQ2. "Do the values of betas ex ante conform to those ex-post for diversified portfolios?"

H₀₁. Estimated beta - observed beta for XLK (January 1, 2005 – December 31, 2010) = 0

H₀₂. Estimated beta - observed beta for XLK (January 1, 2011 – December 31, 2015) = 0

H₀₃. Estimated beta - observed beta for XLK (January 1, 2016 – December 31, 2020) = 0

H₀₄. Estimated beta - observed beta for XLE (January 1, 2005 – December 31, 2010) = 0

H₀₅. Estimated beta - observed beta for

XLE (January 1, 2011 – December 31, 2015) = 0

H₀₆. Estimated beta - observed beta for XLE (January 1, 2016 – December 31, 2020) = 0

H₀₇. Estimated beta - observed beta for XLU (January 1, 2005 – December 31, 2010) = 0

H₀₈. Estimated beta - observed beta for XLU (January 1, 2011 – December 31, 2015) = 0

H₀₉. Estimated beta - observed beta for XLU (January 1, 2016 – December 31, 2020) = 0

H₀₁₀. Estimated beta - observed beta for XLY (January 1, 2005 – December 31, 2010)

H₀₁₁. Estimated beta - observed beta for XLY (January 1, 2011 – December 31, 2015)

H₀₁₂. Estimated beta - observed beta for XLY (January 1, 2016 – December 31, 2020)

RQ3. "Do investments based on estimated betas generate returns close to those observed for the diversified portfolios over a five-year period?"

RQ4: "Do returns from a diversified portfolio based on estimated beta provide a signal as to actual returns over a fifteen-year horizon?"

H₀₁₃. Returns using estimated beta - observed returns for XLK (January 1, 2005 – December 31, 2020) = 0

H₀₁₄. Returns using estimated beta - observed returns for XLE (January 1, 2005 – December 31, 2020) = 0

H₀₁₅. Returns using estimated beta - observed returns for XLU (January 1, 2005 – December 31, 2020) = 0

H₀₁₆. Returns using estimated beta - observed returns for XLY (January 1, 2005 – December 31, 2020) = 0

Methods and Materials

Kaplan and Peterson (1998) stressed that betas of individual firms reflect substantial statistical noise; estimating those of a portfolio of firms closely related with respect to business lines yields more precise values. This is supported by Damodaran (2001), who claimed that variation of industry betas is very low relative to that of company betas.

Extension of this reasoning suggests that a portfolio of numerous stocks, as opposed to single stocks within sectors will reflect a more stable beta. As noted by Liu et al. (2021), sector investing enhances diversification by leveraging risk and return profiles of particular industries. Frazzini and Pedersen (2014) contend that a large number of investors, such as individuals, pension funds, and mutual funds, necessarily overweight risky assets as they are unable to utilize debt. This further underlines the relevance of beta in portfolio construction.

Thus, if betas of specific sectors could reliably predict returns relative to the market, this would be of utility to the investor, as sector weightings could be meaningfully used as part of a diversification strategy while avoiding the risk of investing in single stocks. Sector funds would then, provide a good vehicle for the investor to execute this strategy. Exchange-traded funds (ETFs) seek to mimic the performance of an index (Lettau & Madhavan, 2018). State Street Global Advisors affords a broad array of ETFs, and a sample was purposefully selected to sectors to represent a range of expected volatilities relative to the S&P 500 index.

A recent study examined the relative volatility of sectors to that of S&P 500 index (Investment Fidelity, 2018). The volatility of the S&P 500 index was 15% and the Information Technology and Energy sector were the most and second most volatile sectors with a volatility of 24.8% and 21.2% respectively. The Utility sector's volatility of 14.6% was closest to that of the index, while the Consumer Staples' sector volatility of 11.3% was the lowest. Accordingly, XLK (Technology Select Sector SPDR® Fund) and XLE (Energy Select Sector SPDR® fund) representing high volatility relative to the S&P 500 index, XLU (Utilities Select Sector SPDR® Fund) representing similar volatility to the S&P 500 index, and XLY (Consumer Discretionary Select Sector SPDR® Fund) representing low volatility relative to the S&P 500 index were included in the sample to be studied.

Beta values are not stable and the sampling period used to estimate these is an additional variable in the usefulness of prediction. Aygören & Saritaş (2007) used two three-stage methods for beta correction and found the adjustments significant and further, that longer time periods such as eight to nine

years produced more accurate results. However, their sample includes 90 stocks listed on the Istanbul Stock Exchange (ISE) which may behave differently to larger and more transparent markets such as those represented by the S&P 500 index. Further, the sample period covers June 1994 through June 2004 when market conditions may have diverged significantly from recent ones.

The study is through the lens of the individual investor who relies on beta quoted on personal finance websites; thus, consideration was given to how these compute beta, notwithstanding the fact that the methodology is not made easily available, if at all. However, according to a study by Coppedge et al. (2012), returns to estimate the coefficient were computed over 60 months by Value Line and Reuters, 36 months by Yahoo Finance and Smartmoney, and two years by Bloomberg. Bloomberg and Value Line employed weekly returns while the remainder used monthly ones over the respective periods. All five sites used the S&P 500 as the benchmark with the exception of Value Line which used the NYSE Composite.

Genesizoglu et al. (2016) suggest that the popular Fama-MacBeth beta from five years of monthly returns yields the most accurate forecast using monthly returns. Groenewold and Fraser (2000) acknowledge that the "five-year rule of thumb" is the most commonly used and most robust, but claim it is superseded by, in particular, a "three-year" model when techniques such as rolling regressions are incorporated. Further, Beer (1997) reviewed several techniques that attempted to correct beta and concluded that bias decreased only marginally.

The benefits of using corrective techniques have been mixed and context dependent. In this study, weekly returns over a five year period are employed as no adjustments or correcting techniques will be used. Moreover, weekly returns are used as this may provide a measure of improved precision over monthly returns.

Equation (2) can be represented as (3) and then simplified to (4) which can be used for regression.

$$(1 - b) + \beta (R_m) \quad (3)$$

$$R_j = a + \beta R_m \quad (4)$$

To address RQ1, betas were computed using regression analysis. The classical technique used to estimate the coefficient beta is regression, and the coefficient offers a measure of systemic risk (Genesizoglu et al., 2017; Löffler & Raupach, 2018). To aid in addressing RQ2, estimated and observed betas were compared for statistical significance using a two-tailed paired T-test (Agarwal et al., 2018). In this study, the operator on each pair was assumed to be market conditions changing from one five-year period to the next five-year period.

RQ3 will be assessed without a statistical test due to the small sample size involved. RQ4 will be evaluated for statistical significance by conducting a paired t-test to evaluate difference in returns over multiple periods. This method was applied for example, to assess returns from smart beta funds over different period lengths (Verma et al., 2020).

Results

RQ1

Computed beta values are summarized in Table 1. In each case, the relationship of the ETF returns to those of the S&P 500 index were significant, $p < 0.05$. Figure 1 displays the beta variation across each period.

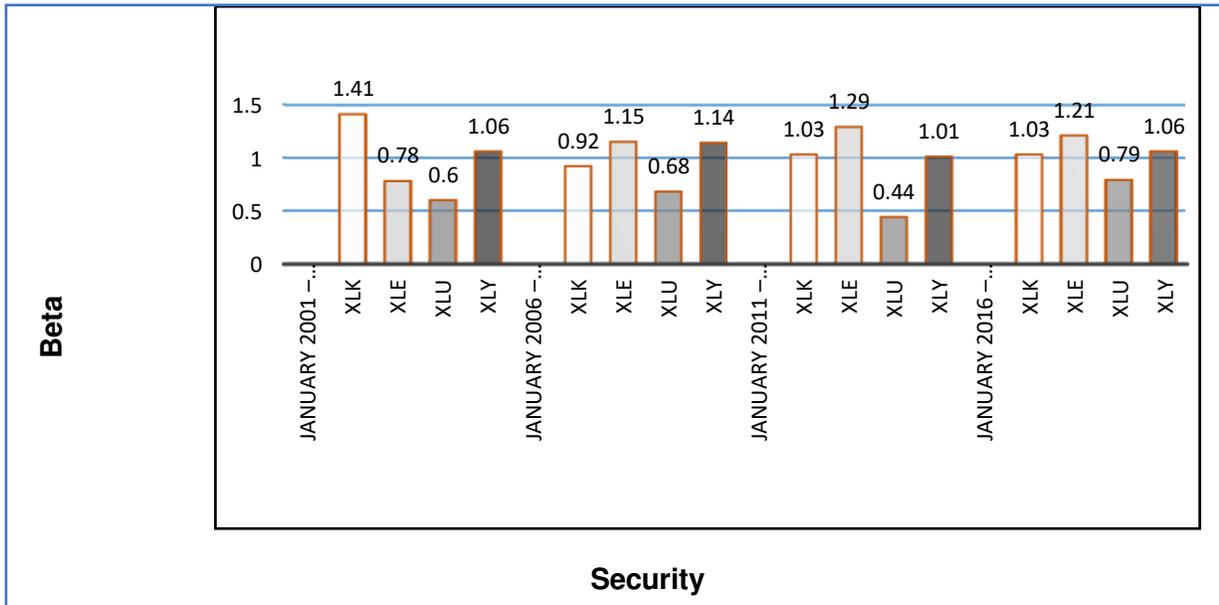
Table 1

Regression Analysis Summary for S & P 500 Return Predicting Security Return

Security	β	t	p
January 2001 – December 2005			
XLK	1.41	22.06	<.001
XLE	0.78	11.40	<.001
XLU	0.60	11.15	<.001
XLY	1.06	26.26	<.001
January 2006 – December 2010			
XLK	0.92	34.19	<.001
XLE	1.15	21.84	<.001
XLU	0.68	17.73	<.001
XLY	1.14	38.45	<.001
January 2011 – December 2015			
XLK	1.03	37.84	<.001
XLE	1.29	25.12	<.001
XLU	0.44	8.77	<.001
XLY	1.01	38.80	<.001
January 2016 – December 2020			
XLK	1.03	38.22	<.001
XLE	1.21	16.99	<.001
XLU	0.79	14.69	<.001
XLY	1.06	44	<.001

Note. Weekly returns for each five-year period for each security were against the S&P 500 index.

Figure 1
Beta for Securities over Each Period



Note. Betas discovered by regressing monthly returns of security against S&P 500 index.

RQ2

Estimated and observed betas were compared for statistical significance using a two-tailed paired T-test for each ETF over the respective five-year periods. The results, as summarized in Table 2, illustrate failure to reject each of the twelve hypotheses, H_{01} , H_{02} , H_{03} , H_{04} , H_{05} , H_{06} , H_{07} , H_{08} , H_{09} , H_{010} , H_{011} , and H_{012} , at the 0.05 significance level.

Figure 2 depicts the comparison of estimated and observed betas for each security over the three, five year periods. With respect to XLK, the estimated and observed betas were close to 1 with the exception of the January 1, 2006 - December 31, 2010 interval for which estimated beta was 1.41 and observed was 0.92. The betas for XLE tended to be the highest but had wide variation; however, the differences between estimated and observed were small except for the period January 1, 2006 - December 31, 2010 for which estimated beta was 0.78 and observed was 1.15.

XLU displayed the lowest betas; these were below 0.8. Notably though, in two of the three periods, January 1, 2011 - December 31,

2015 and January 1, 2016 - December 31, 2020 the differences between estimated and observed were large, 0.24 and -0.35 respectively. The betas for XLY were surprisingly, above 1.0 for each period but notably the variances between estimated and observed betas were minimal.

Table 2

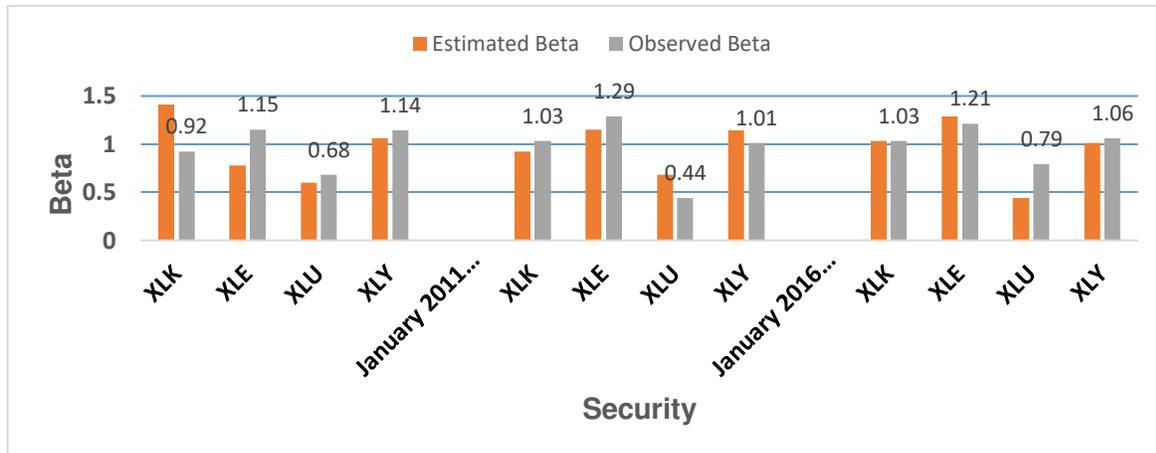
Difference Between Estimated and Observed Betas Using Paired Sample T-Test

Security	t	df	Sig. (2-tailed)
January 2006 – December 2010 & Preceding 5-year period			
XLK	2.00	258	0.47
XLE	2.00	258	0.89
XLU	2.00	258	1.00
XLY	2.00	258	1.00
January 2011 – December 2015 & Preceding 5-year period			
XLK	2.00	258	0.55
XLE	2.00	258	0.61
XLU	2.00	258	0.57
XLY	2.00	258	0.45
January 2016 – December 2020 & Preceding 5-year period			
XLK	2.00	258	0.24
XLE	2.00	258	0.93
XLU	2.00	258	0.91
XLY	2.00	258	0.92

Note. Pairs consisted of the returns for the noted five-year period and the prior five-year period.

Figure 2

Estimated Versus Observed Betas



Note. Estimated and observed betas are compared for each security over three five-year periods.

RQ3

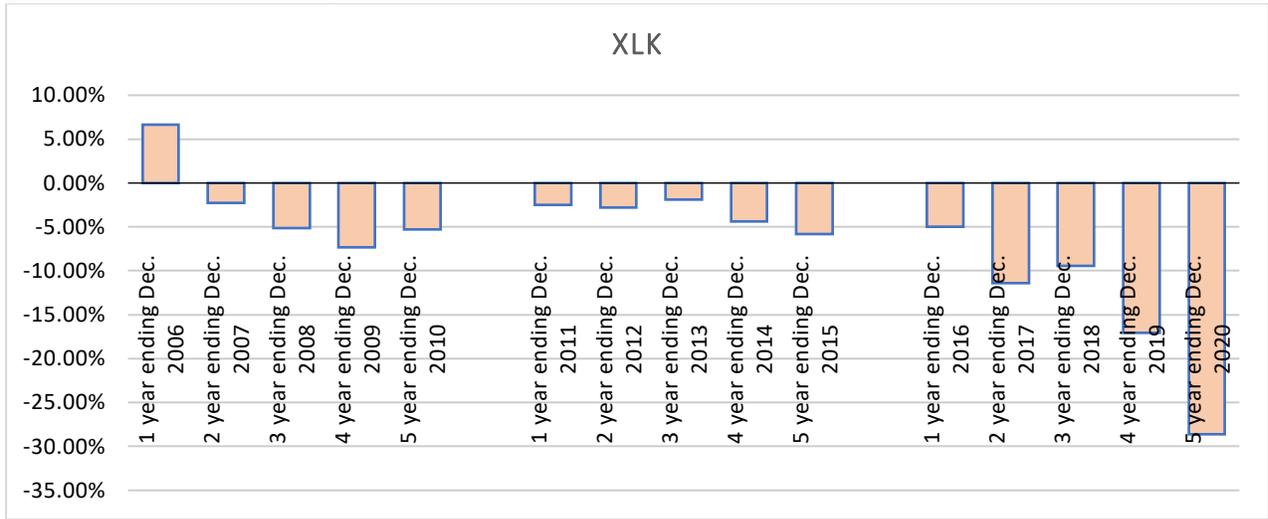
For each of the four ETFs, the difference in annualized estimated returns using beta for the prior five years and those using actual returns was examined. To exemplify, the observed returns for the periods ending December 2006, 2007, 2008, 2009 and 2010 were compared to the analogous expected returns based on the single beta for the prior five-year period, January 1, 2001 to December 31, 2005. Returns over more than one year were annualized using the geometric mean. This was replicated for the two subsequent five-year periods ending December 2015 and 2020. Tables 3, 4, 5 and 6 tabulate the results and Figures 3, 4, 5 and 6 exhibit the differences between estimated and observed returns.

The expected returns for XLK, were in all years, excepting the one-year ending 2006, lower than those observed, and the differences were more pronounced in the five-year period ending December 31, 2020. With regard to XLE, there was significant variation within each five-year period. For example, in the five-year period ending December 31, 2010, the excess return from estimated beta over that from observed beta was close to zero over one and three years but -50% and -40% respectively over two and five years. For the five-year period ending December 31, 2015, the estimated return was lower by 17% over three years but greater by 18% over five years. For the five-year period ending December 31, 2020, the estimated return was lower by 14% over one year but greater by 43% over five years, while the differences over two, three, and four years were negative six, seven and four percent over two, three, and four years respectively.

For XLU, estimated minus observed returns were negative across all periods, with magnitude tending to be more pronounced in the five-years ending December 2015 and December 2020, with four returns showing values of -60% or more for the difference. A similar but more pronounced pattern was noted for XLY, and in this case, the differences in returns for the five-years ending December 2015 and December 2020 ranged from -60% to -328% respectively. Moreover, the statistic for XLY was not only negative for all years but also of greater magnitude than for the other securities.

Figure 3

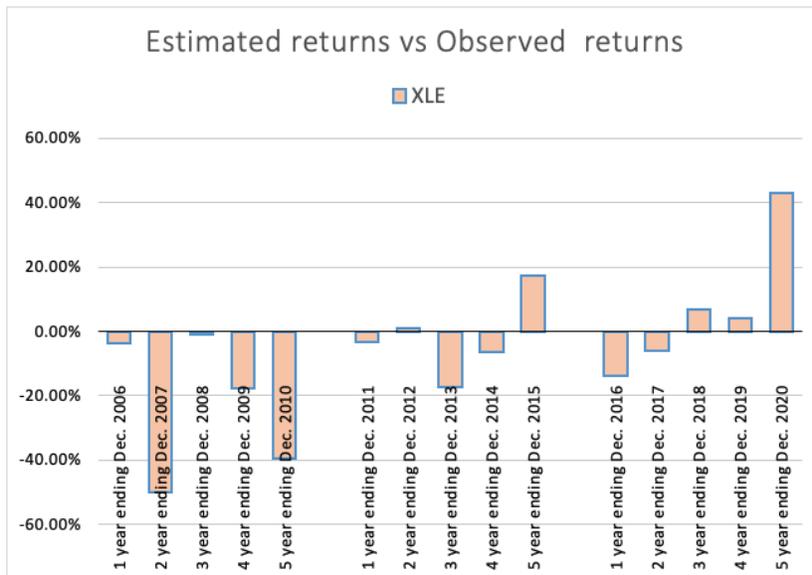
Estimated Returns Versus Observed Returns for XLK



Note. Difference in annualized estimated returns using beta for prior five years and observed returns. Returns over more than one year were annualized using the geometric mean.

Figure 4

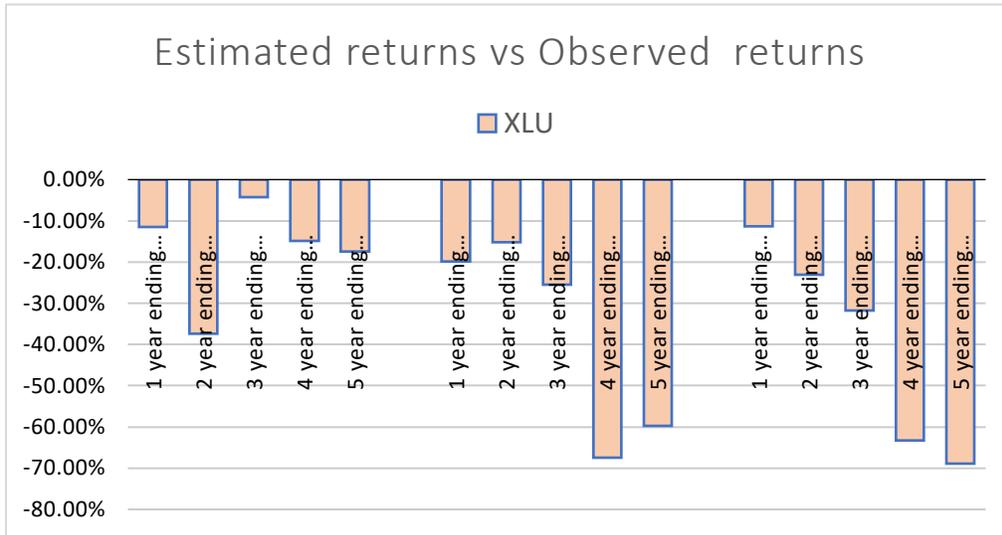
Estimated Returns Versus Observed Returns for XLE



Note. Difference in annualized estimated returns using beta for prior five years and observed returns. Returns over more than one year were annualized using the geometric mean.

Figure 5

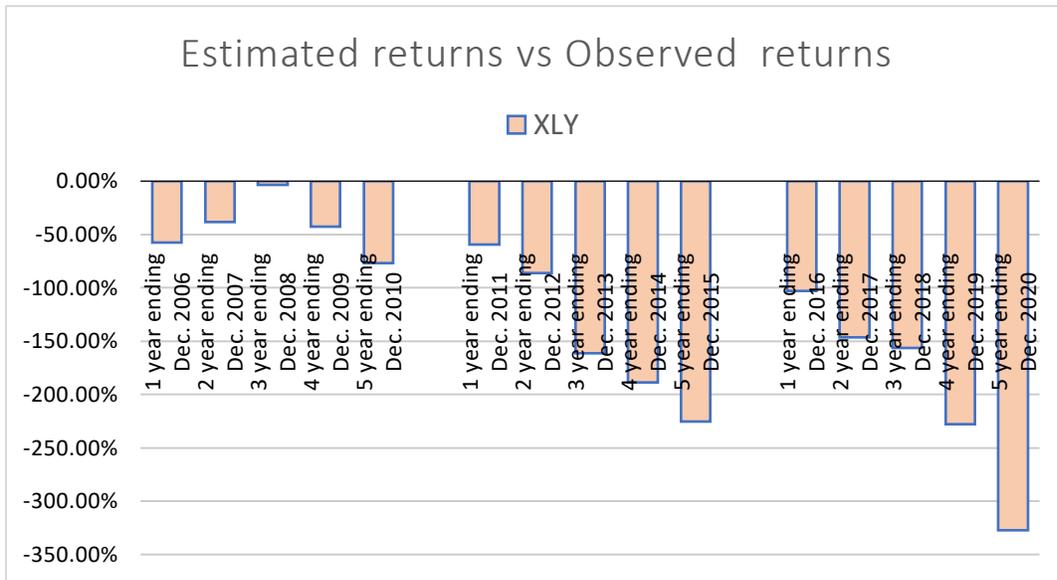
Estimated Returns Versus Observed Returns for XLU



Note. Difference in annualized estimated returns using beta for prior five years and observed returns. Returns over more than one year were annualized using the geometric mean.

Figure 6

Estimated Returns Versus Observed Returns for XLY



Note. Difference in annualized estimated returns using beta for prior five years and observed returns. Returns over more than one year were annualized using the geometric mean.

RQ4

The expected and actual returns depicted in Tables 3, 4, 5 and 6 were tested for statistical significance using a paired t-test to evaluate differences over the 15 year period for each security. The results, summarized in Table 7, illustrate that at the 0.05 significance level, there was a failure to reject H014, but H013, H015, and H016 were rejected.

Table 7

Difference Between Returns Using Estimated Beta and Observed Returns for Years Ending 2006 to 2020 Using Paired Sample T-Test

Security	t	df	Sig. (2-tailed)
XLK	2.15	14	0.005
XLE	2.15	14	0.33
XLU	2.15	14	<.001
XLY	2.15	14	<.001

Note. Returns over the entire 15-year period were tested for statistical difference.

Discussion

RQ1

Figure 1 illustrates how each ETF's beta varied across the respective periods, and the betas can be evaluated against what was found in a recent study (Investment Fidelity, 2018). As expected, XLK representing the Information Technology sector consistently showed greater systematic risk than the market. XLE representing the Energy sector displayed a lower beta than the market contrary to expectations, for the first period ending December 2005 but exhibited a higher beta for the three subsequent periods as expected. The Utility sector XLU was consistently and significantly lower in systematic risk vis-à-vis the market and this was surprising as the difference was anticipated to be minimal. Perhaps the most surprising result pertained to XLY representing Consumer Staples, for which beta exceeded that of the market significantly and consistently when it was anticipated to actually have the lowest beta of the sectors and lower than that of the index. Baiocchi and Britt (2012), who argued that sectors are laggards or leaders depending on the cycle stage, display a wide range of volatilities across periods, and their inter correlations vary though they tend to converge

during periods of market stress but can diverge during other periods. The results are therefore not surprising given this context.

RQ2

Each null hypothesis was rejected at the 0.05 significance level, suggesting that estimated beta is a good predictor of actual beta with regard to the samples and periods used. In practical terms though, this inference can be questioned as there were relatively large variances in several instances between estimated and observed betas, and this would be a concern especially when investing large money sums.

RQ3

As relatively large variances were observed between estimated and observed betas in relation to RQ2, it would be anticipated that there would be even larger differences when returns at specific intervals were computed, and this appears to be the case. The expected returns were in all years, excepting the one-year ending 2006, greater than those observed for XLK, and the differences were more pronounced in the five-year period ending December 31, 2020.

With regard to XLE, there was significant variation within each five-year period. For example, in the five-year period ending December 31, 2005, the excess return from estimated beta over that from observed beta was close to zero over one and three years, but 40% or more over two and five years. For the five-year period ending December 31, 2005 and fourth years, the estimated return was lower by 14% over one year; whereas, the observed return was greater by 43% over five years, while the differences over two, three, and four years were negative six percent, seven percent, and four percent over two, three, and four years, respectively. In addition to the cyclical volatility described by Baiocchi and Britt (2012), sectors can be net transmitters of volatility or net receivers of volatility, and this may further explain some of these trends. Liu et al. (2021) contend that though most sectors act as transmitters or receivers at various stages, Consumer Staples, Materials and Energy are on the whole, receivers while Financial and Technology sectors are consistent transmitters of volatility.

The study by Liu et al. (2012) did not include the Utilities sector while this study did not include the Financials sector. The Technology and Consumer Staples sectors represented by XLK and XLY respectively were part of both studies and can be discussed in terms of transmitted volatilities. The expected returns minus observed returns metric for XLK was positive for the year ending December 2006, and subsequently, turned negative, and overall with increasing magnitude for the subsequent years. However, for XLY, the metrics were not only negative for all years but also with greater magnitude than those of XLK. While the time involved for transmission to occur was not addressed by Liu et al. (2012), it is possible that the Technology sector had materially transmitted volatility to the Consumer Staples sector over the study interval, partly explaining the observations.

RQ4

The difference between returns predicted by beta and actual returns over 15 years were statistically significant at the 0.05 significance level for all securities with the exception of XLE. This suggests that over long periods of time, the investor could not rely on beta as a predictive measure of returns relative to the market for XLK, XLU and XLY. Further, even for XLE, for which rejection of null hypothesis failed, in practical terms, the variance between the returns estimated by beta and actual returns were large in many cases and may exceed the risk tolerance of many investors.

Theoretical Implications

These observations demonstrate that while the estimated beta, which is based on a historical return period, may be a good proxy for the actual beta for a future period, the practical value of applying estimated beta has limitations as the spread between returns estimated and those observed can change unpredictably both in direction and magnitude. This implies that the theoretical underpinnings behind how volatility of various segments of the market can change in relation to each other and to that of the market as a whole need to be studied in more depth. If estimation of beta can be refined, this metric would have more significance to both the individual investor who relies on it to forecast

returns in relation to the market return and to the corporate sector that utilizes the CAPM equation to assess returns.

Limitations and Future Directions

Five-year periods were used to estimate beta, and as this is not static, different timeframes may have afforded alternate results. Further, returns were computed only at one-year intervals. More frequent intervals would afford a more complete picture. While highly diversified funds were employed, more sectors might be included beyond the four used. No corrective methods were used in beta-estimation, as the benefit of corrective techniques appears to be marginal and context-specific thus far. Beyond the returns and statistical tests used in this study to assess returns, additional statistics such as Value at Risk could be applied to evaluate, more completely, implications to the investor.

Conclusion

While the estimated betas were robust from a statistical standpoint, there was often variability across the five-year periods. However, they did conform largely to the anticipated systematic risk of each security, with the exception of XLY representing Consumer Staples, for which beta exceeded that of the market significantly and consistently. Beta, a measurement of systematic risk, should be indicative of returns in relation to the market. In an upward moving market, investors should expect higher returns with a larger value beta and lower returns in a downward moving one. The observations suggest that this is not consistently the case. Individual investors need to look at other metrics of risk in addition to beta to form a more cohesive view of expected returns from a portfolio.

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Appendix A

Table 3
Difference Between Returns Estimated by Beta and Observed Returns Over Selected Periods for XLK

Period	Security	Estimated Annualized Return	Observed Annualized Return	Expected Minus Observed Return
1 year ending December 2006	XLK	16.65%	9.98%	6.67%
2 year ending December 2007	XLK	11.68%	13.97%	-2.29%
3 year ending December 2008	XLK	-14.04%	-8.88%	-5.16%
4 year ending December 2009	XLK	-3.96%	3.35%	-7.31%
5 year ending December 2010	XLK	-0.24%	5.07%	-5.31%
1 year ending December 2011	XLK	-1.03%	1.48%	-2.51%
2 year ending December 2012	XLK	4.71%	7.51%	-2.80%
3 year ending December 2013	XLK	13.69%	15.57%	-1.88%
4 year ending December 2014	XLK	14.59%	18.99%	-4.40%
5 year ending December 2015	XLK	11.43%	17.23%	-5.80%
1 year ending December 2016	XLK	11.54%	16.55%	-5.01%
2 year ending December 2017	XLK	16.86%	28.23%	-11.37%
3 year ending December 2018	XLK	8.05%	17.46%	-9.42%
4 year ending December 2019	XLK	15.42%	32.45%	-17.03%
5 year ending December 2020	XLK	17.55%	46.12%	-28.58%

Note. Observed returns were compared with those estimated based on the beta for the prior five years. Returns over more than one year were annualized using the geometric mean.

Table 4
Difference Between Returns Estimated by Beta and Observed Returns Over Selected Periods for XLE

Period	Security	Estimated Annualized Return	Observed Annualized Return	Expected Minus Observed Return
1 year ending December 2006	XLE	9.19%	12.71%	-3.52%
2 year ending December 2007	XLE	6.44%	56.26%	-49.81%
3 year ending December 2008	XLE	-7.75%	-6.82%	-0.93%
4 year ending December 2009	XLE	-2.19%	15.59%	-17.78%
5 year ending December 2010	XLE	-0.13%	39.43%	-39.56%
1 year ending December 2011	XLE	-1.29%	2.06%	-3.35%
2 year ending December 2012	XLE	5.89%	5.01%	0.88%
3 year ending December 2013	XLE	17.11%	34.28%	-17.17%
4 year ending December 2014	XLE	18.23%	24.75%	-6.53%
5 year ending December 2015	XLE	14.28%	-3.23%	17.51%
1 year ending December 2016	XLE	14.46%	28.07%	-13.60%
2 year ending December 2017	XLE	21.13%	26.93%	-5.80%
3 year ending December 2018	XLE	10.08%	3.26%	6.82%
4 year ending December 2019	XLE	19.32%	15.34%	3.98%
5 year ending December 2020	XLE	21.99%	-21.23%	43.22%

Note. Observed returns were compared with those estimated based on the beta for the prior five years. Returns over more than one year were annualized using the geometric mean.

Table 5

Difference Between Returns Estimated by Beta and Observed Returns Over Selected Periods for XLU

Period	Security	Estimated Annualized Return	Observed Annualized Return	Minus Observed Return
1 year ending December 2006	XLU	7.06%	18.62%	-11.56%
2 year ending December 2007	XLU	4.95%	42.41%	-37.46%
3 year ending December 2008	XLU	-5.95%	-1.74%	-4.21%
4 year ending December 2009	XLU	-1.68%	13.12%	-14.80%
5 year ending December 2010	XLU	-0.10%	17.42%	-17.52%
1 year ending December 2011	XLU	-0.77%	19.05%	-19.82%
2 year ending December 2012	XLU	3.51%	18.68%	-15.17%
3 year ending December 2013	XLU	10.20%	35.75%	-25.55%
4 year ending December 2014	XLU	10.87%	78.32%	-67.46%
5 year ending December 2015	XLU	8.51%	68.27%	-59.76%
1 year ending December 2016	XLU	4.96%	16.32%	-11.37%
2 year ending December 2017	XLU	7.25%	30.32%	-23.07%
3 year ending December 2018	XLU	3.46%	35.23%	-31.77%
4 year ending December 2019	XLU	6.63%	69.91%	-63.28%
5 year ending December 2020	XLU	0.00%	68.93%	-68.93%

Note. Observed returns were compared with those estimated based on the beta for the prior five years. Returns over more than one year were annualized using the geometric mean.

Table 6

Difference Between Returns Estimated by Beta and Observed Returns Over Selected Periods for XLY

Period	Security	Estimated Annualized Return	Observed Annualized Return	Expected Minus Observed Return
1 year ending December 2006	XLU	12.43%	70.01%	-57.58%
2 year ending December 2007	XLU	8.71%	47.31%	-38.59%
3 year ending December 2008	XLU	-10.48%	-6.86%	-3.62%
4 year ending December 2009	XLU	-2.96%	39.58%	-42.53%
5 year ending December 2010	XLU	-0.18%	76.65%	-76.83%
1 year ending December 2011	XLU	-1.28%	58.30%	-59.58%
2 year ending December 2012	XLU	5.84%	91.84%	-85.99%
3 year ending December 2013	XLU	16.98%	178.18%	-161.20%
4 year ending December 2014	XLU	18.09%	206.96%	-188.87%
5 year ending December 2015	XLU	14.17%	239.39%	-225.22%
1 year ending December 2016	XLU	11.37%	114.30%	-102.93%
2 year ending December 2017	XLU	16.61%	163.21%	-146.60%
3 year ending December 2018	XLU	7.93%	164.55%	-156.62%
4 year ending December 2019	XLU	15.19%	242.78%	-227.59%
5 year ending December 2020	XLU	17.29%	344.75%	-327.47%

Note. Observed returns were compared with those estimated based on the beta for the prior five years. Returns over more than one year were annualized using the geometric mean.

Iterative Minimum Viable Product Approach to Implementing AI, RPA, and BI Solutions

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ABSTRACT

Breakthrough technologies can be considered as exponentially disruptive to organizations across industries within the last few decades of the 21st century, as they have significantly altered the way their business units or customers operate. Artificial Intelligence related cognitive technologies are some of the latest disruptive solutions currently being adopted by organizations. Organizational leaders may feel both the pressure and excitement of adopting such nascent technology quickly and at scale. However, due to organizational knowledge gaps of nascent solutions, transformative large-scale initiatives have a higher risk of negative impact on failure to implement. On the other hand, an iterative approach allows for the implementation to occur in smaller amounts and leaves room for incorporating feedback and lessons learned in future iterations, thus mitigating the risks involved with the undertaking. This article breaks down the nascent field of advanced cognitive technologies into three main categories based on their business use cases: process automation, cognitive insights, and cognitive engagement. It then explores implementing this technology in each of its three categories through the lens of a popular iterative product lifecycle management approach (i.e., the Minimum Viable Product) to reduce the risk of failure or other negative impacts on an organization adopting cognitive solutions.

Keywords: agile, artificial intelligence, breakthrough technology, business intelligence, business needs, data analytics, Devops, information technology, iterative implementation, megatrend, minimum viable product, MVP, robotic process automation, RPA, solution implementation, UI, user interface, user interface data science, UX, Waterfall

Iterative Minimum Viable Product Approach to Implementing AI, RPA, and BI Solutions

The technology sector is innately disruptive in nature (Flavin, 2021). It has penetrated and accelerated change in almost all industries globally. Breakthrough innovations can create megatrends which drive the need for large-scale adoption of new technologies, processes, and governance models. Adoption of transformational megatrends are important for organizations to stay relevant and competitive in permanently changing environments (Peciak,

2016). Furthermore, early adoption provides these organizations with additional benefits and competitive advantages. In the digital landscape, machine learning and data analytics are powering a wave of such groundbreaking technologies. Companies are aiming to achieve a competitive advantage in this new landscape by implementing accurate predictive analytics and workflow automation solutions, such as Artificial Intelligence (AI), business intelligence (BI) and robot process automation (RPA) (Wang et al., 2021). However, these nascent breakthrough technologies have their own risks.

In order to successfully reap the rewards of these solutions, organizations must incorporate appropriate implementation strategies that mitigate risks of failure.

In response to the growing pressures and excitement in the market to adopt new cognitive technologies, organizational leaders should fight the urge to start their journey by pursuing “moon shot” or ambitious projects, and initially focus on “low hanging fruit” or simple initiatives instead (Ries, 2019). Moon shot projects are those of large scope with numerous objectives that need to be met, paired with a large budget, and possibly, multi-year delivery timelines. Completing them comes with the promise of grand rewards; however, chances of failure are high when compared to iterative approaches instead.

New technology may be implemented in organizations in sequential or iterative ways (Sumrell, 2007). Sequential approaches involve intense periods of defining all the requirements for a product, after which the solution is designed, built, tested and then finally implemented as a whole. Alternatively, an iterative approach involves quick implementation, testing, review, and updates of small amounts of features (Njegus & Milanov, 2011). Such an approach implementing a software development methodology is where the development team initially focuses on creating a simplified set of software features, which then gains a larger set of features as it progressively gains complexities until completion. There are multiple tried and tested iterative methodologies that drive the implementation of various Information Technology initiatives across industries, such as prototypes, pilot initiatives, proof of concepts and fully functional minimum viable products. However, a core component of these methodologies involves a technical team focused on building a set of pre-determined features which will benefit the end consumers (Denton, 2022). In the first iteration, end users and the development team agree on program scope. Lessons learned in the first iteration of the product development are incorporated into product features. This helps the development team familiarize themselves with various unknown aspects of a new technology in a low-risk environment and enables end users to adopt and incorporate the new technology into

their existing business and operational processes with little friction or negative impact on the rest of their day-to-day activities (Kennedy et al., 2018). One such concept of an iterative approach is to create a Minimum Viable Product (MVP). An MVP implementation is a development technique used to create a fully functional product with just enough features to satisfy a group of early adopting customers, who in turn, provide feedback for future iterations of the project (Ries, 2019). In this article, we review the implementation of new cognitive technologies such as Artificial Intelligence and robot process automation through the lens and framework of the iterative MVP approach.

Implementation Approaches for Introducing New Technology to an Organization

A popular sequential approach is the waterfall methodology (Afshar et al., 2019). Within this approach, requirements are clearly identified in the beginning and a fixed plan of implementation is incorporated. This fixed plan includes several successive phases which are not revisited once complete. In the beginning phase, the organization collaborates with business partners and end users. This is followed by the development phase, which could last weeks or months. Solution testing is conducted after the entire product has been built as per the pre-determined requirements. This sequential approach is challenging for initiatives that involve information discovery, which are cyclical in nature. Without adequate feedback from the end users over time, or testing while building algorithms, the risk of failure is high. For example, the lack of feedback throughout the process may lead to additional functionalities being built on foundationally weak solutions, such as an impractical user interface or unintentional outcomes from algorithms.

Popular iterative approaches to implementing new cognitive solutions, such as Agile and DevOps methodologies, aim to mitigate some of these risks. The Agile project management framework is an iterative approach to developing new solutions by implementing a small batch of features over time (Saltz & Shamshurin, 2019). This allows for closer collaboration between developers and end users, leading to enhanced usability of the features rolled out over time. Four core values of

the Agile framework are: 1) to prioritize individual interactions over systems and processes, 2) to create demonstrable working software rather than robust documentation, 3) to collaborate between developers and product stakeholders over contract negotiations, and 4) respond to change rather than following a rigid plan. Within the Agile framework, developers can quickly make adjustments to the solution by incorporating feedback from users.

The Agile framework emphasizes collaboration between the product management team and the core development teams until all features of the solution have been fully completed (Blankenship et al., 2011). The DevOps iterative framework extends this collaborative environment by including the care, feeding, monitoring, and tweaking of the machine learning solutions. This means that in addition to developing the product, the same team continues to support ongoing upgrades and maintenance of the product, even beyond its successful implementation. This allows for both development and product management teams to create more mature models over time with higher levels of accuracy (Sheil et al., 2020).

One of the main reasons cognitive machine learning and data science initiatives fail is due to poor and unintuitive user interface design choices, which reduces the richness and efficacy of end user interactions (Lotte et al., 2018). The waterfall methodology's rigid, sequential approach can be a hindrance to understanding and mitigating the risks of failure to implement appropriate and relevant user interface solutions. User interface is the primary factor out of the four core factors which need to be considered to ensure a robust interface is available for end users: the user, the task, the computer system, and change over time (Vieira et al., 2020).

The primary need is to understand the variations amongst users, such as their roles, backgrounds, and how they intend to use or interact with the respective systems (Burnett, 2012). For example, a technical user with some level of basic statistical knowledge may be comfortable with raw statistical tables to obtain insights. However, a user with a business-centric leadership role may need visualizations and other stimuli to provide the necessary

information they need to make decisions, such as graphs that highlight core decision-making factors on the screen for them. They may need to be guided throughout the user interface through visuals, menus, or explanations to make the appropriate decisions. Within cognitive solution user interfaces, another challenge is not only maintaining large inter-related data, but also providing end users with intuitive information retrieval abilities (Du et al., 2016). The search features should empathize with the users on how and when they want the information available and presented to them.

These challenges can be overcome by iteratively incorporating three design principles – focusing on use cases (users and their corresponding tasks), conducting an empirical measurement of prototype designs (such as what aspects are objectively proven to be helpful to users versus what design decisions are ignored or hamper the user experience), and conducting revisions through a feedback loop mechanism between end users and the development team (Seybold, 2011). The feedback loop mechanism, which is innately a core principle of the iterative implementation approach, will help maximize a shared understanding of three main aspects of cognitive enhancement solutions and their interactions with end users: the main goals for the machine learning/artificial intelligence model and solution, the user population's various characteristics, and the nature of the use cases or tasks that need to be accomplished (Gould & Lewis, 1985).

Breakdown of New Wave of Cognitive Solutions into Three Categories

Examining new cognitive solutions through the lens of business use cases enables organizations to adopt an iterative strategy focused on their business needs (Cross & Fouse, 2005). Applied cognitive products can be broken down into three main categories based on the respective business needs they support: process automation, analytical insights, and cognitive engagement.

Process automation involves the automation of digital and physical tasks (e.g., financial spreadsheets, administrative back-office tasks such as file record arrangements). Examples of such automation tasks include creating "macros" within Microsoft Excel

spreadsheets, which are a set of recorded actions that can be manually re-run by the end-users in the future (Fleishman-Mayer et al., 2013). However, RPA provides certain advancements over such previously existing business process automation solutions by having “robots” directly replicate pre-recorded human inputs and compile information from various source systems (Januszewski et al., 2021). They are automatically triggered based on a dynamic set of parameters. It can also include doing a sequence of tasks in multiple different applications, with little to no human intervention. For example, RPA tasks may include compiling data from various messages, emails, and other call center record systems, such as updates to customer addresses, and then updating this information in backend customer record systems. Another example may be for an RPA solution to “read” legal documents to extract relevant information, provisions, and dates automatically, with no human intervention.

The second category, cognitive analytical insights, or business intelligence, leverages computer algorithms to comb through large amounts of data, detect patterns, and then alert end users or respective parties when their attention is needed. For example, the fraud department of a large bank can use a fraud analytics solution to comb through all transactions for a customer within a given time to check if any combination of the data matches a pre-determined list of conditions or patterns (Broadhurst et al., 2011). If the system detects a pattern, the system generates an alert, and the relevant information is sent to respective users and parties to pursue next steps and actions as needed. These patterns may be pre-set in a system by a fraud department’s preferences and regulatory requirements or may be tweaked based on self-learning feedback loops over time to reduce false positive alarms on customer behavior. Such cognitive insight applications are being used to conduct jobs that are only possible by computers, since humans will be unable to crunch such large amounts of data at such high speeds (Choi & Lambert, 2017).

The third category, cognitive engagement, assists with directly interacting with end users to understand their needs and, in return, provide information or services as

deemed necessary based on the interaction. These include intelligent chatbots that process natural language (Abdellatif et al., 2020). Another possibility is a recommendation system which a retail company’s website would use to automatically present a curated list of products or services to a potential customer based on information the customer provided about themselves and their needs.

The First Step – A Minimum Viable Product Framework

Within the iterative implementation environment, the Minimum Viable Product framework can help incorporate cognitive technologies into organizations by incrementally implementing small initiatives with limited scope but still providing a positive return on investment (Olsen, 2015). This limited scope shall contain a list of features that need to be implemented to render the cognitive technology functional to an end user. To identify the feature sets of the MVP of cognitive technologies, a series of assessments will need to be made and answered within the organization.

First, business areas that have the most to benefit from implementing cognitive technologies need to be identified (Heller, 2019). These areas typically are parts of an organization that are bottlenecked by the fact that information either does not reach them in time or takes a long time to process. Second, these departments need to be evaluated to identify which cases can benefit from cognitive technologies and provide a substantial rate of return. The use cases should identify how critical it is to address the issue, the level of complexity (both from a business process and technical standpoints) it will take to implement an AI solution, and what benefits the organization will receive after launching the application. After these questions are answered, the list of use cases then need to be further prioritized into those that offer value in the short-term, versus those that offer long-term value (i.e., upon which future cognitive capabilities can be further built upon, over time).

Third, based on the use cases that are short-listed, the appropriate AI technology will need to be gauged to see whether cases meet the business needs, or have constraints. For example, RPA solutions may be able to

automate certain redundant tasks, such as invoicing and monthly accounting reports, but may slow down the respective financial and accounting systems, leading to an overall negative business impact (Bodek, 2018).

Out of the three main categories of cognitive technologies, RPA solutions are the least expensive, simplest to implement, and quickly provide a high return on initial investment (Sobczak, 2021). Based on the use case, MVP solutions can be implemented by simply recording end-to-end human interactions on applicable process flows and then replicating and re-running them with the minimum parameters needed to be input by humans over time. More complex RPA scenarios and alternative flows can be incorporated over time as additional builds beyond the MVP phase.

The MVP approach on cognitive insight applications should initially replace non-business critical use cases so as not to impact daily operations while tweaks are being made on the underlying machine learning algorithms to provide the desired outcomes (Paradkar, 2021). For example, an algorithm can be created to crunch existing big data to identify a shortlist of relevant products and services to cross-sell to a customer or future prospect. This algorithm does not seem to impact business-critical operational infrastructure but still provides value via cross-selling. A feedback loop mechanism will be required to gauge the algorithm's performance and to make tweaks over time to pursue desired outcomes (Marathe et al., 2019).

Cognitive engagement applications such as chatbots should pursue a similar trend and be implemented in areas of low risk during an MVP build. Instead of being customer-facing, these chatbots could start by being internally facing to reduce the risk of negative impact from failure (Meyer et al., 2020). For example, an IT help desk chatbot can help address many internal needs for employees, such as ordering workspace gear, requesting access to systems or data, and troubleshooting generic issues such as being locked out of an account. This approach will ensure buggy chatbots can be tweaked over time with limited risk of losing customers. A feedback loop will be crucial here as well to ensure the MVP development team obtains the necessary reviews and suggestions

by end users, to make changes to chatbot logic over time.

Conclusion

New technological concepts should not be a burden for organizations to adopt to maintain a competitive advantage and stay relevant in their respective industries. Adopting an iterative approach, rather than a transformative one, to implement new solutions ensures multiple frequent checkpoints are created between the business and technology teams to stay aligned with the core business needs, which then drive what and how new solutions are incorporated into the business.

Transformative changes that aim to replace individuals or entire departments through AI solutions have a high risk of negative impact due to failure, since the scope and budget for such changes are generally large. Comparatively, iterative changes through MVP initiatives that aim to augment human ability, rather than replace their entire skillsets, have a lower risk of negative impact because only a fraction of an otherwise transformative initiative will be assigned to such projects. Thus, organizational strategy should include adopting iterative changes while navigating the learning curve of new technologies in order to create or maintain a competitive advantage in a transforming industry.

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Soft Skills and IS/IT Project Management: A Case Study of Nepalese IS/IT Professionals

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ABSTRACT

There is an increasing focus on managing and executing Information System/Information Technology (IS/IT) projects with geographically and culturally dispersed teams. Best practices, theories, and a body of knowledge on managing projects have been well-established, but there is a limited understanding of Nepal's multi-cultural IS/IT project management dynamics. In this study, we conducted a purposive survey to determine the soft skills that are given significance by the Nepalese IS/IT professionals working in a multicultural environment. The first three preferred essential skills identified by the survey are communication, team building, and leadership skills. In contrast, the respondents perceived trustworthiness and organizational effectiveness as the least essential soft skills for IS/IT projects. Among the emerging soft skills, capacity for analysis and synthesis and critical thinking skills were considered highly essential for IS/IT projects. Work ethic and ability to work in an international context came second and third, respectively. We expect our findings to help Nepali IS/IT project managers understand which soft skills are valued most in their respective workplaces in the various phases of project management.

Keywords: soft skills, multi-cultural IS/IT projects, IS/IT project management, Nepalese IS/IT professionals

Soft Skills and IS/IT Project Management: A Case Study of Nepalese IS/IT Professionals

A formal meeting between project members generally occurs face-to-face; a project manager brings their team into a meeting room, the team discusses project progress, addresses concerns, and then heads back to their desks. This practice was rampant around the world in an organizational context until the mid-1990s (Apgar, 1998; Moseley, 2021). However, the practice started to change when

computer and Internet technologies became more affordable and widespread. Today, geographical or organizational boundaries are no longer a matter of concern for a project manager in a distributed project work environment. Now a manager can initiate a conference call while in transit at Honolulu airport while one team member from the IT group could be in Silicon Valley. Her designer staff could be telecommuting in Milan, and a BPO contractor working on the project could assemble a group of co-workers in an office in

suburban Bangalore. A buyer could even be at Everest base camp conversing through a satellite phone.

This is a flat world brought closer by the information technology revolution (Friedman, 2007). Ducker (1993) predicted, “commuting to the office is obsolete,” and presently, people around the world are telecommuting in large numbers (p. 340). For example, the number of people who work from home has increased by 140% since 2005 (Simovic, 2021). With the advent of the pandemic, organizations are conducting meetings electronically. The number of Zoom daily meeting participants grew from 10 million in December 2019 to 200 million in March 2020 (Zoom, 2020). Meetings over online platforms like Zoom, Microsoft Team, Cisco Webex, and Google Meet have become everyday occurrences. Today, people are working together from different parts of the world and trying to achieve the same organizational goals by utilizing new information and communication technologies. In these cases, managing a project is a considerable challenge when team members are from diverse cultures and spread around various countries. When managing projects in a face-to-face environment is a challenge, handling distributed project teams is an uphill task for many project managers.

IS/IT Project Scenario in Nepal

There are nine hundred Information System/Information Technology (IS/IT) companies registered with the Federation of Computer Association of Nepal (Dixit & Lohani, 2017). Thirty software companies, with human resources, ranging from seven to one thousand, provide offshore development services to international markets (Pandey, 2018). Dixit and Lohani (2017) found that offshore software companies in Nepal hire up to 120 staff and deploy up to six professionals to process offshore projects for countries like the USA, the UK, Canada, India, Australia, Germany, France, Netherlands, Belgium, Switzerland, Poland, Sweden, Russia, New Zealand, Hong Kong, Philippines, Singapore, South Korea, China, Japan, Myanmar, Bhutan, Bangladesh, and Africa.

Significance of the Study

Though there are numerous studies assessing the importance of soft skills for project management in the IT sector (Jena & Satpathy, 2017; Snell et al., 2002; Stevenson & Starkweather, 2010; Strang, 2003; Sukhoos et al., 2005), there has been little research about the importance of soft skills in Nepal's IS/IT sector. This is especially important because, in recent years, the Nepali IS/IT sector has been providing outsourcing services to several international clientele, requiring managers to complete a wide variety of requirements to satisfy client needs. This paper investigates how much cross-cultural IS/IT professionals in Nepal value the soft skills required for meeting those deliverables.

Previous research indicates that understanding others' cultures matters in IS/IT project management. For example, Orlikowski (2002) argues, “Globally distributed software production is shaped and challenged by cultural factors (various nationalities and organizational culture)” (p. 255). Similarly, Yalaho and Nahar (2010), based on their research on the vendors (from India, Nepal, and Russia) and clients (from Finland), found that “understanding the user's cultural dimension and product knowledge is critical for the success of the product” (p. 7). Moreover, “when an information system is designed in one culture and intended for use in another national cultural, gaps may exist” (Shore & Venkatachalam, 1994, p. 177), indicating why IS/IT companies should value the multicultural dimensions. While the Nepali IS/IT sector is becoming multicultural, with workers and clients from various backgrounds and nationalities, the soft skills associated with project management have not been explored in much detail. Therefore, this article investigates the significance of various soft skills (e.g., communication, team building, leadership) for professionals working in Nepal's IS/IT sector.

The government of Nepal has developed a roadmap called the Digital Nepal Framework that aims to realize Nepal's economic potential in the digital sphere by utilizing disruptive technology and developing human resources in ICT and related sectors, targeting critical skills areas (Digital Nepal Framework, 2019). Similarly, Dixit and Lohani

(2017) state that Nepali software companies have been exporting business application software, embedded software, as well as web advertisements and mobile applications to multiple foreign countries including the USA, UK, Canada, India, Australia, Netherlands, Thailand and Russia as well as other European and Asian countries. However, there is a dearth of research about which soft skills are valued more in the various phases of project development in the Nepali IS/IT sector. Therefore, our contribution to the project management domain is to identify which soft skills are highly prioritized by individuals working in Nepal's IS/IT sector in the initiating, planning, executing, controlling, and closing stages of the project management cycle. We have proposed a framework that may guide IS/IT professionals to use different soft skills based on the project management (PM) cycle phases. For example, communication skills may be needed during initiating, executing, controlling, and closing phases. The proposed adapted framework (see Table 8) helps IS/IT project managers not only in Nepal but across the globe because the adapted framework includes contemporary and emerging soft skills relevant to IS/IT projects.

Research Framework

Diverse clients such as small businesses, corporations, and government agencies demand more expertise in IS/IT project management. Therefore, this exploratory research study intends to identify which soft skills are perceived as essential for IS/IT projects in multicultural settings by Nepalese IS/IT professionals, including project managers and developers involved in the projects led by those managers. In addition, it aims to understand which soft skills are perceived as essential for the various stages of the project management life cycle.

The analytical framework used in this study is Sukhoos et al.'s (2005) framework on soft skills for project management and includes emerging soft skills, as discussed by Colomo-Palacias (2012), Mtsweni (2016), and Florea and Stray (2018). A survey was conducted among forty Nepalese IS/IT professionals working in Nepal, the USA, and Australia. We found this to be a multicultural environment as professionals from different countries were

working together. Information technology provides a level playing field for companies in developing countries like Nepal, receiving business process outsourcing opportunities in recent years (Dixit & Lohani, 2017). Such opportunities are creating a multicultural environment in the companies that are working for international clients. Nepal's multicultural environment can be attributed to relatively cheap human resource costs, which have allowed Nepal to become an outsourcing hub with Nepali companies providing IT services to the US, Canada, Australia, and some European nations (Prasain, 2018).

Soft Skills

Conventionally, project managers link their actions with organizational goals and control activities to then execute according to project goals (Lester, 2007; Project Management Institute, 2017; Shenhar & Dvir, 2007). This mechanistic concept assumes that future outcomes can be predicted accurately based on current information and actions. The project management tools and techniques are quantitative which are developed to determine the predetermined objectives in a pre-defined manner. This is described as hard skills in the project management literature (Lewis & Boucher, 2019). As per Ravindranath (2016), the technical knowledge linked to a firm's activities, businesses, and customers is referred to as hard skills, which include the capacity to engage computer protocols, financial procedures, modeling applications, and other similar skills which are predetermined to be used in specific situations. Because they are based on certified learning techniques, these abilities are reasonably easy to examine and assess. However, the other side of this skill paradigm is the ability to be people-centric, which is described as soft skills (Mateo, 2017). As defined by Ravindranath (2016), soft skills are an art, a process of managing and working with people, and in the context of businesses, defining an atmosphere to deliver high-quality products within budget and at the right time while satisfying customer needs. Soft skills can be described as an art acquired through experience and are concerned with managing and working with people and creating a conducive environment for the project team to

deliver high-quality products. The hard-skills-focused managers tend to be “mechanistic and emphasize efficient, expert-led delivery, control against predetermined goals and an interest in underlying structure” and soft-skills focused managers “emphasize learning, participation, the facilitated exploration of projects, and typically demonstrate an interest in underlying social process” (Pollack, 2007, p. 45).

Essentially, hard skills are technical and encompass the dimensions like processes, tools, and techniques. However, focusing solely on hard skills for project management is ill-suited to address emerging challenges (Sukhoo et al., 2005). As remote working becomes the new normal, managers need “people skills.” Magano et al. (2020) state that the newer employees of generation Z categorize the following as soft skills that are vital in project management: personality, emotional intelligence, resilience, communication, time management, teamwork, leadership, troubleshooting, conflict management, autonomy, authority, decision-making, customer relationship, analytical thinking, use of technologies, delegation, and creativity.

Hard skills remain the traditional focus of IT project management methodologies (Adam, 2016; Awan et al., 2015; Sukhoo et al., 2005). Early literature on project management focuses on the hard skills deemed necessary for managing projects, relegating soft skills to the background, and emphasizes the process and tools more than human relations and thought (Pant & Baroudi, 2006). However, things are changing for project managers who cannot depend only on the proximity of control but must use skills other than hard skills to make their project a success. Against this background, the question arises of what soft skills a project manager may possess while handling project work. Table 1 presents the classification of soft skills based on previous research.

Table 1
Classification of Soft Skills

Types of Soft Skills	Researcher
<ul style="list-style-type: none"> ○ Communication Skills ○ Teamwork ○ Leadership ○ Presentation Skills ○ Selling ○ Running Meetings ○ Problem Solving ○ Customer Service 	Belzer (2004)
<ul style="list-style-type: none"> ○ Communication Skills ○ Team Building Skills ○ Leadership Skills ○ Organizational Effectiveness ○ Flexibility and Skills ○ Problem Solving and Decision Making ○ Trustworthiness 	Moreira (2004, as cited in Sukhoo et al., 2005)
<ul style="list-style-type: none"> ○ Communication Skills ○ Team Building ○ Leadership ○ Organizational Skills 	Mantel et al. (2004)

As evidenced in Table 1, communication skills, leadership skills, and team building are common to all three research papers.

With the advent of globalization, extended spans of control, and advanced communication technology (Avolio et al., 2001), project managers are frequently tasked with working with employees in remote locations. In 2008, according to a report by the Gartner Group, a research firm that studies the global IT industry, 41 million corporate employees worked in distributed settings for at least one day per week (Gartner Group, 2008, as cited in Koehne et al., 2012). Such scenarios become complex when organizations use sophisticated information systems, such as supply-chain management, enterprise resource planning, and customer relationship management systems. These cross-functional enterprise systems can fuel significant organizational transformations, which significantly increase the complexity of their implementation (Buingi et al., 1999; Markus & Tanis, 2000).

Managing projects successfully requires a mixture of skills, including interpersonal ability, technical competencies, cognitive aptitude, and the capability to understand the situation and people and then dynamically integrate

appropriate leadership behaviors (Strang, 2003). In this context, the project manager's job would become demanding, complex, and varied, requiring juggling several issues concurrently (Pant & Baroudi, 2006). Ronald and Tamara (2018) state that in their study of 78 project managers from Germany with different industries, including IT, only 2.5% of the companies completed their projects. Most of the projects failed due to the exceedance of time (60%) or communication breakdowns (57%). Also, 39% failed due to a lack of planning, resources, and activities. In addition, project managers often fail due to a lack of skills such as understanding the corporate culture, recognizing the dynamics between individuals they are dealing with, and the ability to communicate in a manner to bring different stakeholders to a joint agreement regarding success criteria for a project's outcome (Stevenson & Starkweather, 2010).

Further investigation identified significant soft skills dimensions for project management. According to Belzer (2004), these include, amongst others, communication skills, organizational effectiveness, team-building skills, flexibility and creativity skills, problem-solving and decision-making skills, trustworthiness, and leadership skills. Moreira (2004, as cited in Sukhoo et al., 2005) identified eight soft skills: teamwork, communication skills, presentation skills, selling, running meetings, leadership, problem-solving, and customer service. Mantel et al. (2004) categorized skills into six areas: communication, organizational, team building, leadership, coping, and technological skills that project managers use.

Three important skills that were found to be overlapped across all three research papers that were investigated are leadership skills, communication skills, and team-building skills (see Table 1). It is imperative for project managers to possess fluency in their communication skills. According to the Project Management Institute (2017), project managers spend 90% of their time communicating as they need to understand the perspectives of all the various stakeholders. Leadership skills become more salient when managing geographically distributed teams with several issues like culture, inter-organizational issues, lack of face-to-face situations, and distance. In these cases,

a leader could be managing teams located across the globe.

Sukhoo et al. (2005) suggested the soft skills attributes of a global IS/IT project manager requires a high level of activation during the different phases of a project (see Table 2). This compilation of soft skills is expected to help the project managers mainly involved in global IS development projects to integrate soft skills in existing and emerging software project management methodologies.

Table 2
Soft Skills Activation During PM Phases

Soft Skills	Project Management Phases				
	Initiating	Planning	Executing	Controlling	Closing
Communication Skills					
Team Building					
Flexibility and Creativity					
Leadership					
Organizational Effectiveness					
Stress Management					
Time Management					
Change Management					
Trustworthiness					
Conflict Management					

Note. Adapted from "Accommodating Soft Skills in Software Project Management" by Sukhoo, A., Barnard, A., Eloff, M. M., Van der Poll, J. A., & Motah, M., 2005, *Issues in Information Science and Information Technology*, 2, 699-700. <https://doi.org/10.28945/860>. The grey boxes reflect the soft skills deemed most relevant in the corresponding project management phase by Sukhoo's et al.'s (2005) research.

According to Table 2, almost all soft skills listed by Sukhoo et al. (2005) were considered important during the executing phase. Communication skills were prioritized more after the executing phase, while flexibility and creativity were valued in the initiating and planning phase. Similarly, during the closing stage, it was found that the communication skills were valued more than other soft skills being considered. While specific traditional skills, considered as soft skills, were discussed by Sukhoo et al. (2005), recent research has mentioned "emerging soft skills," contemporary skills that are gaining significance and increasing in relevance in today's work culture. Recently, Colomo-Palacias (2012), Mtsweni

(2016), and Florea and Stray (2018) suggested specific emerging soft skills, such as the ability to work in an international context, an understanding of other cultures and customs, an ability to work under pressure, and a strong work ethic (Table 3).

Table 3

Classification of Emerging Soft Skills

Types of Emerging Soft Skills	Researchers
<ul style="list-style-type: none"> • Capacity for analysis and synthesis • Ability to work on an interdisciplinary team • Ability to work in an international context • Ethical commitment • Understanding of other cultures and customs • Quality Concern 	Colomo-Palacias (2012)
<ul style="list-style-type: none"> • Critical Thinking • Personal Integrity 	Mtsweni (2016)
<ul style="list-style-type: none"> • Work ethic • Critical thinking • Detail-oriented • Quality-oriented 	Florea & Stray (2018)

Organizations are looking for more soft skills in IS/IT project managers. Global projects have multi-cultural issues which influence the success of those projects. Project organizations are increasingly dealing with global multi-cultural teams, which often generate frustrating project management experiences related ethical dilemmas such as employee management in multicultural workplaces and special treatment (Walker & Lloyd-Walker, 2014). These are mostly due to the lack of soft skills, such as the ability to work in an interdisciplinary team and in an international context. Also, cultural differences create substantial obstacles to effective teamwork, but these may be subtle and difficult to recognize until significant damage has already been done (Brett et al., 2006). Similarly, communication barriers are magnified in global teams when they work via virtual technologies (Anantatmula & Thomas, 2010). Therefore, multi-cultural issues must be tackled before they create a source of conflict for the project (Hinds & Bailey, 2003).

Methodology

We conducted a survey among Nepalese IS/IT professionals using an exploratory research design and the purposive-

sampling method. The purposive-sampling technique is most appropriate when participants are deliberately chosen due to the qualities that are possessed by the participants (Etikan et al., 2016). In this study, 40 IS/IT professionals working in IT/Business Process Outsourcing (BPO) projects in Nepal, the USA and Australia were approached. Survey participants were all working professionals who had been working in IT/BPO for more than five years. Participants were selected due to their knowledge or experience and were proficient and well-informed with the phenomenon of interest (Bernard, 2002; Cresswell & Clark, 2011). The survey was anonymous, and no personal data was collected. The questionnaires were prepared to meet the research objectives of understanding which soft skills are needed for IS/IT project management with an additional focus on identifying which soft skills are useful for the five stages of project management.

The questionnaires were divided into two sections. The first section focused on the need for soft skills and the importance of soft skills (from Table 1) in different stages of the project management cycle. The initial portion of the questionnaire asked the respondents to choose whether they consider hard skills, soft skills, or both as the core competencies required for IS/IT projects in multicultural organizations. Respondents were also asked, "Do you think project managers lack the soft skills needed for IS/IT projects in multicultural organizations?"

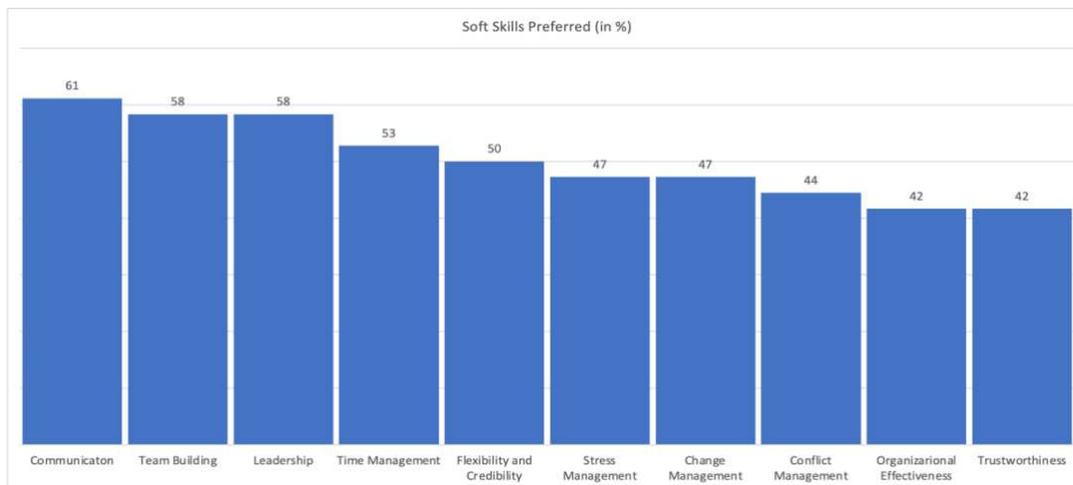
The second section focused on the emerging skills mentioned in Table 3 and the respondents' preference for these at different stages of the project management cycle. Participants were given a list of the soft skills from Table 1 as a multiple-choice question to determine which soft skills they believed to be essential for IS/IT projects. The respondents were also asked to select in which phase of the project management cycle each of the skills could be deemed to be most appropriate. In the second section of the questionnaire, the respondents were given the multiple-choice multiple select options to choose the most appropriate emerging skills (see Table 3) for each of the different stages of the project management cycle.

Analysis and Discussion

For the study, the survey data was used to generate relevant charts that enumerated the information collected from the study, which was then further discussed to create valuable insights.

Seventy-seven percent of the respondents said project managers lack soft skills. This signifies that most project managers need to update their soft skills. This also signifies that the IS/IT project managers must have an ability to see beyond technical competences and focus more on polishing the soft skills needed. Communication, team-building, and leadership skills were the first three preferred essential skills for IS/IT projects based on the respondents' choices. Trustworthiness and organizational effectiveness were perceived to be the least essential soft skills for IS/IT projects by the respondents (see Table 4).

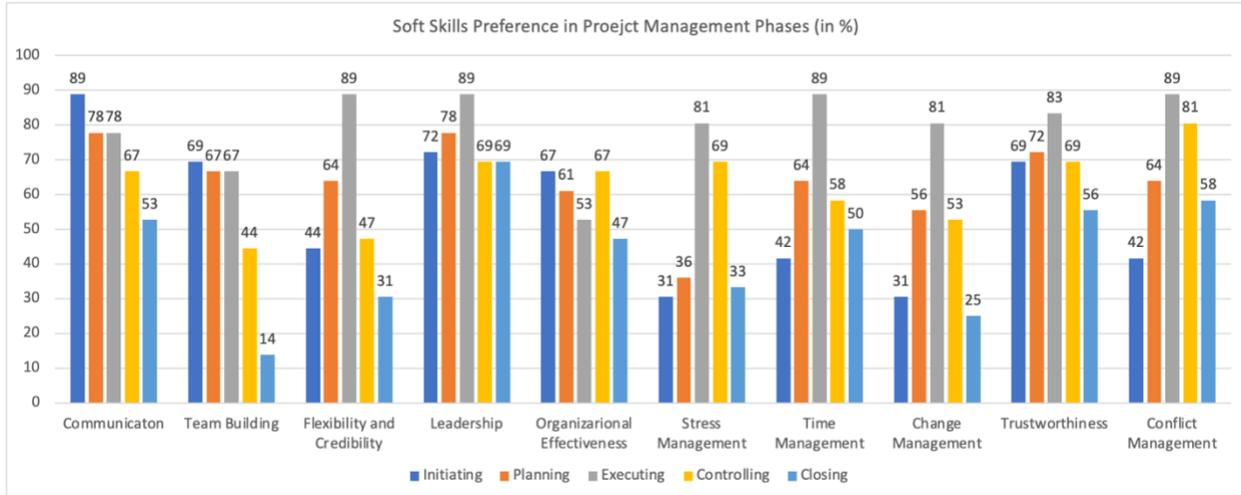
Table 4
Soft Skills Preferred (in %)



Unlike Sukhoo's (2005) framework regarding activation of certain soft skills during the project life cycle, our respondents selected that all skills should be present in all phases. The reason could be that respondents come from various backgrounds and may not be responsible for software development as defined in Sukhoo's (2005) framework. Based on the data, communication and team-building skills

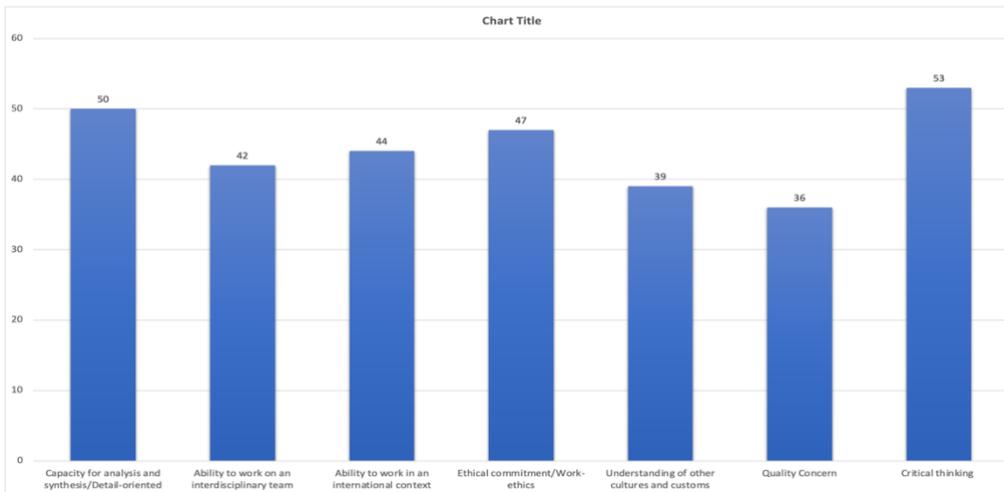
are mostly preferred during the initiation phase. Responses also indicate that all the other soft skills mentioned in Sukhoo's (2005) framework are valued the most during the execution phase. Change management and team-building skills were the least important skills ranked during the closing stage, while conflict management was the most preferred skill during this stage (see Table 5).

Table 5
Soft Skills Preference in Project Management Phases (in %)



Among the emerging soft skills, capacity for analysis and synthesis and critical thinking skills were considered highly essential for IS/IT project, whereas work ethic and ability to work in an international context came second and third, respectively.

Table 6
Emerging Soft Skills preferred (in %)

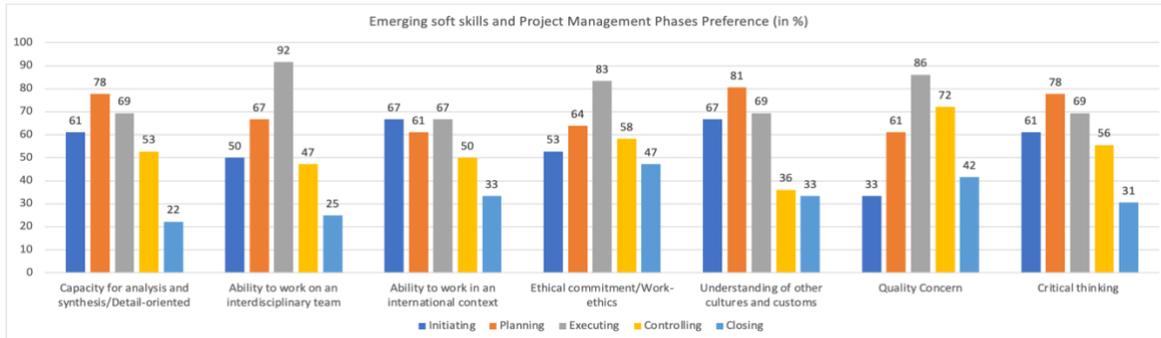


Ninety-two percent of the respondents mentioned that they considered the soft skill, “ability to work in an interdisciplinary team,” as most important during the executing phases,

highlighting the value of the skill while executing tasks in a multicultural IS/IT project. In addition, this preference indicates that multicultural teams have professionals from

various backgrounds and a lack of experience managing international teams would negatively impact the project. However, respondents deemed this skill least preferred during the closing phase. Table 7 displays the preferences in each project management skills phase for the different emerging soft skills.

Table 7
Emerging Soft Skills and Project Management Phases Preference (in %)



As per the respondents' preferences of the emerging skills, the data indicate that the ability to work on an interdisciplinary team, ethical commitment, quality concern and the ability to work in an international context were considered the most essential during the executing phase while the remaining three skills were preferred the most during the planning phase.

Integrating Traditional Soft Skills and Emerging Soft Skills

The soft skill activation framework for different phases of IS/IT projects adapted for the Nepalese context based on the analysis and discussion presented above are shown in Table 8. This table also includes the most preferred emerging soft skills during different project management phases. This extended framework intends to help project managers define which skills to activate during which phase of the projects in Nepal.

Table 8
Soft Skills Activation During PM Phases

Soft Skills	Project Management Phases				
	Initiating	Plan-ning	Execut-ing	Control-ling	Closing
Communication Skills					
Team Building					
Flexibility and Creativity					
Leadership					
Organizational Effectiveness					
Stress Management					
Time Management					
Change Management					
Trustworthiness					
Conflict Management					
Capacity for analysis and synthesis/Detail-oriented					
Ability to work on an interdisciplinary team					
Ability to work in an international context					
Ethical commitment/Work-ethics					
Understanding of other cultures and customs					
Quality Concern					
Critical thinking					

Note: The grey color indicates the soft skills preference according to Sukho et al. (2005)'s finding while the orange highlights indicate our findings.

Reflections

The fact that 77% of the respondents said project managers lack soft skills suggests that most project managers need to update their soft skills. This also signifies that the IS/IT project managers must have an ability to see beyond technical competences and focus more on polishing the soft skills needed.

The selection of appropriate soft skills during different phases of the project management cycle was found to deviate from Sukhoo's (2005) framework of activating soft skills. This could be because respondents come from various backgrounds and may not be responsible for software development as defined in Sukhoo's (2005) framework. Elements of Sukhoo's (2005) framework are drawn from various research, including University of Arkansas which was conducted by Teeter et al. (1999) on the data collected from individuals involved in IT companies. However, the research participants were generalists and managers who worked in 16 companies in Arkansas. This study found participants consider leadership and diversification (different cultures) less desired skills.

However, the multicultural workforce targeted for this survey's response, which reflects the dynamic workforce of the present day, might have also resulted in a difference from Sukhoo's (2005) framework. The respondents for our survey worked in various IS/IT fields, including quality assurance, quality control, auditing, debugging, DevOps, and IT admins. This might have caused the result to deviate from Sukhoo's (2005) framework, which is why emerging soft skills can be assumed to be more critical. For example, for quality control, communication skills might also be essential in earlier phases of the project management cycle, while emerging skills like quality concern could be more helpful in different phases.

An overwhelming majority of the respondents mentioned that they considered the soft skill, "the ability to work in an interdisciplinary team" as the most important during the execution phases. Modern workforces have professionals from different disciplines working together who have experience working in various fields. Therefore, we can infer that the managers need to manage interdisciplinary teams in the current workforce environment.

Limitations and Future Research

In this research study, we identified two limitations. The first limitation is the sample size. Responses from only 40 participants were collected. A larger sample size would have been more representative of the diverse population from which it was drawn.

While the respondents were not explicitly asked about their work experience or if they or a project manager they had worked with were from an IS/IT background, respondents were carefully chosen to provide selective sampling. Most of the respondents were working IT professionals with varied working experiences in local as well as multinational companies. To minimize the researchers' bias on the selection of respondents, researchers opted for IS/IT professionals not only working in Nepal but also in the USA and Australia.

One issue that deserves future research is the exploration of the experience of different time zone workers and their need for soft skills. The modern realities of working in different time zones could bring about more insights about a different set of challenges and soft skills required to work effectively. As more people have been working alone during the pandemic or in freelancing work as part of distributed remote team, studying personal and work life balance, an ability to have visibility of work, adjusting to varying time zones of partners, an ability to retain motivation to work as a solo teammate away from rest of the team and managers developing restraint from continuous interruption may be of interest but was not considered for this research (Koehne et al., 2012).

Additional research could also focus explicitly on Nepalese IS/IT project managers to understand their activation of soft skills at different phases. Moreover, further research is needed to understand the interaction of leadership style, team building, and soft skills, as leadership does not exist without a team.

Moreover, future research should focus on the usage of different project management tools and the capability of using those tools effectively as part of the soft skills required in the IT industry. Future studies could also have more respondents from IT companies with different employee sizes to understand if the company culture of companies of different sizes might

cause a difference in priority of the soft skills that are valued by IT professionals.

Conclusion

A major contribution of this research is its findings that Nepalese IS/IT professionals view communication, team building, and leadership as essential for managing offshore projects. However, their preferences for communication and team-building skills during the initiation phase of project management suggest that Sukhoo et al.'s (2005) framework should be adapted. Similarly, adding emerging skills to the framework is pertinent with the rise of telecommunication due to the pandemic. We expect our findings to help Nepali IS/IT project managers understand which soft skills are valued most in their workplace to improve those skills. Additionally, we hope our findings will show IS/IT companies which soft skills are preferred so that they can target those skills while making hiring for managerial positions. Skills in managing relationships are critical to achieving stakeholder satisfaction through all project stages. Relationship skills complement the effectiveness of hard (technical) skills because project outcomes are achieved through people, using their knowledge and creativity, not through the mere use of techniques or hardware. Creating the right relationships with team members and other stakeholders is one of the biggest challenges for project managers which requires them to cultivate a mix of emerging and traditional soft skills.

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The Five Biggest Factors Challenging Start-ups in Nepal

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ABSTRACT

There are a variety of factors that pose challenges for start-ups globally. These challenges vary based on the country, region, or economy of operation. Research identified the challenges start-ups face depending on whether start-ups were established in developed or undeveloped countries. However, few research studies have been conducted in Nepal. Hence, the purpose of this study was to examine the top five factors that hindered start-up formation or posed difficulty for the growth of start-ups within Nepal between 2017 to 2020. The primary data was collected using a mixed method using purposive sampling consisting of an in-depth interview followed by a survey with entrepreneurs and experts of the entrepreneurial ecosystem of Nepal. The authors administered an in-depth interview with open-ended questions and then conducted key informant interviews. Throughout the interviews, the five major issues identified as hindering start-ups were human capital, finance, support system, policy, and marketing.

Keywords: start-ups, challenging start-ups, Nepali entrepreneurs, drivers of entrepreneurship, start-up failure

The Five Biggest Factors Challenging Start-ups in Nepal

Start-ups are considered drivers of the economy (Jonek-Kowalska & Wolniak, 2021). The number of start-ups has increased by roughly 20 times in less than ten years (Lyons & Zhang, 2017; Nafukho & Muya, 2010). Following the international trend, the culture of entrepreneurship and start-ups has slowly been evolving in Nepal within the last decade. Many

millennials have also entered the entrepreneurial ecosystem by launching new start-ups. In recent years, some of these start-ups have been able to not only survive but grow while others have succumbed to various challenges and failed. There has been much research on success and failure factors. However, the term "success factor" itself incorporates many things, and hence, lacks a consistent definition among these studies (Fisher et al., 2014; Freiling & Wessels, 2012). A great deal of research has been

conducted to determine both the critical factors for success as well as hindrances to success in start-ups which provides insight into how to support start-ups and their founders in the early years (Watson et al., 1998). These research studies also offer insights on how a country can utilize appropriate policies to educate and train the founders of start-ups. However, this previous research cannot be generalized to Nepal, as the availability of resources affects the environment in which start-ups grow and would vary, depending upon the country (Autio et al., 2014). Examining the international practices suggested for the success of start-ups and establishing these factors is a good way to understand the challenges faced by start-ups in Nepal and how these challenges can be resolved. However, these practices may be inaccurate due to the knowledge difference and the contextual difference between countries (Autio et al., 2014; Porfirio et al., 2016). To address this issue, this research seeks to discover the problems pertinent to Nepali entrepreneurs as they design and implement start-ups within the country. To do so, the authors conducted a literature review examining the problems applicable to developed and developing countries. This then helped identify possible factors regarding these problems and provided information about specific factors to discuss with entrepreneurs. The authors then conducted in-depth interviews with the entrepreneurs to explore the existing challenges in the context of Nepal. The result of the findings shows similar problems among Nepal and other countries. However, the priorities of the factors differed.

Literature Review and Conceptual Framework

Nepal has been identified as one of the least developed countries (LDC) in the world (United Nations "List of least," 2021). As a developing country, the challenges that Nepali start-ups face are likely similar to those of other developing countries because of similar political and economic conditions. Thus, to develop a conceptual framework for this research, we identified the challenges for start-ups within other developing countries like Myanmar, Bangladesh, Ethiopia, Angola, and Chad. We subsequently compared these challenges to those in the developed nations of Norway,

Sweden, the Netherlands, and the Middle East to develop a final conceptual framework for this study.

Challenges Faced by Start-ups in Bangladesh

Extant literature has revealed several factors that pose challenges for the formation and scaling of Bangladeshi start-ups (Chowdhury et al., 2013). These factors include the absence of adequate infrastructure facilities (Chowdhury, 2007), bureaucratic obstacles (Quddus & Rashid, 2000), lack of long-term capital, limited personal and family savings (Chowdhury & Amin, 2011), limited access to market and technology information (Keh et al., 2007), political unrest, and lack of respect for democratic principles (Chowdhury, 2007). Recent literature on small-medium enterprises (SMEs) has also highlighted that access to finance, market competition, unfavorable loan policy, and poor supply chain support are problems affecting SMEs' growth potential (Islam et al., 2020; Sarker, 2020).

Challenges Faced by Start-ups in Myanmar

Like Nepal, the development of start-ups in Myanmar is still a relatively new phenomenon. Myanmar's political reforms and economic liberalization, which began in 2011, immediately increased foreign investments from \$300 million in FY 2009-2010 to \$20 billion in FY 2010-2011 (Allchin, 2011). Even though such events facilitated the formation and development of start-ups in Myanmar, several factors still made continued growth challenging. Though recent developments are extraordinary, economic development is nascent and was further affected by the recent COVID crisis (Malesky et al., 2020).

Start-ups in Myanmar have been engaged in legal and administrative reforms for SMEs. Poorly developed infrastructure, an unwieldy bureaucracy, non-transparent regulations, a shortage of skilled labor, least technological development, and weaker market access are some of the challenges faced by enterprises in Myanmar (OECD, 2016).

Kapteyn and Wah (2016) found that 89% of SMEs in Myanmar relied on personal or family savings/assets for start-up capital while only 17% of the enterprises relied on bank loans from the point they were established, and 85%

of them had not applied for a loan in the two years prior to founding the business. This was mainly because 41% of the study respondents were either unaware of the procedures for requesting a bank loan or felt that the processes involved were too lengthy and complicated. Nineteen percent lacked adequate collateral for loans (Kapteyn & Wah, 2016). The same research found that 97% of the enterprises in the survey experienced an electricity outage every month in the past year with an average of 12.9 outages per month (Kapteyn & Wah, 2016).

Other challenges facing start-ups in Myanmar include difficulty in finding employees with the necessary skills, high employee turnover rates, a culture that is risk-averse and where families do not support entrepreneurship, gaps in support systems such as infrastructure, mentorship, and networking opportunities, lack of affordable professional services, lengthy and costly company registration processes, and opacity of legal and regulatory compliance requirements (Project Hub Yangon "Mapping Yangon's," 2015).

Challenges Faced by Start-ups in African Countries: Ethiopia, Angola, and Chad

There are many countries in Africa considered to be amongst the least developed countries in the world, such as Ethiopia, Angola, and Chad. The challenges faced by start-ups in those African countries are due to the globalization of markets and production, lack of financial support, poor infrastructure, international expansion, and government-sponsored assistance (Ekeledo & Bewayo, 2009). The recent reports by the London Stock Exchange Group (2018) show that the lack of funding is still consistently one of the biggest problems for entrepreneurs. With globalization, the start-ups in these African countries have had difficulty competing with large companies in emerging countries that are able to produce cheaper and higher-quality products, such as China and Brazil (Ekeledo & Bewayo, 2009). Many start-ups in these African nations also lack access to infrastructure such as transport, electricity, telecommunications, and the Internet (Ekeledo & Bewayo, 2009). Some start-ups are unable to scale up and expand internationally because they are in countries with a reputation for producing low-quality products, and the

existing policies make it difficult for them to join international supply chain networks (Rankin et al., 2006). Njanike (2019) suggested that to combat these issues, the government should provide an enabling policy so that start-ups could have better growth, profitability, and create better job opportunities. Overall, the main areas of focus for entrepreneurs in the identified African countries are appropriate education, skill, and long-term financing (Gumel, 2019).

Challenges Faced by Start-ups in Developed Countries

Previous research regarding the challenges faced by start-ups within the United States, Norway, Sweden, Middle East countries, and the Netherlands has found that gender, human capital, motivation, process, finance, and networks are some of the factors that positively influence entrepreneurs in the pre-start-up phase (Gelderen, 2005).

Teten et al. (2013) suggested that venture capitalists use the TOPSCAN framework (Team building, Operations, Perspective, Skill-building, Customer development, Analysis, and Network) as a blueprint for operational involvement in start-ups. Team building refers to designing and recruiting a start-up's capital base while Operation signifies enhancing administrative, accounting, legal and technology capabilities. Similarly, Perspective refers to strategy, competitive positioning, defining the target market and scoping the product; Skill- building refers to building the right skills, especially for senior management. Customer development refers to identifying and gaining access to the right customer, and Analysis refers to how entrepreneurs measure, understand, and report the performance of their early-stage companies; Network refers to the cheapest, and sometimes the most value-added service, that an investor can provide in access to their network, particularly to potential investors and acquirers (Teten et al., 2013). We can infer from this framework that these seven variables are not only important for start-up formation but also for their perpetual growth.

While the factors and frameworks that positively influence entrepreneurs are clear, there are still clear challenges that impact start-ups. According to Salamzadeh and Kawamorita (2015), the factors posing challenges to start-

ups in Middle East countries are financial challenges, lack of human resources, lack of support mechanisms, and environment. Pfeiffer (2018) listed culture and education, support and network, and financing as the factors challenging eastern and central European entrepreneurs while financing, advice, education, and peer exposure were identified as necessary for the would-be entrepreneurs in the United States (Abraham & Master, 2021).

Methodology

The research was conducted in three phases using a mixed approach. First, we reviewed literature from around the world on countries having an economic, geographic, or social similarity to Nepal. Based on our review, we then developed a conceptual framework to understand the possible problems faced by entrepreneurs. In the second phase, we interviewed the entrepreneurs and in the third phase, we interviewed the key informants (experts) of the start-up ecosystem of Nepal.

Conceptual Framework

Based on the literature review, there were eight factors that were identified as posing challenges for start-ups around the world (conceptualized below in Figure 1).

Figure 1

Conceptual framework for the study

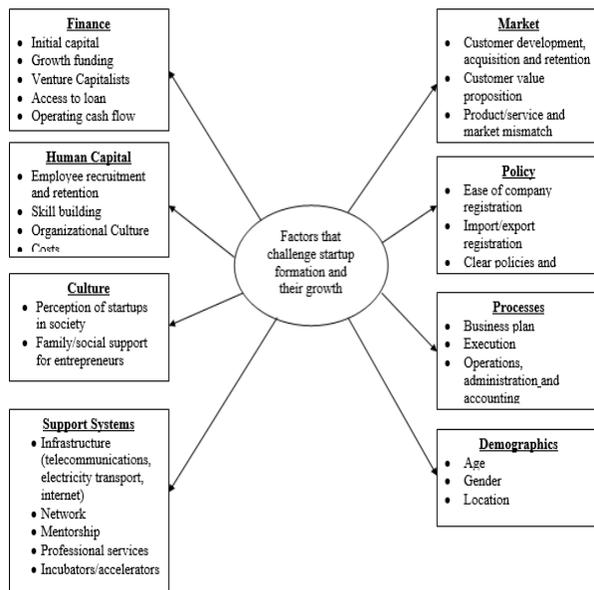


Figure 1 showcases the conceptual framework that uses finance, human capital, culture, support system, market, policy, process, and demographics as the eight factors which can create challenges in the LDCs and the developed countries that were identified in the literature review.

Entrepreneurs' Interview

A list of fifty entrepreneurs based in Kathmandu whose ventures were less than five years old was created. The entrepreneurs were between the ages of 25-40. Out of the fifty entrepreneurs, eighteen were selected and interviewed based on their availability. These interviews were conducted in two parts. First, an in-depth interview with open-ended questions was conducted with the eighteen entrepreneurs to understand the challenges faced by the start-ups in Nepal (Part 1). The interview focused on gathering the thoughts and feelings of the participants, which was foundational to determining the most impactful challenges the entrepreneurs identified in their start-up endeavors (Merriam, 1992). The purposive (judgment) survey method was used, which is a non-probability sampling tool. In this method, the researcher autonomously decided what information was needed and who was able and willing to provide it based on their knowledge and experience (Bertrand, 2002).

After the in-depth interview, the entrepreneurs completed a five-point Likert questionnaire rating the degree to which each factor identified by the conceptual framework (see Figure 1) posed a challenge within their individual endeavors (Part 2). The scale ranged from 1 (least challenging factor) to 5 (most challenging factor). The average of each factor was then calculated.

Based on the in-depth interview, we clustered the findings into eight different categories formulated on the conceptual framework. We then picked the top five factors with the highest average and labeled these the "top 5 major factors challenging entrepreneurs" and prepared a spider chart based on the Likert scale to identify the top five most challenging factors.

Key Informants' Interview

The key informants are the experts, investors, mentors, and trainers of

entrepreneurship who have more than five years of experience in the start-up ecosystem of Nepal. The key informants included individuals who were able and willing to share their knowledge and expertise and were reflective and observant members of the start-up community to be studied (Seidler, 1974). The key informants selected for this research belong to various industries such as education, investment, and service. The key informants participated in a two-part interview. In the first part, we asked the key informants open-ended questions about the possible challenges faced by entrepreneurs while operating their start-ups. In the second part of the interview, we discussed the viewpoint of key informants in relation to the overall findings from the entrepreneurs' interview (see Appendix B).

Findings, Discussions, and Analysis

The findings from the in-depth interviews on the primary factors challenging the start-ups were categorized into factors identified as "Factors that challenge start-up formation and their growth" in our conceptual framework (Part 1) (see Figure 1). Then, the entrepreneurs also rated how problematic each factor was on a scale of 1 (least challenging) to 5 (most challenging) (Part 2). The average rating of each factor was derived as the arithmetic mean of all the ratings. The highest average was considered "most challenging", and the lowest average was considered "least challenging." Furthermore, the response of the key informants from the in-depth interview was also included in the discussion under the factors identified in the conceptual framework.

Figure 3

Factors Challenging Entrepreneurs

Factors	Average Rating
Human Capital	3.75
Finance	3.25
Support system	3.05
Marketing	2.7
Processes	2.4
Culture	2.35
Demography	1.8

Note. The average rating is the average of the sum of the rating divided by the total number of respondents

Finance

In the in-depth interview with the entrepreneurs, finance was identified as a major problem for start-ups to scale up their operations. Access to finance, via venture capitalists, accelerator programs, or bank loans, was found to be difficult for entrepreneurs for a variety of reasons within Nepal. Often banks in Nepal were found favoring a sector or segment. For example, one entrepreneur stated, "the banks have a number of entrepreneurs' business plans in the queue so they would only select the one from the sector they are focusing on. They aren't really interested in new ideas but only in the sector they want to focus on. For example, they invest mostly in agriculture for now" (personal communication, 2021). However, each of the five key informants mentioned that finance is not as big a problem as it is being stated but that instead entrepreneurs do not approach venture capitalists for investment. A key informant stated that "access to the venture capitalists' fund needs to go through numerous phases in an accelerator program, which the entrepreneurs might weigh with the opportunity cost lost while applying for these programs in getting funded. At times, a company would need to be registered and have been operating for a few years prior to getting approved for a loan, which might again add cost to the company for getting registered and so forth" (personal communication, 2021).

There was also a relationship between prior work experience and financial readiness for companies. Five of the 18 entrepreneurs rated finance as the least challenging factor. These entrepreneurs however had prior job experience, and thus, had made savings for investment purposes.

The average score for finance as a problematic factor was 3.25 out of 5. The reason associated with this score was that many did not require a heavy initial investment in the company. An entrepreneur was quoted stating, "Finance is not the real issue but how to commercialize the product is the real problem. We need to start from small scale and prototyping" (personal communication, 2021). Overall, the capital needs of a company can be seen as a function of the phase of the company, fully dependent on the phase they are in. One needs small capital to begin prototyping. However, to increase the scale of the business, a larger source of capital is needed. Start-ups struggle most during the scaling phase.

On the contrary, the key informants did not believe that access to funds was as difficult as it is portrayed by entrepreneurs. They said that companies cannot even meet the minimum compliance set by the banks to be eligible to secure the funds, which has been the major reason for the rejection of funding requests. However, one key informant mentioned, "Nepal's ecosystem lacks the real venture capitalists who could provide the risk capital and bear the risk of the companies for a small amount" (personal communication, 2021).

Human Capital

Human capital was another factor that was identified as impacting start-ups in Nepal. Human capital was rated an average score of 3.75 out of 5. Most of the entrepreneurs' perspectives and ratings were consistent in this case. Fifteen entrepreneurs complained that the skilled people required for their businesses preferred applying to the established companies rather than to start-ups, due to the risk and instability associated with start-ups. Human-resources would negotiate more often for a rise in their salary which would, at times, even exceed the price range that would be offered by an established organization. On the other hand, one entrepreneur added, "Sometimes our

partners (even employees) go for freelancing, switch to a well-paid job, or go abroad causing sufferings. And we need to reinvest new resources in training or orienting new people" (personal communication, 2021).

Relatedly, key informants noted that forming a quality team requires forming a heterogeneous unit with diverse knowledge so that one can complement the other's information gap. However, most start-ups are struggling because they have a homogenous group with similar skill sets often formed by close friends. Additionally, the informants mentioned a problem in the process of coming together with the team members. A key informant stated, "Rather than coming to understand entrepreneurship, most of the employees come for the sake of salary, which makes them bargain most often" (personal communication, 2021). The companies ranking high in human capital were those where technical skills were required.

Culture

Culture was consistently identified as a barrier for entrepreneurs by all key informants; however, in our study, the entrepreneurs gave it an average score of 2.35 out of 5 on the scale. Culture affects the way entrepreneurship is perceived in any country. One major aspect of culture is family. Roughly 75% of the entrepreneurs interviewed stated that their Nepalese families did not want them not to pursue an entrepreneurial venture and wanted them to pursue a more conventional job instead. An entrepreneur mentioned, "Entrepreneurial ventures were often linked with failure and lower social status, which as a concept is ingrained in a family's perception and overall societal culture" (personal communication, 2021).

Likewise, a key informant clarified that "the mindset of failure as being bad is ingrained in our brains from childhood and people want their children to be on the safe side. This has led people to surrender when they fail at their ventures, but entrepreneurship needs failure as a part of the process" (personal communication, 2021). Thus, a lack of financial and motivational support on behalf of family and friends in Nepal significantly impacted and provided a challenge for the development of start-ups. Additionally, the surveys found that culture impacts the way

that society views entrepreneurs and their credibility. “Entrepreneurs are often labeled as casual workers as opposed to those who hold a serious, or more conventional job”, mentions one entrepreneur (personal communication, 2021). Similarly, based on the conversation with the entrepreneurs who had worked previously against cultural pressure, it was noted that they were less likely to perceive it as a problem when compared to the ones who had not.

Although entrepreneurs identified culture as a barrier, they did not score it as a more pressing factor on the Likert scale (i.e. rated it as the second least pressing factor). According to a key informant, the reason for this could be, “the cultural factor has been deeply ingrained in the brains of the Nepalese. It has already limited our thoughts, and thus, we do not see it as a problem” (personal communication, 2021).

Support System

The average score for “support system” was 3.05 out of 5 and is one of the challenging factors that were identified by the entrepreneurs through the rating scale. In the support system, we looked at the services related to infrastructure (telecommunications, electricity, transport, internet), network, mentorship, professional services, and incubators/ accelerators.

The availability of quality mentors throughout the process of registering and opening a business was consistently mentioned by twelve of the 18 entrepreneurs surveyed. Nine entrepreneurs interviewed remarked that the network with the right suppliers, investors, and key partners would make the scaling of a business easier. However, despite feeling the need for mentors, several entrepreneurs shared their concerns regarding mentorship mismatch. One entrepreneur mentioned, “In the past we used to talk to mentors but found their advice difficult to implement in our company” (personal communication, 2021). Though mentorship was mentioned as the most important support aspect from entrepreneurs in the rating scale for the growth of the companies, the key informants did not think that the lack of quality mentors in Nepal’s entrepreneurial ecosystem contributed to anything concrete and viewed the support as simply providing suggestions or feedback.

For IT companies, quality power supply and high-speed Internet were found to be pivotal for success. Negative experience with the Internet was not an issue until entrepreneurs had to develop a personal relationship with the Internet service providers.

Though most of the entrepreneurs felt having incubators would be beneficial, key informants had reservations. One key informant mentioned, “Incubators have given rise to a culture where people run behind investors rather than being creative with their own deeds” (personal communication, 2021). This same expert also added that “even entrepreneurs are acting like investors, where they aren’t focusing on their start-up but rather going on investing in various other new start-ups like a chain entrepreneur” (personal communication, 2021).

From the in-depth interview with entrepreneurs, support systems were found directly related to the job experiences or years of operation. The companies which were in operation for at least three years went through learning cycles where they developed the knowledge for themselves. On the other hand, past job experiences or other experiences also gave certain benefits like network excess, which could develop the support system for a company.

Marketing

Marketing scored an average of 2.7 out of 5 and was identified as one of the problems faced through the rating scale. According to the key informants surveyed, the crux of the problem with entrepreneurs today is their inability to grasp the value proposition of their businesses. The market in Nepal is full of entrepreneurs who have products to sell but are not sure of the value proposition their product is offering.

This problem is said to be due to entrepreneurs’ lack of practical knowledge regarding marketing. Our key informants mentioned, “Entrepreneurs generally give more technical jargon to market the products rather than communicating in customer-centric ways” (personal communication, 2021). Another key informant mentioned, “the team, formed with heterogeneous members, should have at least one marketing expert to improve marketing. This could be further supplemented by a quality

network of marketing professionals or subcontracting marketing agents” (personal communication, 2021).

Policy

Government processes and policies received a mixed response from entrepreneurs and key informants. Entrepreneurs stated that government policies are needed to promote the company, but also that some policies could inadvertently discourage the development of a business. One such policy that was specifically mentioned was the axiom code. One entrepreneur stated, “I had to register at VAT when I had a consignment worth more than one hundred thousand Nepali rupees, and later when I had no sales, they started questioning me for why I had zero sales” (personal communication, 2021). Another entrepreneur expressed:

My company’s name was changed from “Slices Pizza” to “Slices Pizza Baked” because the government authority saw no meaning in the name I kept, whereas it has a meaning. This was done without asking me. They also declared themselves the rent of my business’s outlet while the outlet was my own building and I had boot-strapped it. (personal communication, 2021)

Entrepreneurs also suggested that a no-tax policy for a certain number of years or policies supporting the companies during the product test level would be helpful to start-up development. The entrepreneurs believed this would help to promote their entrepreneurial effort. Similarly, many of the entrepreneurs expressed that they encountered issues with the middleman in government agencies because the government has not been able to remove them nor establish one clear door policy to registration. These middlemen are promoting corruption by creating a mandatory situation to go through them, especially in airport cargo. One entrepreneur complained, “it is more difficult for the companies to export goods than import because we cannot use PayPal, nor do we have any payment gateway” (personal communication, 2021).

One key informant, however, stated that government policy is a problem for start-ups and

policy always comes after the need for it. Hence, Nepal still has a long way to go prior to creating a “critical mass” that could lobby the policymakers to create a good start-up policy. The key informants argued that none of the current policies have hampered anyone from doing business.

Experts mentioned that all the policies are vague at their inception and that policies get defined and broader as the number of businesses increases. On the other hand, entrepreneurs stated that clear policies and guidelines would help them operate. On this dichotomy, we observed that the start-ups which had registered recently scored higher on the policy as a barrier as compared to companies which had been registered for a long time. As a result of which, they have given lower scores to this factor. Policy was given an average rating of 3.05.

Processes

Processes scored an average of 2.4 out of 5 in our scale. The technicalities of renewal or registration or even Value Added Tax (VAT) entry can become difficult or overwhelming for a new company. Almost 16 entrepreneurs mentioned a coherent business plan would have helped them expand their business had they known about it earlier. However, they had an idea in mind but had not actually developed them rigorously in a written plan.

Processes were found to be directly related to the experience of the founders and the variety of the skills of individuals in the company. A start-up consisting of a heterogeneous group with different skills, such as marketing and accounting, would be an advantage for the company in terms of its ability to accelerate and adapt quickly. Similarly, the entrepreneurs who had prior experience were seen to be better with operations or management. This would help to make it easier for them to handle the various required processes of running a business compared to novice entrepreneurs. A key informant was quoted saying, “Entrepreneurs must have work experience and have worked in most of the field or had learned a little bit of everything before they decided to join the venture or at least have a circle to refer to the emerging problems” (personal communication,

2021). Furthermore, this helped to accelerate this particular business.

Demography

Demographics was rated very low by many people, as it has scored 1.8 on the scale. Demography has a diverse and different effect on entrepreneurs. Entrepreneurs who started their start-ups in their early twenties complained that the market did not believe in them initially because of their age, but they also added that the context is changing. Additionally, in the case of women entrepreneurs, there is a seemingly mixed response. This mix seems to stem from access to information. The women, who had information about positive discrimination like tax exemptions and funds, were more likely to feel positive about the gender bias within the start-up

community and vice versa. On the other hand, few women mentioned that the employees and partners would still prefer a male boss over a female one, which remains a large demographic barrier.

Conclusion and Recommendations

This research analyzed different factors that affect entrepreneurs and ranked those factors based on the scores given. Based on the factors identified from the literature and participants' ratings, we have come up with the five main factors that have affected the entrepreneurs within Nepal. Those major factors were human capital, finance, support system, policy, and marketing respectively, as shown in Figure 2.

Figure 2

Spider Chart for the Five Factors Challenging Start-ups



Note. The five factors in the chart are the top five averaging factors rated by the entrepreneurs as the most challenging one.

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Appendix A

Questionnaire for Entrepreneurs

1. What are the challenges you are facing as an entrepreneur?
2. Is managing human resources a challenge for you?
3. Do you think that finance is a problem for the start-ups like you? How did you get your investment? Was it easy?
4. Were your family and friends supportive of your decision of being an entrepreneur?
5. Do you think having an incubator or any mentors could have made the entrepreneurial journey easy?
6. How easy or difficult was the marketing for you at first?
7. Did you find entrepreneurial/business policies as a problem for you? How?
8. Do you think your gender or your ethnicity was a problem for you to be an entrepreneur? Age? Any other demographics?
9. Please give score on the scale of 5 to these factors

Appendix B

Questionnaire for Key Informants

1. What do you think is the problem for entrepreneurs in Nepal?
2. We have found the following in interviews (the discussion from the entrepreneurs' interview), what is your take/reflection on it?
3. Can you say the main problem of Nepali entrepreneurs?