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Editorial

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As a global crisis goes on, from second to third year, educators around the world continue to grapple with its impact. In some countries, the struggles are far more than in others, as the pandemic rips open the fundamental inequalities among nations and magnifies them. Nation-based consciousness, sustaining nation-based social progress and even nation-based education, allows the inequalities to stay, seen as normal, as reflection of the efforts of each group of people separated by political borders. But we know that individual or even communal efforts mean little relative to vast differences in material resources, conditions for enterprise, individual freedom, fairness and equal opportunity, or recourse for justice when the average individual is wronged or taken advantage of. In some countries, students haven't seen the face of college or school for months, while others get the short end of the stick in the disrupted distance learning that their institutions have put together. In some others, students are returning home after in-person schooling for some time, uncertain if and when they will be able to continue their education.

The pandemic has made education less equitable and less accessible, especially for those who were traditionally marginalized: in terms of race, caste, gender, sexual orientation, class, geography, social privileges, and political connections. Public education in particular has become alarmingly more expensive; where I come from, in South Asia, the gap between public and private higher education is closing, even as the quality of public education banks on prestige and not on any progress made. The complacency of the educated and established–those who lead or benefit from the institutions–is equally alarming. Where I come from, professors of public universities charge obscenely high fees for delivering content in the name of training or talks, as their institutions collect obscenely high fees from poor students for whom the public education is meant. The blatantly unreasonable cost of often unrelated academic events, toward unreasonable lining of pockets by public servants, reflects

an erosion of values that undergirded public education. And even as the pandemic has shrunk the cost of academic discourse, professional development, and often instruction, neoliberal excesses seem to be on the rise.

The models of education were already changing before the pandemic. The pandemic has in some ways provided dirty water for neoliberal exploitation of public systems by private-like enterprises and even the top leadership of public institutions. It is time for educators who care about public education to raise our voices, to call out vulgar behaviors, to demand accountability. We cannot let fundamental values of public education–such as access, equity, and social responsibility–to become the frog in boiling water. We must not be the frog that doesn't realize its slow death; it is our values that must sustain our presence and impact, contribution and motivation as educators and members of our communities.

International education has become another domain where the pandemic seems to be used as an excuse for shifting priorities. While there is no indication of institutions addressing challenges of foreign students that are aggravated by the pandemic, they instead seem to be targeting the highest bidder in a shrinking market. Advocates of transnational mobility would hope that the pandemic would make the field more humane, even fundamentally change the business model toward greater support and care: more equity and justice, respect and care, humility and understanding. Unfortunately, educators themselves don't seem to have spared their time and attention to the impact of the pandemic on international students. Instead, concerns about academic integrity have led to tyrannical uses of technology; instead of seeking to understand how students approach education when they are stressed and sick, tired and scared, institutions and instructors alike have turned to surveillance and control.

However, the landscape of higher education during this pandemic, locally and transnationally, also shows indications of shifts at deeper levels. The consciousness about the kinds of problems I briefly highlighted above seems to be on the rise. Listening carefully to ongoing conversations–in publications, in research projects, in professional development events, and in hallway conversations–strongly suggests that a new generation of students and scholars are waking up to issues of inequality and injustice within education. More and more members of academe seem to take its goodness for granted; we don't consider education as a necessary equalizer but as a potential means for aggravating social inequalities and injustices. It is when the educated use education to

affect justice, when educational institutions put their money where their value-articulating mouths are, that equality and justice are advanced in society (starting from within academe). Scholars are awakening to the vulnerability of the more socio economically developed countries, as well as the alarming rate at which nation-based economies and geopolitics are damaging the environment. We are having a reckoning about the fragility of science-based social policy and politics, civic discourse and governance; indeed, even school districts, curriculum experts, academic publications, and journalistic reporting are becoming victims of anti-science and disinformation politics. Bad actors, from misguided individuals to state agents, are having a bigger sway than they have had in nearly a century. These exposures of the vulnerabilities of science and society are not just bad news; they are the result of response to reality, instead of the kind of complacency about issues of access and equity in education highlighted above.

Technology is no longer romanticized as it was in the years before the pandemic. In fact, technological romanticism seems to have turned on its head and given rise to a new wave of anti-tech sentiments across society. This is not good news, but at least the reckoning against romanticism is likely to do some good in the long run, such as by balancing out the romanticism with realistic appraisal of what particular platforms and tools do and do not help educators achieve. This reckoning may lead to new possibilities that are driven not by hypes but by the experiences of educators who were forced to adopt technologies the pandemic, as well as those who had been exploring emerging technologies before this crisis.

The pandemic has also fostered connections and collaborations across national and other borders (such as disciplinary, social, and regional). Even though the initial explosion of academic events due to the lockdowns seems to have given way to now shows and relatively anemic participation, new connections have been forged and often followed up. Scholars have created new partnerships and explored new possibilities across borders. In professional development initiatives organized by scholars in South Asia, for instance, I have seen interdisciplinary programs become more of a norm than remain an exception. Research and publication themselves seem to have become more transdisciplinary among a increasing number of scholars.

It is in the context of some depressing development and some others that are more inspiring that this journal's humble efforts are being advanced. A new team of associate and assistant editors have expanded

the editorial board. From providing opportunities to doctoral scholars to be mentored alongside more established scholars, we have more of the latter lead the charge for this venue. The new team fully embraces the vision of maintaining rigor and quality without embracing exclusionary traditions, and we hope to expand opportunities for more scholars whose voice wouldn't be heard without providing an extra layer of mentor-review while reaching further into new communities. We are keenly aware that the ever-spreading global neoliberal machine of scholarly publication is cannibalizing the very mission of higher education; by pushing the "publish or perish" competition into more and more societies especially in the global south, transnational agents behind the neoliberal machines sideline the need for societies to advance their own interests. We support a dozen scholars at a time, a tiny fraction in today's world of journal publication; but we help many more scholars with feedback they can use for publishing their work in another venue (or submit again). We look beyond quality in traditional terms and instead seek to create space for new communities, new voices, and new causes.

We are grateful to all the reviewers who help us help the authors from around the world. We hope you will find articles in this issue relevant and interesting in light of the work you do in higher education. And we hope that you will consider the journal for your own future work, as well as sharing it with other colleagues in your network.

- Editorial Team

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Investigating Self-Perceived Employability, Ambition, and University Commitment of Students in HRD Programs

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Abstract

This study was to explore the perceptions of employability, ambition, and university commitment held by students in Human Resource Development (HRD) programs and examine the relationships between these perceptions and other variables (e.g. age, gender, program level, employment status, etc.). A quantitative was conducted through an online survey among students (N=103) in the HRD programs within a midwestern public university in the U.S. A principal component analysis and ordinary least squares regression were conducted. The results of this study would benefit various audiences in making useful decisions for improving academic HRD programs in higher education. The findings could also help students predict their employability and career success, as well as make appropriate decisions to better prepare for their career development in the future. In addition, the findings could facilitate more research on students' career assessment and career development.

Keywords: Self-perceived employability, ambition, university commitment, students in HRD programs

According to the Bureau of Labor Statistics (2018), approximately 60 percent of working-age people have a job or were looking for one. Formal education is one of the most important investments to increase individuals' human capital (Becker, 1993; Judge et al., 1995). The return on investment of higher education improves individuals' security in the modern labor market and creates more opportunities for them to have successful careers (Becker, 1993; Berntson et al., 2006). Growing attention has been paid to the perception of employability to measure the return on investment of higher education. Previous studies (e. g. Berntson et al., 2006; Wittekind et al., 2010) have indicated that individuals with a higher level of education are more likely to have high perceived employability. Therefore, improving employability remains a public policy concern.

The missions of higher education institutions are to train people for practical work, prepare people for lifelong employment and ensure that individuals are adaptable to changing demands of the labor market (Akdere & Conceição, 2009; Drange et al., 2018; Solbrekke & Karseth, 2006). To that end, the degree programs in the field of Human Resource Development (HRD) focus on providing "people acquire the knowledge and skills needed to establish and progress in a variety of careers, including careers related to training and development, talent development, and organizational development" (Greer & Waight, 2017, p.191). To address the needs of adult students, HRD programs were established to prepare future practitioners, provide continuing professional development, and educate the next generations of researchers and teachers. (Dwyer et al., 2013; Kuchinke, 2002).

It is important to understand the perceived employability of students, which is one of the most significant outcomes of education. However, while there were many studies on HRD academic programs (e.g. Akdere & Conceição, 2009; Dwyer et al., 2013; Greer & Collins, 2017), very few research focused on the HRD students' perceived employability. Only two studies (Greer & Waight, 2017; Niu et al., 2019) have explored the perceived employability and career success among graduates of HRD programs. To address this gap and help higher education institutes develop strategies for employment-

outcomes improvement, the present study aimed to explore the perceptions of employability, ambition, and university commitment held by both undergraduate and graduate students in the HRD programs and examine the relationships between these perceptions and other variables (e.g. age, gender, program level, employment status, etc.).

The results of this study would benefit various audiences in making useful decisions for improving academic HRD programs in higher education through promoting students' employability and career success, as well as make appropriate decisions to better prepare for their career development in the future. In addition, the findings could facilitate more research on students' career assessment and career development. Therefore, the present study was guided by the following two research questions:

1. To what extent do the HRD students perceive their employability, ambition, and university commitment?

2. To what extent are the HRD students' self-perceived employability, their ambition, and university commitment related to other variables (e.g. age, gender, program level, employment status, etc.)?

Literature Review

Perceived Employability

Employability, as a complex and multidimensional concept, refers to a set of achievements, skills, understandings, and personal attributes that enables individuals to gain initial employment, maintain employment and obtain new employment if required (Holland, 2019; Rothwell & Arnold, 2007; Van der Heijde & van der Heijden, 2006; Yorke, 2004). Previous studies on employability focused on adaptability to the labor market (Hillage & Pollard, 1998), capacity for learning (Bagshaw, 1996; Lane, et al., 2002), career management and job-search skills (Rothwell & Arnold, 2007), and professional knowledge (Van der Heijden, 2002). Perceived employability focuses on "the perceived ability to attain sustainable employment appropriate to one's qualification level" (Rothwell et al., 2008, p. 2). Individuals' perception of their possibilities of obtaining and maintaining employment is considered one of the most important elements for understanding employability (Lo Presti & Pluviano, 2016; Niu et. al., 2019). Holland (2019) pointed out that employability depends on four key attributes for job seekers on an

individual basis, which includes a) their assets in terms of the knowledge, skills and attitudes they possess, b) the way they use and deploy those assets, c) the way they present them the assets to employers, and d) the context (e.g., personal circumstances and labor market environment) within which they see work. In addition, Lo Presti and Pluviano (2016) argued that individuals' perceptions are more important than objective circumstances because accurate perceptions can result in adaptive attitudes and behaviors. Nazar and van der Heijden (2012) noted that employability was related to flexibility and mobility, meaning that individuals within a specific entity or sector might perceive fewer opportunities than those outside of the organization or sector. Baruch (2010) argued that individuals could improve employability by acquiring competencies valued in the labor market, participating in workplace-related training, becoming involved in a well-known project to gain experience and knowledge, and being employed by a reputable organization. On the other hand, organizations could enhance employee employability by providing educational opportunities, but in doing so, they risk employees leaving due to enhanced employability (Baruch, 2010).

The present study utilized Rothwell, et al.'s (2008, 2009) employability theoretical model as the underpinning and theoretical framework. According to Rothwell et al. (2008, 2009), there are four dimensions of self-perceived employability: self-beliefs, the state of the external labor market, the university's reputation, and the field of study. Self-belief refers to the perception of students on their skills and behaviors (Rothwell et al, 2009). The university reputation reflects the perception of university rankings and brand image (Fearn, 2008) and reputation with employers (Murray & Robinson, 2001). The field of study reflects the status and credibility of the study field as a recognition regarding employability outcomes (Mason, et al., 2003). The state of the external labor refers to the concerns of the influence of the external labor market (Bowers-Brown & Harvey, 2004; Brown & Hesketh, 2004). According to Rothwell et al. (2008), they concluded that self-perceived employability was strongly associated with ambition and university commitment, but they were different constructs. While self-perceived employability reflects the capacity of obtaining or maintaining a job in the future, ambition reflects the expectation of future achievement (Rothwell et al., 2008; 2009). In addition, students' commitment to the university reflects the

perception of the university's reputation which is considered as an asset in a crowded labor market (Rothwell et al., 2008; 2009).

Ambition

Ambition is a notion that is closely related to future career success (Rothwell et. al., 2008, 2009), which usually refers to "the persistent and generalized striving for success, attainment, and accomplishment" (Judge & Kammeyer-Mueller, 2012, p. 759). For example, Elchardus and Smits (2008) indicated that people agreed to describe themselves as ambitious when they entertain plans for their professional development or intent on making a promotion. Judge, et al. (1995) defined career success as "positive psychological or work-related outcomes or achievements one has accumulated as a result of one's work experience" (p. 486). Heslin and Turban (2016) conceived career success as "an emergent process is in line with the notion of a career as an evolving sequence of work experiences over time" (p. 155). Ng et al. (2005) express the definition as "the accumulated positive work and psychological outcomes resulting from one's work experiences" (p. 367). Employability can serve as a proxy for career success, and several recent studies have found a positive correlation between employability and subjective career success (Bozionelos et al., 2016; Verbruggen et al., 2015). Using a decade-long, longitudinal data set of 335 Dutch university graduates, Verbruggen et al., (2015) found that constant underemployment negatively impacted subjective career success five years later. Similarly, a quantitative, questionnaire-based study of 207 information technology professionals working in small and medium-sized enterprises in three European countries indicated that employability was positively related to subjective career success (Bozionelos et al., 2016).

Studies have found that ambition is positively associated with extrinsic success (Ashby & Schoon, 2010; Judge & Kammeyer-Mueller, 2012). Otto et. al. (2017) studied the impact of career ambition on psychologists' extrinsic and intrinsic career success. While career ambition expresses the motivation to actively further one's career by having a strong focus on one's work life and career in combination with a high motivation to excel, Otto et. al. (2017) argued that individuals with high achievement motivation and with a strong career orientation might be more subject to experience discrepancies between their ideal and real job situation. Thus, they found that career ambition might not be functional for intrinsic

success. In comparing achievement motivation and career orientation, they concluded that achievement motivation was negatively associated with intrinsic success and career orientation is positively associated with extrinsic success.

University Commitment

University commitment has been defined as the students' overall impression, sense of belonging, satisfaction, perception of quality, and willingness to attend a particular university (Braxton et al., 2000; Nora & Cabrera, 1993; Sandler, 2000; Tinto, 1987; Volkwein et al., 2000). This notion of university commitment could be understood based on the concept of career commitment. Career commitment refers to "one's attitude toward one's profession or vocation" (Womack et. al., 2018, p. 167). A three-component model, examining affective, continuance, and normative forms of commitment, has been proposed for studying career commitment (Meyer & Allen, 1984, 1991; Meyer et al., 2002; Womack et. al., 2018). Womack et. al. (2018) indicated that although each form of commitment showed individuals' relationship to their career, the separation of these forms of commitment was important because "each form has been shown to relate differently to other desirable job-related behaviors and attitudes" (p. 167). Recently, the three-component model has been modified for studying academic major commitment (Wowack et. al., 2018; Chang, 2009). Studies showed that one's major was more highly correlated with major commitment than an objective assessment of one's fit (Wessel et al., 2008; Womack, 2018). Graunke and Woosley (2005) conducted a study among 1,093 first-year students and found that there was a significant positive correlation between university commitment and academic major commitment. Strauss and Volkwein (2004) found that the measures of academic integration and growth, as well as the measures of social integration and growth, influenced university commitment more than other factors, such as financial aid, age, ethnicity, and marital status, among first-year students at 28 two-year and 23 four-year public institutions.

University commitment is closely associated with employability and ambitions. Rothwell et. al., 2009) proposed a model with employability, ambition, and university commitment for examining individuals' self-perception of employability and stated that the three components should be considered together since they

are associated positively with individuals' employability. Gunawan et. al. (2019) noted that perceived future employability would "correlate positively with career ambition and university commitment and correlate negatively with career distress" (p. 613). They further pointed out that since career distress reflected negative feelings toward the career decision-making process, it was expected to be associated negatively with perceived future employability. They argued that individuals' view of how employable they would be after graduation is closely related to their "current skills, experience, networks, personal traits, and their current perceived employability" (p. 613).

Other Variables

Researchers have explored the relationship between various factors and the perceived employability, ambition, and university commitment across different populations, contexts, and countries. However, the results of those studies were inconsistent, so it is still necessary to determine how perceptions of employability are related to variables, such as age, gender, educational attainment, employment status, work experience, family responsibility, etc.

Age

Kasler et al. (2017) conducted a study of 584 college seniors in Israel and found that age was not associated with perceived employability. Niu, et al. (2019) found the same result among graduates from a WED program in the U.S. A quantitative study of 480 UK and Australian business undergraduates also demonstrated a lack of correlation between age and perceived employability among Australian students but found a significant, positive association between age and perceived employability among UK students (Jackson & Wilton, 2017).

Gender

According to Greer and Waight (2017), no significant differences were found in either perceived employability or subjective career success based on gender among U.S. HRD-program alumni. Jackson and Wilton (2017) also found no differences in perceived employability between males and females. However, Rothwell and Arnold (2007) found that females were more confident about their employability than were males in a study of 200 UK human resource

professionals. In addition, Boye and Grönlund (2018) noted that women fell behind men on most indicators of labor-market success. In contrast, Vargas et al. (2018) found that, among Spanish students, males possessed higher self-perceived employability than females.

Educational attainment

Rothwell and Arnold (2007) found that educational attainment levels did not significantly influence perceived employability. Drange et al. (2018) demonstrated that educational level was positively related to basic and aspiring employability, as well as career advancement, among Norwegian employees. However, Niu et al. (2019) indicated that compared to the WED graduates with a bachelor's degree, graduates with a Ph.D. had lower perceived employability.

Work experience

According to Thang and Wongsurawat (2016), employability is influenced by the year of graduation due to economic variants of the given country, and people with more work experience are considered more employable. In addition, Qenani et al., (2014) and Jackson and Wilton (2017) found that work experience is positively related to perceived employability. According to Kirves et al. (2014), perceived mobility was positively related to perceived employability among permanent workers.

Employment status

Jackson and Wilton (2017) indicated that employment status is related to perceived employability because being employed enhances confidence. However, Nazar and van der Heijden (2012) found that being employed could lead to less mobility and fewer opportunities in the external labor market. In addition, Vanslambrouck et al. (2019) conducted an in-depth analysis of adult students in a blended environment and concluded that family responsibility is considered as a factor during their study.

Family responsibility

Family responsibilities influence individuals' learning and work. For example, employees, who need to take care of their children, are more likely to have family-work conflicts (Behson, 2002; Carlson, 1999). Also, family responsibilities are reported as the

main reason for reducing actual working hours (European Foundation for the Improvement of Living and Working Conditions, 2003). However, no research has investigated the impact of family responsibility on perceived employability.

The Context of HRD Programs

The first HRD program, a master level, was established in the school of education at George Washington University in 1970 (Cho & Zachmeier, 2015; Zachmeier & Cho, 2014). Most programs were established in the 1980s, the amount increased by about 15% in the decade of the 1990s (Kuchinke, 2002). Roberts (2015) identified at least 47 bachelor's degrees, 112 master's degrees, and 44 doctoral programs provided by 107 institutions in the 2015 Human Resource Development Directory of Academic Programs. HRD was conceptualized as a sub-field of practice within the disciplines of education, business, and psychology, so the academic programs of HRD were housed in different programs and departments focused on these three disciplines (Watkins & Marsick, 2016). Therefore, many academic programs did not have "human resource development" in their titles although the programs self-identified as HRD. For example, in the 2015 Human Resource Development Directory of Academic Programs (Roberts 2015), the variety of program names included Workforce Education and Development (WED), Human Resource and Workforce Development, Organizational Development, and Training and Development, etc.

As Human Resource Development (HRD) programs continue to develop in the United States, HRD programs experience strong demand with increased enrollments of students. The students of HRD programs include individuals who are already employed in the field of HRD and who plan to enter the field (Watkins & Marsick, 2016). The focuses of HRD programs are learning and improving performance (Watkins & Marsick, 2016). The undergraduate and graduate degree programs in the field of HRD continue to proliferate to create work-ready graduates (Akdere & Conceição, 2009). Students could gain professional opportunities in the organizations through studying in those degree programs (Jacobs, 2006).

Methods

The purpose of this study was to validate a self-perceived employability instrument among students in the HRD programs. Also, the present study aimed to explore the perceptions of employability, ambition, and university commitment held by students in the HRD programs and examine the relationships between these perceptions and other variables (e.g. age, gender, program level, employment status, etc.). To address the research questions, a quantitative study was conducted through an online survey among students of HRD academic programs within a midwestern public university in the U.S. The survey included demographic questions and a Likert scale questionnaire consisting of employability scale items, ambition scale items, and university commitment scale items (Rothwell et al., 2008). Participants were recruited via email through program professors and lecturers during 2018-2019.

Instrument

This study utilized Rothwell et al.'s (2008) instrument, including 16 self-perceived employability items, six ambition items, and seven university commitment items. Rothwell et al. (2008) reported that the alpha internal reliability coefficients were .75, .60, and .87 for self-perceived employability items, ambition items, and university commitment items among undergraduate students in the UK. Then, Rothwell et al. (2009) used the same instruments among graduated students in the UK and reported that the alpha internal reliability coefficients were .84, .61, and .90 for self-perceived employability items, ambition items, and university commitment items. Each item was scored on a Likert scale: strongly disagree (SD=1), disagree (D=2), neutral (N=3), agree (A=4), and strongly agree (SA=5). Participants were also asked to complete demographic-information questions about their age, gender, ethnicity, program level (undergraduate or graduate), enrollment status (on-campus or off-campus; undergraduate or graduate; the standing year), employment status, and family responsibility.

Participants and Sampling

The target population for this study is students in the HRD program at a Midwest, state university. A convenience sampling was conducted, which was used to identify and contact potential participants where researchers possess "limited resources available for sampling" (Gliner et al., 2011, p. 125). One hundred and fifteen

students participated in this study; however, 12 participants skipped several instrument items, therefore, 103 participants' responses were utilized in data analysis. Participants' ages ranged from 20 to 61 (*mean* =37.78, *SD* = 10.666). Table 1 shows the participants' demographic information.

Table 1

Demographic Information of Participants

Variables	**n**	**%**
Gender		
Male	48	46.6%
Female	52	50.5%
Not indicated	3	2.9%
Ethnicity		
Asian	6	5.8%
Black or African American	23	22.3%
Hispanic or Latino	7	6.8%
White	56	54.4%
Other	8	7.8%
Not indicated	3	2.9%
Are you currently enrolled as:		
On-campus student	27	26.2%
Off-campus student	74	71.8%
Not indicated	2	1.9%
Program level		
Undergraduate	55	53.4%
Graduate	46	44.7%
Not indicated	2	1.9%
What year of your program are you presently in?		
1st	25	24.3%
2nd	19	18.4%
3rd	16	15.5%
4th	29	28.2%
5th	4	3.9%
6 and more	4	3.9%
Not indicated	6	5.8%
What is your current employment status?		
Full time	73	70.9%
Part time	16	15.5%
Unemployed	12	11.7%

Not indicated	2	1.9%
How many hours do you work per week?		
0 – 10	11	10.7%
11 – 20	15	14.6%
21 – 30	7	6.8%
31 – 40	37	35.9%
41+	31	30.1%
Not indicated	2	1.9%
Do you supervise any other staff?		
Yes	45	43.7%
No	52	50.5%
Not indicated	6	5.8%
Do you have children who live with you?		
Yes	56	54.4%
No	44	42.7%
Not indicated	3	2.9%
Total	103	100%

Data Analysis

Descriptive analysis and inferential statistical data analysis were conducted based on the research questions. A principal component analysis (PCA) was also conducted to explore and confirm the related measures. PCA is concerned with "how a particular variable might contribute to that component" (Field, 2009, p. 638). Ordinary least squares (OLS) regression was used on the self-perceived employability, ambition, and university commitment scales to explore the relationship between the students' perceptions and other variables. OLS regression "usually produce[s] unbiased estimates for the regression coefficients themselves" (LaHuis et al., 2014, p. 5) and applies to "data with correlated disturbances results in coefficient estimators that are unbiased but inefficient and standard errors that are biased" (Moulton, 1990, p. 334).

Results

A PCA was conducted on the sixteen self-perceived employability, six ambition, and eight university commitment items. The *Kaiser-Meyer-Olkin (KMO)* measure verified the sampling adequacy for the analysis. For the full 29 items, *KMO* = .8892, and all KMO values for each item were over .74, which are well above the acceptable limit of .5 (Field, 2009). Bartlett's test of sphericity (*Chi-*

square = 2025.339, p <0.000) indicated that correlations between items were sufficiently large for PCA. Table 2 shows the descriptive statistic and the rotated component matrix of all 29 items. Mean scores for perceived employability items ranged from 4.3883 to 2.8252, and only one item's (Emp7) mean score was less than 3, so the students were confident in their employability. Mean scores for ambition items ranged from 4.5049 to 4.2136, and all of the items had a mean score larger than 4, so the students were more likely confident in their ambition than employability. Mean scores for university commitment items ranged from 3.6505 to 4.1748, and all of the items had a mean score larger than 3.6, so the students were more likely confident in their university commitment than employability.

The three rotated components explained 23.69, 19.67, and 14.34 percent of the total variance respectively. The items that clustered on the same components suggested that Component 1 represented the university commitment; Component 2 represented self-perceived employability; and Component 3 represented the ambition. Items UC1-UC7 had loadings of .2712 to .3879 on Component 1. These seven university commitment items had high reliability (*Cronbach's Alphas =0.8762*). Items A1, A4, A5, and A6 had loadings of .3440 to .3854 on Component 3. The reliability of four ambition items was *Cronbach's Alphas = 0.8317*. The items A2 and A3 failed to make the .25 cut-off criterion, so they were removed from the data analysis in the next step. Items Emp3-5, Emp8-11, and Emp13 had loadings of .2773 to .3877 on Component 2. The eight employability items also have high reliability (*Cronbach's Alphas = 0.9406*). Items Emp1, Emp2, Emp6, Emp7, Emp12, and Emp14-16 failed to make the cut-off criterion, so they were removed for the next step data analysis.

Table 2

Descriptive Statistic and Rotated Component Matrix of the Scales for Employability, Ambition, and University Commitment

Items	**M**	**SD**	**Comp 1**	**Comp 2**	**Comp 3**
Emp1. I achieve high grades in relation to my studies.	4.3883	.7440			.4434
Emp2. I regard my academic work as a top priority.	4.2843	.8370			

Emp3. Employers are eager to employ graduates from my university.	3.4466	.8601		.2773	
Emp4. The status of this university is a significant asset to me in job seeking.	3.6214	1.0301		.3206	
Emp5. Employers specifically target this university in order to recruit individuals from my subject area(s).	3.2621	.9178		.2831	
Emp6. My university has an outstanding reputation in my field(s) of study.	3.8058	.9606			
Emp7. A lot more people apply for my degree than there are places available.	2.8252	.8792			
Emp8. My chosen subject(s) rank(s) highly in terms of social status.	3.2233	.8624		.3143	
Emp9. People in the career I am aiming for are in high demand in the external labor market.	3.6990	.8726		.3877	
Emp10. My degree is seen as leading to a specific career that is generally perceived as highly desirable.	3.7184	.7849		.3622	
Emp11. There is generally a strong	3.5340	.8946		.3132	

demand for graduates at the present time.					
Emp12. There are plenty of job vacancies in the geographical area where I am looking.	3.1942	1.0006			
Emp13. I can easily find out about opportunities in my chosen field	3.8431	.8871		.2795	
Emp14. The skills and abilities that I possess are what employers are looking for.	3.9320	.8076			
Emp15. I am generally confident of success in job Interviews and selection events.	4.0000	.8284			
Emp16. I feel I could get any job so long as my skills and experience are reasonably relevant.	4.0194	.8162			
A1. I want to be in a position to do mostly work which I really like.	4.4660	.7115			.3854
A2. I am satisfied with the progress I have made meeting my goals for the development of new skills.	4.2330	.7567			
A3. I have clear goals for what I want to achieve in life.	4.2136	.8123			

A4. I regard myself as highly ambitious.	4.2233	.8036			.3440
A5. I feel it is urgent that I get on with my career development.	4.2912	.8475			.3523
A6. What I do in the future is really important.	4.5049	.6984			.3469
UC1. I talk up this university to my friends as a great university to be at.	4.0000	1.0098	.3241		
UC2. I find that my values and this university's values are very similar.	3.9126	.9712	.3478		
UC3. I am proud to tell others that I am at this university.	4.1373	.9444	.3773		
UC4. Being at this university really inspires the best in me in the way of study performance.	3.9709	1.0238	.3879		
UC5. I am extremely glad I chose this university over others I was considering at the time I joined.	4.0291	.9747	.3480		
UC6. I really care about this university and its future.	4.1748	.9643	.2712		
UC7. For me this is the best of all universities to be a member of.	3.6505	1.0375	.2838		

Note. Blanks are abs (loading) < .25

Table 3 shows the descriptive statistics and correlations of three variables, including self-perceived employability, ambition, and

university commitment. The total mean scores of self-perceived employability items, ambition items, university commitment items were larger than 3.5, so the students were confident in these measures. The results showed that self-perceived employability was significantly positively correlated with ambition ($r = .3631$, $p < .001$) and university commitment ($r = .6443$, $p < .001$). In addition, ambition is significantly positively correlated with university commitment ($r = .5050$, $p < .001$).

Table 3: *Means, Standard Deviations and Correlations*

Variables	M	SD	1	2	3
1. Self-perceived Employability	3.5421	.6531	1.000		
2. Ambition	4.3713	.6192	.3631*	1.000	
3. University Commitment	3.9815	.8490	.6443*	.5280*	1

Note. *$p < .001$

Table 4 presents the OLS regression results for self-perceived employability, ambition, and university commitment. Thirteen participants were dropped off in the OLS regression because they skipped some demographic questions. The results indicated that ambition was negatively significantly influenced by age, and neither self-perceived employability nor university commitment was significantly affected by the student's age. None of them was significantly influenced by individuals' gender.

There was no difference in self-perceived employability, ambition, and university commitment among programs, such between graduate and undergraduate, or between on-campus or off-campus. The students who were in the 5th year of the program significantly had more confidence in ambition, compared to the students who had stayed shorter or longer in the program. However, as students stayed longer, they had lower and lower university commitments. Compared to the students with part-time jobs or unemployment, students with full-time employment had higher self-perceived employability, ambition, and university commitment. However, the number of work hours had a negatively significant effect. In addition, the students with supervision responsibility in their workplace had higher self-perceived employability, ambition, and university commitment. Interestingly, having children does not significantly influence students' perception of employability or ambition, but does negatively affect university commitment.

Table 4: *OLS Regression Results*

Variables	**Self-Perceived Employability**	**Ambition**	**University Commitment**
Age	-.0006	-.0141*	.0162
	(.0087)	(.0084)	(.0108)
Gender			
Male	0	0	0
	(.)	(.)	(.)
Female	-.1717	.1939	-.1433
	(.1714)	(.1548)	(.2031)
Are you currently enrolled as:			
On campus student	0	0	0
	(.)	(.)	(.)
Off campus student	.0864	-.1477	.2704
	(.1953)	(.1619)	(.197)
Program level			
Undergraduate	0	0	0
	(.)	(.)	(.)
Graduate	-.2227	-.2878	-.0467
	(.2388)	(.2114)	(.2775)
What year of your program are you presently in?			
1st	0	0	0
	(.)	(.)	(.)
2nd	.0858	.0173	-.2091
	(.1957)	(.1899)	(.2214)
3rd	-.3707	-.057	-1.009***
	(.268)	(.204)	(.2705)
4th	-.2555	-.1722	-.673***
	(.1968)	(.2036)	(.2528)
5th	.0441	.3814**	-.3315
	(.3162)	(.1875)	(.2907)
6 and more	-.5599	-.1048	-.9692***

	(.4044)	(.2828)	(.3408)
What is your current employment status:			
Full time	0	0	0
	(.)	(.)	(.)
Part time	-.7923**	-.7252**	-.9761**
	(.3571)	(.3519)	(.4597)
Unemployed	-.8849***	-.4803	-1.124***
	(.2968)	(.3661)	(.3978)
How many hours do you work per week?			
0 - 10	0	0	0
	(.)	(.)	(.)
11 - 20	-.1917	-.7688**	-.8236*
	(.333)	(.3213)	(.4198)
21 - 30	-.2886	-.0923	-.3253
	(.4437)	(.2832)	(.4003)
31 - 40	-.8487**	-.8248**	-1.148**
	(.3475)	(.4079)	(.4846)
41+	-1.022***	-.8739**	-1.215**
	(.3654)	(.4356)	(.5156)
Do you supervise any other staff?			
Yes	0	0	0
	(.)	(.)	(.)
No	-.4034**	-.2493*	-.4758**
	(.1527)	(.1333)	(.1844)
Do you have children who live with you?			
Yes	0	0	0
	(.)	(.)	(.)
No	-.2438	.0304	-.3421*
	(.1546)	(.1579)	(.1831)
cons	5.536***	6.27***	5.906***
	(.6461)	(.6374)	(.7747)
N	90	90	90

Note. *$p < .05$, **$p < .01$, ***$p < .001$. Standard deviations in parentheses.

Discussion

This study was conducted to explore the perceptions of employability, ambition, and university commitment held by students in the HRD programs and examine the relationships between these perceptions and other variables (e.g. age, gender, program level, employment status, etc.). The finding reported that students had higher ambition than the confidence of employability, which was opposite to the results of Greer and Waight's (2017) study among HRD-program graduates. Compared to graduates, the students were still in the progress of the study so they might have more uncertain factors in employability. At the same time, students were still in the early stage of their careers, so they might have higher expectations about their future success. The results also found that self-perceived employability was positively correlated with ambition and university commitment, which supported and extended previous studies (Rothwell et al., 2008; 2009). Students with higher confidence in employability were probably having higher career ambition and university commitment.

Regarding the associations between other variables and perceptions of employability, ambition, and university commitment, the results of this study revealed that perceived employability and university commitment were not affected by age. This finding was confirmed by previous studies (Kasler et al., 2017; Niu et al., 2019). However, older students were more likely to have less ambition. Older students might experience a difficult career transition and have lower expectations for their career success. No difference in perceived employability, ambition, and university commitment is found based on gender in this study. The result is consistent with the previous studies (Greer & Waight, 2017; Jackson & Wilton, 2017). Compared to undergraduate students, graduate students do not believe they are more employable or have a higher ambition or university commitment in this study. This result is different from previous research (Drange et al., 2018; Rothwell & Arnold, 2007). According to Torpey and Watson (2014), only around 3% of all jobs in the United States labor markets required a doctoral degree or professional degree. Therefore, the labor market for people with a higher level of education is smaller.

Compared to the students who had stayed shorter or longer in the program, the students who were in the 5th year in the program significantly had more confidence in ambition. As students gain more knowledge and skills, students have more ambition. However,

students might incur barriers or difficulties in their studying if they used more than five years to complete the program, so they might have less ambition. Those who were employed in full-time positions while enrolled as students had more confidence in their employability, ambition, and university commitment. Being employed during one's studies leads to additional workplace experience, as well as the application of what was being studied (Jackson & Wilton, 2017). As a result, these individuals might develop more hands-on experience in honing relevant skill sets, as well as an enhanced understanding of the applicability of such skills. Additionally, they had more opportunities to develop a professional network. Therefore, they may feel more confident in their employability and ambition.

Implications

Practical Implications

The present study has validated the self-perceived employability instrument (Rothwell et al., 2008; 2009) among students in HRD programs. Also, it has identified the perceptions of students' employability and its' factors. Therefore, the results may be useful to faculty, students, researchers, and policy makers in higher education. The study has shown students with full-time jobs were more likely to have higher confidence in employability. It is important for students that could have opportunities to practice their academically-acquired knowledge in the workplace and gain hands-on experience. Therefore, employers and higher education institutes should work together to create more practice opportunities for students. For example, employers could provide more internship opportunities, and higher education institutes should provide more support for their students to obtain the opportunities. Also, more transition training should be offered to prepare students for career/workplace entry and furnish a solid understanding of employers' demands (Ishengoma & Vaaland, 2016). This study provided evidence of the validity of Rothwell et al. (2008; 2009) scale of perceived employability among students in the HRD program. As a result, researchers can be confident of their use in future studies. Also, both enrolled students and potential students can use this instrument to predict their employability, which could help them make career-related decisions. For example, enrolled students could use the results of the instrument to decide any efforts they should make to improve their employability. Potential students could use the results to decide

if they invest themselves through higher education. Moreover, higher education institutes could use the information to recruit and attract students.

Future Research

The sample size of participants is too small to conduct further analysis, such as confirmatory factor analysis, to verify the construct validity. Future studies should recruit more participants. In addition, this study did not verify the test-retest reliability. Future studies could conduct two waves or enlarge the sample size to enable it to do that. Moreover, the instrument used in this study was a self-report measure, so it may not reflect students' employability realistically. A longitudinal study could be conducted to investigate the students' employment status and career path after graduation. The sample of this study was from only one university, so the findings may be not generalized to students in other universities. Future research could include students across different universities.

It is important to learn the perceived employability of students in the degree programs in higher education institutes, which underlie the quantitative survey responses demonstrated by this study. Therefore, qualitative studies should be conducted to explore what skills or abilities students could obtain or improve, which help them succeed in the workplace. Also, the degree programs could improve their quality after understanding the needs to improve students' employability. Moreover, future studies could explore more variables that influence employability. Also, it is important to learn about employers' perspectives regarding their potential employees' employability.

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The Time Management Matrix Re-Tooled: An Instrument for Academics Navigating the Tenure Process

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Abstract
The crown of a successful academic career is often considered an achievement of tenure. The path to tenure may vary based on the type of Carnegie University at which one is employed. Carnegie Doctoral granting R1 Universities place a high priority on conducting research, grant writing and publishing while other Carnegie classified Universities place more emphasis on teaching. Regardless of a University's Carnegie classification the path to tenure requires sound time management skills if an academic is to achieve tenure. To

that end, the authors have decided to revisit Covey's Time Management Matrix (CTMM). The authors provide an ethnographic perspective with respect to the Quadrants of the CTMM for the purpose of providing a priority driven time self-management instrument to assist academics navigating towards tenure. Priority driven effective time self-management is key to successfully achieving tenure and we forward our academic interpretation of the CTMM as a potential guide for academics and their administrators. Further, the authors suggest that a priority driven effective time self-management strategy is portable across disciplines and national/cultural borders.

Keywords: Time efficiency, productivity, prioritization, Covey

For faculty members who have been hired on a tenure-track appointment, receiving tenure is a highly valued goal. Typically, gaining academic tenure is a five to six year process. Frequently, two potential problems arise for junior faculty members seeking tenure. First, on many college campuses the steps to achieving tenure may not have clear metrics and therefore the targets are a bit ambiguous. Second, a faculty member in their new tenure-track position may become overwhelmed with trying to learn and navigate the inner workings of the department, college, university, and academic campus life in general. As time is spent navigating these university-related waters, it also begins to slip away as the tenure clock continues to tick. Therefore, the new faculty member needs to clearly understand the tenure targets and minimum standards and focus almost immediately on meeting tenure achieving activities in teaching, research, and service. For example, the tenure requirements at a research oriented institution such as the University of Las Vegas Nevada (UNLV, n.d.) are rather different from those at a teaching focused institution such as Southern Utah University (SUU, n.d.).

Ultimately, the responsibility of understanding the scholarship targets that need to be met for tenure falls upon the new tenure-track faculty member. It is important that junior faculty members read and thoroughly understand the college and university policies and procedures that pertain to achieving tenure. This will assist them as they begin to create short-term, intermediate, and long-term goals for teaching, research, and service activities. New faculty members should seek out an on-campus mentor, preferably a senior academic with both sound familiarity and success in the tenure process who can

help clarify the goals that need to be achieved. It is also important that the new faculty members seek to build positive and supportive relationships with their department chair and other faculty members within their college. It is our collective opinion that these relationships will greatly aid the junior faculty members as they navigate the tenure waters.

The next step is to be critically aware that the tenure clock has begun and that time can easily slip away. Therefore, it is imperative that new faculty members begin to implement a time management plan for achieving the goals and objectives of tenure. This time management plan should include measurable short-term, intermediate, and long-term goals, along with timelines to achieve these goals. In writing and implementing the time management plan, the faculty member needs to understand which activities are deemed urgent, which are important, and which activities are unimportant (Covey, 2013). For each goal, action steps should be established where an overall plan is developed (i.e., macro plan) and then the plan is broken down into several short-term goals or action steps (micro plans within the macro plan). For example, how many publications and external grants does the new faculty member plan on attaining prior to application for tenure? Regarding teaching, what metric scores are they aiming for (e.g., an overall rating of > 4 out of 5) or what requirements must be met (e.g., peer evaluations, self-reflections, and student evaluations). Service is also highly valued with regard to tenure and includes commitments such as department, college and university committee work, and membership and contributions to professional associations. Furthermore, many institutions are now requiring extension and outreach whereby faculty are expected to contribute their expertise to the public sector within their community and state. All of these obligations lead to an exceptional amount of time and rarely do faculty ever work less than 50-60 hour work weeks. In fact, many faculty, as they pursue tenure, often spend well over 60 hours a week balancing all the obligations required by their contractual and annual evaluation agreements (Ziker, 2014).

Assuming a faculty member is engaged in the aforementioned taxing workload, it would be tough to assume that a lack of effort is responsible for a failed tenure applicant. Perlmutter (2008) states: “one of the main reasons people fail to get tenure is that they are fighting the wrong war on the wrong battlefield”. As such, we

collectively view a lack of appropriate prioritization as a root cause of a non-successful tenure applicant.

Given the aforementioned, the authors have decided to reach back in time and re-examine the priority driven time self-management tool presented by Covey (2013). Covey's classic work *Seven Habits of Highly Effective People* presents a balanced, priority driven, self-time management matrix which we refer to as CTMM (see Figure 1). As such, the purpose of the current examination was to retrofit the CTMM as specific to the academic environment to serve as an instrument to assist faculty in successfully navigating the tenure journey.

Figure 1

Time Management Matrix with Quadrants I-IV

	Urgent	**Not Urgent**
Important	**I** *Activities:* Crises Pressing problems Deadline-driven projects	**II** *Activities:* Prevention, PC activities Relationship building Recognizing new opportunities Planning, recreation
Not Important	**III** *Activities:* Interruptions, some calls Some mail, some reports Some meetings Proximate, pressing matters Popular activities	**IV** *Activities:* Trivia, busywork Some mail Some phone calls Time wasters Pleasant activities

Note. Covey's Time Management Matrix with Quadrants I-IV (Covey, 2013) with permission of Franklin Covey Co.

The CTMM and the Authors

The CTMM is illustrated in Figure 1. Specific to the CTMM are the Quadrants of relative priority; urgent, not urgent, important, and not important. Each Quadrant in the CTMM has a list of activities that fit within the cross section of relative priorities. The authors have examined each Quadrant from an ethnographic academic

interpretation of the various activities listed in the Quadrants. Ethnographies are characterized by observers being completely immersed in a particular environment (Thomas et al., 2015). The authors of the current manuscript have been collectively immersed in the academic environment for over 150 years. They have been tenured and promoted at both teaching and research institutions; served on numerous tenure and promotion evaluation committees at department, college, and university levels; and been involved with tenure and promotion policy development at a variety of institutions. The results of the aforementioned interpretations are provided in the applications sections. Examples are not meant to be exhaustive but rather to demonstrate the usefulness of the CTMM in academic environments. With that said, the authors forward that the CTMM retrofitted for the academic environment would be portable and serve useful for academics pursuing tenure/promotion transcending disciplines and national/cultural borders (see International Application).

Applications to Junior Faculty

The CTMM presents four Quadrants that might appear to contain activities that are unique to each Quadrant. However, the transition from one Quadrant to another is not necessarily discreet in nature. Specifically, some activities may appear in more than one Quadrant but differ in the context of a given scenario. Likewise, for the purpose of this manuscript, we have stretched the boundaries of Quadrant II in order to provide a more comprehensive scope of important activities that a tenure track faculty member may need to engage.

Quadrant I: Important and Urgent

Important priority activities take place to address high priority goals (Covey, 2013). Urgent priority activities attempt to resolve an issue that requires immediate attention (Covey, 2013). Issues that require immediate attention are often thrust upon a faculty member and hence require an urgent response. Such issues are unavoidable and to a certain degree are part of the typical work day/week. Conversely, some issues that require immediate attention are the result of poor proactive planning by the faculty member or some layer of bureaucracy on campus. The cross section of the priorities of important and urgent make up the activities that occupy Quadrant I.

As a general paradigm we propose that Quadrant I activities will arise to address issues originating from 3 sources: external, internal, and typical academic deadlines.

- As of the writing of this manuscript the COVID-19 pandemic has been impacting every aspect of life including higher education. As such, faculty may have had to alter their methods of communication, physical student interaction, modality of course delivery, and scheduling. Further, with the mental health issues rising on campuses, one must be prepared to respond with appropriate support and referral to mental health professionals when a crisis occurs (Sevene, Adams, Climstein, et al., 2020).

  This scenario is what we would refer to as a "crisis" that is both urgent and important; driven by a source external to the university environment.
- Donors or potential donors (or other constituents) that you have met in the community may drop in randomly since they were on campus for another engagement. These types of interruptions have to be met with tact and cordiality as they could set the stage for meaningful relationship building and fundraising (more on this point in upcoming section Quadrant II).
- Other sources of "crisis" that are both urgent and important but are driven internal to the University may be the result of an administrative mishap. For example, an administrator knows that a college level seven-year review is due to an accrediting body and does not temporally plan to have the report completed with a cushion for internal peer review. The faculty under the particular administrator will likely now be thrown into "crisis" mode. Or conversely, consider a high ranking campus administrator unnecessarily creating compressed timelines to complete campus wide efforts, the outcome, a "crisis" that the faculty will have to respond to.
- Typical academic ongoing deadlines that are both important and urgent include:
  - ✓ Tenure and annual evaluation deadlines
  - ✓ Curricular change(s) deadlines

- ✓ Program review deadlines
- ✓ Required HR training (e.g., Title 9)
- ✓ Grading

- Scholarship opportunities such as grants often have deadlines that become urgent due to the nature of the process (e.g., routing signature sheets, budgets, etc.) and the involvement of different collaborators and divisions across campus. While we urge diligence in Quadrant II, one must be prepared for urgency when it arises.
- Mismanaging editorial work (e.g., peer reviews) can lead to urgency in meeting timelines and harm the quality of your work (including other areas of scholarship).
- At times one is asked to pick up a new course to teach or switch courses at the last minute, in a sense creating deadline driven teaching until one can carve out some time to get ahead of the curve.
- Faculty members should seek sound proactive planning in order to minimize Quadrant I activities that could be attended to in a non-urgent fashion (Quadrant II).
- Finally, all faculty members have challenging days. Sometimes recognizing this as an urgent situation, dropping what they are doing, and taking a mental health break leads to enhanced capacity and productivity and improve one's morale.

Quadrant II: Important and Not Urgent

Covey (2013) regards the activities that inhabit Quadrant II as those that are prioritized and habitually engaged in by successful professionals. The authors of the current manuscript agree with Covey's (2013) postulate. With that said, the authors of the current manuscript have expanded Quadrant II to include additional important activities that if not managed in a prioritized temporal manner could easily shift to Quadrant I activities (i.e., crises).

- Covey (2013) discusses the need to be balanced with respect to productivity and capacity to be further productive. As such, faculty need to identify their priority goals and values first, then strategically plan and deliberately engage the associated activities in temporal fashion to avoid them becoming Quadrant I activities.

Covey (2013) recommends planning in one week blocks to facilitate the effectiveness of this strategy.

- In order to achieve tenure a faculty member will need to demonstrate a long term pattern of successful teaching effectiveness that is developmental in nature. The activities associated with the developmental aspect of becoming an effective educator (e.g., facilitating learning through innovative instruction, developing assessment strategies, curriculum and program development, mentoring student research, etc.) require a significant and ongoing time commitment. The aforementioned developmental activities should be considered as a Quadrant II must.
- Covey (2013) identified relationship building as Quadrant II activity. The authors of the current study agree that positive relationship building is of particular importance for a faculty member aspiring to achieve tenure. Establishing trust with colleagues, staff, administrators, students, and community members is the foundation for a productive career. Graduate students represent mentoring opportunities with a potential high return on investment, in both the short and long term. Developing positive relationships is typically accompanied by trust. Investing time to develop positive relationships should be considered as an absolute must for all faculty regardless of tenure status as it lends itself to a productive and collegial work atmosphere best suited to serve the needs of the students and the university.
- Relationship building with your donors, potential donors, and community constituents is also crucial and demands time and attention. Again, the investment has payoff both professionally and personally.
- A natural outcome of relationship building provides a segue to another Quadrant II activity; “recognizing new opportunities” (Covey, 2013). New opportunities could take the form of faculty involvement in various learning communities. For example, some learning communities are dedicated to the development of a faculty member’s skill set with regards to pedagogy. Yet another new opportunity might be the development of a community

service contact or a research team (or inclusion into an existing team). These new relationships are integral to attaining metrics towards tenure, particularly with regard to research teams which facilitates publications. Junior faculty should use care however and differentiate new opportunities with a high chance for tenure related outcomes.

- The benchmarks regarding the amount and type of scholarship at a given University vary depending on designation (R-1, regional teaching, etc.). As such, it is recommended that faculty stay current in their discipline by engaging in academic writing (including publications, grants, presentations, etc.). Think of a pipeline approach where you always have research projects in all phases of action (e.g., in-press, in-review, in data collection, in planning, etc.). This strategy ensures continued academic productivity.
- Taking time to purposefully think about your research (i.e., planning, reviewing the literature, creating, innovating, etc.) will allow the conducting of research (planning, calibration, data collection, etc.) to be as productive as possible.
- The manner in which academic writing is disseminated is also worth considering. Ideally the high impact factor journals in a discipline are considered the crown jewels. Some of these journals have lengthy review periods (12-18 months) and excessive article processing charges. Therefore, faculty should be strategic with regards to the journal they are submitting their manuscripts to, as the ultimate metric is the published dissemination of the research results.
- Editorial work (e.g., peer review) that is planned, targeted, and appropriately managed can help develop your reputation, inform your research, and lead to editorial board invitations.
- Covey (2013) discusses the need to be balanced with respect to productivity and capacity to be further productive. Taking time to exercise and recreate is considered a Quadrant II activity as it is considered a mechanism to revitalize the faculty member, or what

Covey refers to as productive capacity building (or sharpening the saw) (Covey, 2013). The academic work environment is ideally suited to allow for this type of activity due to the flexibility of an academic's typical work day/week. The cognitive, physical, emotional and social wellbeing of an individual are all positively benefited by regular physical activity and exercise (World Health Organization, 2020; U.S. Department of Health and Human Services, 2018; Elmagd, 2016). The authors of the current paper contend that if a faculty member is serious-minded about attaining tenure, then regular exercise following well-established guidelines should be considered a must (World Health Organization, 2020; U.S. Department of Health and Human Services, 2018).

- Faculty should consider the use of technology as an integral aspect of teaching effectiveness and conducting research (Saad, & Sankaran, 2020). Staying current with regards to communication devices/platforms, research instrumentation, and software should be considered as a "lifelong learning process". However, we are not suggesting that every new bell and whistle technological gadget be employed, rather the faculty member be aware of and adopt new technology when it improves teaching and learning and/or scholarly effectiveness. As of writing this manuscript, the planet is immersed in the COVID-19 pandemic. Those faculty who have stayed current with regards to technology and communication have likely had a far less difficult time maintaining their teaching effectiveness as instruction modalities moved to online delivery.
- Service related activities such as committee assignments can be time consuming and vary in emphasis on different campuses. Typically, your tenure portfolio will be evaluated primarily on your teaching effectiveness and scholarly productivity. Committing your time to service related activities should be strategic and kept to the minimum. Be careful of what you volunteer for. If you find yourself getting inundated with committee 'busy work', it is highly recommended to say 'no' justifying your response with all the items you already are obligated

to complete. This is also where advice from your Chair or mentor may be key, especially if you have built a relationship of understanding with them.

Quadrant III: Not Important and Urgent

Non important activities are those that do not translate into achievement of goals towards attaining tenure. However, a portion of established academic responsibilities requires faculty to engage in urgent yet not important activities. Below are some examples of activities found in Quadrant III. Recognizing and minimizing engagement in these not important activities is essential for a priority driven time self-management strategy.

- While in your office you will likely find yourself dealing with many urgent yet unimportant activities/tasks. For example, a student shows up at your door outside of your scheduled office hours. The perceived need by the student becomes urgent for you because they will not leave without your immediate attention. Likewise, any colleague, staff member or administrator will command your immediate attention to address their concerns if they show up at your door. A certain amount of these tasks is part of the responsibilities of weekly operations. However, there are some tactics to help mitigate the urgency aspect of the aforementioned activities. For example, if a student shows up at your door outside of your scheduled office hours and requires immediate engagement, politely let them know that you only have a set amount of time now (no more than 5 minutes) but would be happy to talk more at length during your next scheduled office hours. You may consider a simple "Do Not Disturb" sign on your door. This is usually enough to dissuade most individuals. Incoming phone calls during office hours are often Quadrant III activities. The incoming phone call only becomes urgent if you answer the phone. If you are not prepared to take the phone call, it may be a good practice to let the caller leave a voice mail. Then the faculty member can respond in a less urgent fashion and in a prepared fashion.

- Many meetings require your urgent presence but often times are not of importance to your achievement of goals towards attaining tenure. Volunteering to attend meetings that do not directly move a faculty member towards tenure should be avoided (see comments in Quadrant II regarding relationship building). The same can be said for impromptu committees that will not be recognized as service.
- Some emails are urgent in nature and require immediate action on the faculty member's part and yet are of little importance. When students send emails to their professors they expect an immediate response regardless of the nature of the email or the time of day (weekday or weekend). Creating a personal policy regarding email responses and including it on course syllabi can decrease such interruptions. Timely responses to professionally related email are a sound practice; however, one must be purposeful when determining whether a response is necessary.

Quadrant IV: Not Important and Not Urgent

Reducing Quadrant IV activities is the best way to make time available for more priority Quadrants I and II (Covey, 2013). Below are some examples of activities found in Quadrant IV. Recognizing and avoiding (and/or minimizing) engagement in these time consuming activities is essential for a priority driven time self-management strategy.

- You will likely encounter individuals who confuse communication with productivity. These individuals can take up much of your time. To avoid this, consider signage on your office door (e.g., Dr. Doe is in and available or Dr. Doe is in however not available).
- While email is clearly a necessity to communicate, it can also be a temporal drain. There is an abundance of University emails making announcements/FYIs which affect very few people. It's highly recommended not to spend much if any time reading these sorts of emails. Cal Newport (2016) in his book Deep Work suggests deleting any email that could be resolved by the sender in doing a

5-minute Google search. Newport also suggests deleting any email where the sender says "thoughts" in place of some well thought out question(s). However, if your Chair, Dean or Provost are asking for your thoughts, it is not advisable to delete the request. Rather ask for specifics as to what they need and when it is needed by.

- Be prepared to stick with your personal priorities when facing emergency tasks delivered in an untimely fashion by others. Many of these may go unnoticed when your tenure evaluation occurs. If the task cannot be avoided request a communication outlining what you accomplished so it may be added to your tenure portfolio (i.e., letter from Chair or Dean). Keep in mind, when you apply for tenure, you may have a different Chair, Dean and/or Provost. As such, the aforementioned documentation is a must. The author's collective experience suggests that a faculty member should not assume that a new administrator's tenure perspective will be aligned with the spirit and specifics of the tenure criteria in place at the time of the faculty member's date of appointment.
- In contrast to the planning recommended as related to Quadrant II activities, too often faculty "plan to plan" rather than working to achieve a desired outcome. Avoid spending too much time thinking about or discussing a plan and neglecting actual action.
- Beware of spending time on a "pet project." Such activities are better postponed until tenure is achieved. We realize every once in a while someone strikes gold, but in most cases these types of projects are unrelated to the individual's scholarship areas and have no relevance to achieving tenure.

Application to Leaders

It is clear that the academic tenure process is tedious, time consuming, and that guidance is needed in order for the junior faculty member to gain successful promotion and tenure. That is where the role of the leader comes in. The leader within the tenure process may be the department's Chairperson, the college Dean, a senior tenured

faculty member (mentor), or even the Provost in some institutions. The role of this leader is to inspire, encourage and support the tenure-seeking faculty member, and to help guide them through the tenure process. Using the CTMM as viewed through an academic lens, may help both the leader in their mentoring and the junior faculty member in developing and acting on their strategic plan to successfully achieve tenure.

Academic leaders need to take a proactive role so that junior faculty members are not left to fend for themselves in the years leading up to tenure. Responsible and effective leaders create a climate that supports the faculty members and provides them with guidance about the process. This supportive environment needs to include the building of trusting relationships through proper and effective communication. More than just providing proper guidelines, timelines, and information on the tenure format, the leader will want to create a psychologically safe environment for the faculty members through verbal and non-verbal actions known as belonging cues. Belonging cues are behaviors and actions the leader communicates to the faculty member signaling they are safe in the organization, and that the leader welcomes questions and input from the faculty member (Coyle, 2018).

It is recommended that each junior faculty member have a mentor who can share what targets need to be met and at what time period within the tenure process. A mentor can also help the faculty member identify synergies and connections between the scholarship areas (e.g., how can your research inform your teaching and service), thereby helping to create an efficient and successful plan. Further, Smith (2020) states: “research and teaching are linked; deep content knowledge gained through research can positively impact student success” (p. 182); suggesting that time committed to research can be done so in a synergistic fashion to enhance teaching and student learning. Such synergies can be thought of as examples of intentional congruence.

In some cases, finding or being assigned a faculty mentor who is not in the department can provide for an unbiased view on how to be successful. However,when being matched with a mentor, it is important that the individual has worked in a similar environment as the faculty (e.g., if research is expected, match with a successful research faculty; or if assessment will be primarily on teaching, then a

match with someone who has had most of their workload allocation in teaching should be chosen).

By following these guidelines of building a positive and supportive climate, by building strong relationships with the junior faculty members, and by effectively communicating the process, the academic leader is providing the support and tools necessary for the junior faculty member to effectively advance toward academic tenure.

International Application

The proposed CTMM also has wide international application, albeit with subtle differences. For example, in South America (Brazil) even though Federal university professors are considered public servants who acquire tenure automatically after three years, there are five hierarchal classes (each has four levels). Progression across the levels and classes is accompanied by predetermined salary increases. As such, the CTTM applies similarly in that a priority driven effective time self-management strategy would prove useful in order to successfully navigate the aforementioned progressions.

Whilst in Australia and other Asia Pacific and European settings academic institutions do not offer tenure per se, the equivalent of tenure is referred to as the probationary period. The probation period is the specified period of time, generally three years for new academic staff, where the new faculty member's academic performance (and conduct) is subject to a yearly and final formal assessment at the end of their probationary period by their supervisor, Department Head and Dean of the Faculty.

The expectations with regard to teaching, research and service are not specific to the classification of the University, rather, the type of academic appointment. The majority of academic appointments in Australia for example, are teaching and research, where the faculty member has 60 percent of their workload allocated to teaching, 30 percent allocation to research and 10 percent allocated to service (institutional, community and key industry stakeholders). Other academic appointments include teaching scholars (i.e., exclusively teaching) and lastly research focused (i.e., exclusively research). Regardless of the academic appointment, the CTMM provides a strategy for new faculty members independent of International boundaries to effectively manage time with a focus on efficient and consistent production.

Furthermore, once an applicant has successfully completed their probation period, the proposed CTMM also has direct application with regard to the promotion process where teaching, research and service accomplishments are again evaluated, however by a more rigorous process which includes review by a committee of senior faculty (departmental and non-departmental) and the Vice Chancellor. Once again, junior faculty members are strongly advised to seek guidance from senior academics who have recently navigated the promotion process successfully for insight into developing the application. If the faculty member is invited to an interview with the promotions committee, they should again seek insight and guidance from senior faculty members who have recently completed this process successively. New faculty members should seek the advice and guidance from faculty both at the level at which they are applying and those who were successful at higher academic levels (i.e., Senior Lectures, Associate Professors). In the end, one's production in all areas of scholarship will be formally assessed per the specific standards of one's institution; and production, self-driven by efficient time management processes is key to a successful review.

Final Thoughts

It is also advisable that the junior faculty member seek recent, successful tenure applications as a template in development of their own application. Additionally, the junior faculty member should seek peer review and feedback on their application. This should include colleagues who were successful in attaining tenure and senior academics (i.e., supervisor, department Chair and Dean). Applications have strict guidelines which need to be observed to ensure the application reaches the consideration stage by the committee. Late applications are never accepted, so be aware of critical deadlines. Not strictly adhering to word limits or neglecting to clearly address tenure standards and criteria is a recipe for disaster and disappointment, including having to seek a new job.

Additionally, use metrics whenever available to support your academic accomplishments. For example, aside from the number of publications, include the impact factors for the journals published in. You may also consider including citations, h-index, i10-index or Altmetric scores. With regard to teaching, include your mean scores from teaching and learning evaluations. Where appropriate compare with your departments and universities mean score. If you have any

outstanding comments by students, those can also help support you as an outstanding teacher worthy of tenure. In some institutions where teaching metrics are no longer allowed, both favorable and less than favorable comments should be provided. Everyone provides their favorable comments, but if you provide some less than favorable comments, you can demonstrate how you are addressing those comments to help improve your overall rating and teaching effectiveness. No one gets perfect comments and by showing you admit this and are willing to improve demonstrates acknowledgment for continued growth and development in the academy. Asking for letters to document significant service is also a sound practice and required as evidence at many institutions. Reflecting on prior reviews may also be relevant as this shows reviewers you are listening, reflecting, and responding (and in some cases is required in the tenure and promotion process). Further, when compiling the tenure portfolio be diligent with keeping the end-user(s) in mind. Arrange the tenure portfolio in a fashion such that reviewers can readily locate the most critical documentation with supporting evidence archived in appendices (or available upon request).

We acknowledge that we did not delve into the differences between tenure requirements for research R-1 and regional teaching universities. The faculty at R-1 universities will find the scholarly productivity requirements (grants, publications, presentations, etc.) formidable and others have proposed models for success in such scenarios (Lindsey & de Castro Brás, 2017). Faculty at teaching focused universities should not neglect their scholarly development. While teaching focused universities may have rather relaxed scholarly benchmarks with regard to research productivity in order to achieve tenure, it is more than likely that a faculty member will have multiple positions (with multiple universities) during the course of their career. Search committees will rapidly bypass applications where the faculty member has not stayed current with an active scholarly agenda. It is recommended that faculty maintain an active scholarly agenda that will demonstrate to future employers that the faculty member is current and engaged in their discipline.

Finally, we propose that effective time management is crucial to academic success. Regardless of location, the academic culture is complex and difficult to navigate, and these time management principles and activities (quadrants) are malleable to multiple

disciplines and are portable across academic disciplines as well as national/cultural borders.

This manuscript focused on a priority driven time self-management strategy for faculty pursuing tenure: knowing that time is fixed. Mission creep is an accepted phenomena occurring in higher education (Goldstein et al., 2013) which continues to erode the time allotted for faculty to successfully navigate the tenure waters. Future research should focus at an institution level to identify areas referred to by Newport (2016) as those areas associated with black hole metrics and/or areas of mission creep. Identifying and eliminating wasteful/redundant tasks that don't serve the mission of the University may ultimately minimize the erosion of time available for tenure seeking faculty.

Conclusion

The process of achieving tenure is extremely challenging yet highly rewarding. Priority driven time self-management would appear to be a requisite skill in order to achieve tenure. This manuscript provides an instrument based on the CTMM that is crafted specifically to aid faculty in implementing a prioritized time management strategy for attaining tenure. The author's collective ethnographic rendition of the CTMM may provide valuable insight as to how to pursue tenure from a balanced and prioritized time self-management perspective. We hope the audience will digest this strategy though a lens of applicability to their unique tenure-environment across disciplines and national/cultural borders.

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To What Extent Do Global Competency Trainings Predict Teaching Methods in a Globalized Classroom Environment?

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Abstract
This article addresses the cultural and educational needs of global learners by shedding light on existing literature focused on issues related to globalization and the internationalization of higher education in the United States. International student mobility promotes cultural and economic changes, which are recognized within this article due to intercultural differences and interpersonal interactions within these social spheres. A survey questionnaire was used to gather data concerning the global competencies of faculty (i.e., knowledge of global cultures, entities, organizations, etc.). Forty eight of the 102 faculty members (47%) at a four-year private institution who responded to the survey indicated that they have attended one or more global competency training. Results showed individuals who completed global competency training were consistently more likely to understand world organizations, their own culture, world history, current events, and were more likely to implement globalized classroom strategies than those with limited training. A correlation between global competency training and instructional strategies was conducted at a p level of 0.01. Based on the findings within this study, recommendations for future research concerning the potential relationship between global competency and methods of instruction are discussed. Applicable strategies for

promoting inclusion of students of different nationalities, and teaching strategies that promote an inclusive classroom environment are discussed.

Keywords: diversity in education, diversified instruction, global competency, higher education, international classroom, instructional strategies, international student mobility

The United States recorded a decrease in international student enrollment during the 2020/21 academic year. According to the Institute of International Education, "914,095 international students pursued studies at U.S. colleges and universities, which is a decrease of 15% from the previous academic year" (IIE, 2022). These students represented 4.6% of all students in U.S. higher education and contributed $38.7 billion to the U.S. economy which is a decrease of 4.4% (a loss of $1.8 billion) from the prior academic year, but accounted for the creation of more than 455,000 jobs (NAFSA, 2018). However, while academic institutions in the U.S. continue to welcome hundreds of thousands of international students, colleges and universities are not always prepared to address the cultural, educational, and psychological needs of this student population (Buzzelli, 2016; Tawagi & Mak, 2015). Additionally, international students face a myriad of academic and cultural challenges (Tawagi & Mak, 2015). At the same time, host-national students, faculty, and staff may not have the necessary training and exposure to interact with students of other nationalities. An examination of the educational and social experiences of international students focuses primarily on students' perspectives rather than the experiences of faculty and staff in the context of internationalization of higher education (Bierwiaczonek, Waldzus, & Zee, 2017; Lee, 2016).

Therefore, the purpose of this study was to examine the potential link between the instructors' global knowledge, global competencies, and attitudes and the variation in their instructional strategies. Specifically, the researchers sought to examine whether faculty's participation in global competency training, knowledge of global systems and organizations promotes creativity and diversification of instruction in internationalized classrooms. Secondly, the researchers also sought to determine whether there is a relationship between an instructor's global competency skills and the nature of instructional strategies implemented within their classroom.

Findings from this study suggest that faculty with previous exposure to global competency training are more likely to engage effectively in internationalized classrooms. Survey results also suggest that exposure to various cultural and international trends was a statistically significant predictor to the inclusion of a variety of teaching strategies that would promote a positive learning experience for global learners. Although this research was partially based on the assumption that global competency skills correlate to distinctive instructional strategies, future research should be conducted to account for this assumption by incorporating observational data of participants along with survey data. Researchers are not implying this is a cause and effect relationship but wished to examine whether the amount of global competency training correlates with the level of instructional strategies in which an educator implements into their globalized classroom. This study is significant in both scholarly and practical domains, for it captures the implications of globalization on higher education practices and the role of academic institutions and practitioners in meeting the needs of an evolving student demographic. Furthermore, global competency skills promote acceptance of diverse perspectives and experiences within the ecology of higher education and beyond.

Literature Review

Recent scholars have noted the impacts of globalization on higher education (Bergh et al. 2016; Kacowicz & Mitrani, 2016). The U.S. Department of Education (2018) defines their global strategy in education as "advancing educational achievement and increasing economic viability both domestically and internationally are worthy pursuits" (para. 6). On a global scale, the United Nations Educational, Scientific and Cultural Organization (UNESCO) (2012) emphasizes the importance of global citizenship education in its strategic vision. Global citizenship education (GCE) takes a multifaceted methodology for "peace education, education for sustainable development and education for international understanding" (UNESCO, 2012, p. 46). While there is little agreement on the exact definition of globalization and the theoretical structures of its rise and development, there are varied perspectives concerning the impacts it has on interconnected world economies (Bergh et al., 2016; Lee et al., 2017). Bergh et al. (2016), has concluded that globalization has the potential of reducing poverty in countries with low institutional quality. As to higher

education, globalization has accounted for the increase in international student mobility from the East and near East to the Western hemisphere. To this end, global competency becomes an evident necessity for academic and career readiness in a complex and interconnected global economy. The Program for International Student Assessment (PISA, 2018), aims at measuring the extent to which students from various parts of the world apply their knowledge and skills in solving problems in science, reading, science literacy, and financial literacy. PISA's mission aligns closely with a consistent global education. International organizations for assessment of learning such as PISA recognize this need and require a global competency skill as a section of their assessment for learning. According to PISA (2018), global competence is defined as "the capacity to examine local, global and intercultural issues, understand and appreciate perspectives and world views of others, engage in open, appropriate and effective interactions with people from different cultures, and to act for collective well-being and sustainable development" (para 3). PISA's focus reflects its intentional strategy in recognizing and promoting a globalized competency in its mission.

PISA's (2018) definition of global competency becomes evident in international partnerships between academic institutions and private entities which require future students, educators, and industry leaders to be globally competent. One important framework of higher education, which highlights the importance of cultural competency and intergroup contact, is the Global Partnership for Education (GPE), which aims at ensuring educational equity and quality for all children and young adults around the world (UNESCO, 2015). The UNESCO, United Nations Children's Fund (UNICEF), World Bank, Organization for Economic Co-Operation and Development (OECD), and other non-government organizations, constitute the driving force behind the promotion and development of educational programs and policies (Menashy & Dryden-Peterson, 2015; UNESCO, 2015). The GPE also seeks to improve gender equality and the eradication of extreme poverty and gender discrimination, particularly in remote and fragile areas of the world (UNESCO, 2015). These commendable goals in education are credited to the collaboration among these global entities and are due to the emergence of private, religious, and non-formal forms of education (Akaranga & Simiyu, 2016). These GPE entities provide regional and circumstantial educational needs to poor and minority

groups (UNESCO, 2015; World Bank, 2017). Another aspect of the impacts of globalization on higher education is exhibited in the practice of university-industry partnerships which aim at promoting social and economic development (Fernández-Esquinas et al., 2016; Govender & Taylor, 2015). For example, Zha et al. (2016) argue that while a partnership has existed for decades, the rise of the knowledge-based economy has made accessible the form of cooperative and entrepreneurship education accessible in China". .

International Branch Campuses and the Relevance of Global Competency

International branch campuses connect faculty, staff, and students from varying cultural backgrounds and national origins resulting in inter-group interactions (Healey, 2015; Tierney & Lanford, 2015). For this type of cross-cultural interaction, Healey (2015) and Robinson (2008) have hypothesized that the theory of space, place, and globalization offers a logical explanation for the changing nature of relationships between territory, institutions, and social structures. This form of social contact, which is driven by globalization, influences educational practices and policies through the establishment of education cities and command centers for production and innovation (Healey, 2015; Tierney & Lanford, 2015). International branch campuses can contribute to the transformation of economic systems from being dependent on natural resources to a knowledge-based economy (El-Awaisi et al., 2017; Tierney & Lanford, 2015). However, there is much discussion surrounding the cultural and operational processes of the branch campuses vis-à-vis those of the home-nation schools. A significant finding is that education cities, such as those in the state of Qatar and the United Arab Emirates, are echoing the concept of place, space, and globalization, and that research and innovation may co-exist independently of political and geographical barriers (Healey, 2015; Tierney & Lanford, 2015). Nonetheless, some of the international branch campuses end up closing due to the absence of logistical and pedagogical research on these forms of international joint ventures (Healey, 2015). For example, colleges and universities could embrace cross-cultural training for faculty on how to work in cross-cultural environments (Healey, 2015). The success of such institutional partnerships is strongly dependent on the stakeholders' capacities to identify enrollment trends in the host nation, and the ability of the

expatriate staff to work across cultural and instructional differences (Healey, 2015).

Institutional Challenges and Initiatives

Colleges and universities are challenged with providing positive experiences to students of different nationalities (Lee, 2016). However, some institutions have taken creative actions in promoting cross-cultural dialogue through events inside and outside of the classroom. Tawagi and Mak (2015) used Pettigrew's Contact Theory (2006) to suggest that negative attitudes and conflicts between minority and majority groups can be reduced with increased meaningful interactions between students. They also found that quality intercultural contact fosters positive interactions between groups. Echoing their study, Buzelli (2016) used a soccer tournament to examine the concept of cross-cultural involvement as a strategy for facilitating acculturation and friendship formation. Results from this study revealed a positive correlation between the participants' levels of seeking interaction with people from different nationalities and their level of satisfaction in the soccer event with nearly 68% of the respondents being very satisfied with the pairing initiative. Ultimately, faculty members need to identify similar initiatives to promote cross-cultural interactions inside the classroom as findings from these studies show the significant effects cultural inclusiveness can have on student perceptions and experiences (Tawagi & Mak, 2015). The issues of cross-cultural challenges within institutions of higher education are not unique to the United States. International students who attended colleges and universities in Germany were reported to have been mostly concerned with social exclusions due to language inefficiency and intercultural differences (Huhn et al., 2016). The findings and recommendations of these studies suggest the cultural integration of international students depends significantly on the supporting mechanisms which are put in place by institutions and the global competency skills of their faculty and staff.

Methods

The purpose of this study was to examine instructors' global knowledge, competencies, and attitudes to determine if they relate to their instructional strategies. Firstly, the researchers wanted to understand whether college instructors teaching in internationalized classrooms, and those who have a broader knowledge of global

systems, organizations, and cultures have a higher level of participation in global competency trainings. Secondly, the researchers sought to determine whether there is a relationship between an instructor's global competency skills and the nature of instructional strategies implemented within their classroom. To answer the research questions of this study, an online survey was sent to all full- and part-time faculty members at a private university in the United States. Participants in this survey included current faculty members, as well as adjunct faculty members who had taught at a four-year private University within the past two academic years. The survey was initially distributed by email and used Qualtrics survey software.

Participants

Of the total 507 participants who were contacted, 102 responses were recorded; thus, providing a response rate of 20.11%. Response data was then analyzed in Qualtrics to produce the findings discussed in this report. Of the 102 responses, 96 answered the question concerning faculty status within the survey. Of these 96, 18 were adjunct male, 35 were adjunct female, 22 were full-time male, and 16 were full-time female. There were 94 total responses to the survey questions; 64 respondents were from the Midwest, 20 from the South, six from the Northeast, and four from outside of the United States prior to teaching in Northeast Ohio. There were 49 respondents from the discipline of Arts & Sciences, 17 from Criminal Justice and Social Sciences, and 31 from Business.

Data Sources

Data was gathered using a Likert scale survey questionnaire, see Appendix A. This survey was based upon the 2018 PISA assessment which was adapted by 79 countries and is managed by the Organization for Economic Cooperation and Development, with an established validity and reliability. The PISA assessment was chosen as it is a comprehensive tool which assesses global competency which builds on specific cognitive and social emotional intelligence including the values, knowledge, attitudes, and skills across a variety of cultures. The validity and reliability of the 2018 PISA Global Competency Test contains two components: a cognitive test and a set of questionnaire items both of which have been validated through multiple field trials across many countries (OECD, 2018). The PISA

questionnaire assesses student's knowledge about their background, attitudes towards learning strategies, and experiences, while the cognitive test assesses students on their academic skills in science, reading, math literacy and problem solving. For this study, the cognitive tests assessed participants (college instructors) on their knowledge of global competencies based upon prior experiences and trainings that they had attended. The questionnaire items focused more on actions and instructional strategies implemented within the classroom that reflect global knowledge in the context of teaching and learning. The questionnaire for this study included 36 questions on global competency skills and knowledge and one question concerning instructional strategies. The questionnaire consisted of four tiers: demographics and background, global competency training and experience, global competency beliefs, and global competency practices within the classroom. Overall, the survey questions assessed faculty within several domains: their global cognitive knowledge, global experiential knowledge, cultural awareness, and global motivation. Within this survey, global competency training is defined as any formal workshop, conference, or continuing education unit that is related to global cultural awareness in and outside of the classroom setting.

Data Analysis

Survey results were collected and analyzed using Qualtrics and SPSS. The results were analyzed based on the purpose of the study, which included: examining instructors' global knowledge and attitudes to determine whether they relate to their instructional strategies and to further understand whether college instructors in an internationalized classroom have a broader knowledge of global systems, organizations, and cultures depending on prior level of training and exposure. Also, the researchers sought to determine whether a relationship exists between an instructor's global competency skills and the nature of instructional strategies implemented within their classroom.

The first research question focused on the attitudes and overall global knowledge of faculty. To address this question, 15 survey responses related to culture were used to assess the attitudes of teaching faculty toward global initiatives, international organizations, and other cultural belief systems. The researchers used Qualtrics to generate frequency tables for each Likert scale item within the survey.

These frequencies were used to compare global competencies based on the total number of trainings and date when the training was completed. This analysis of frequencies provided evidence regarding the relationship between global training attendance and faculty member attitudes toward teaching students of different nationalities.

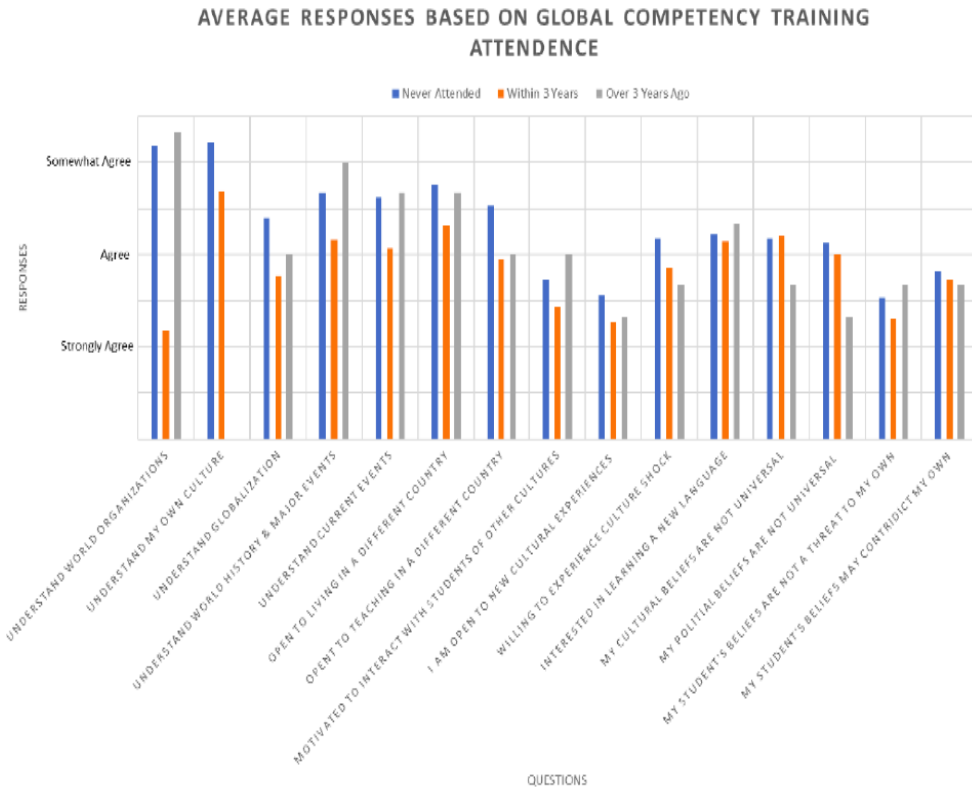
To answer the second research question, the researchers compared the faculty's responses to questions 10-16 with question 37 using a correlation test to determine whether there was a relationship between a faculty member's global competency skills gained through training and the instructional strategies they implemented in the classroom. Given that question 37 allowed faculty to select more than one item as well as an open-ended response, the score for this category ranged from 0-10. This score reflected the number of teaching strategies the individual selected or typed into the blank boxes. For example, the selected answer of "translating work in class" was assigned 1 point as one strategy was selected and "using multiple modes of representation" & "scaffolding work" was assigned 2 points. A significance level of $p < 0.01$ was used for this correlation. As such, participation in global competency training constitutes the independent/predictor variable, while the number of instructional strategies used in the classroom represents the dependent/criterion variable in this study.

Findings

Before answering the two research questions, it is worth noting that over half (54%) of all respondents have 10 or more years of teaching experience. Approximately 21% of responding faculty can also speak another language (60% of these were adjuncts and half of which were females). The majority (71%) of respondents were from the Midwest, with no faculty surveyed coming from the Western United States prior to teaching in the Northeast

The following two themes emerged from the data analysis: 1) Faculty who attended Global Competency Training were more likely to understand their own culture and be receptive and respectful of others and 2) Faculty who did not participate in global competency trainings were less likely to implement engaging classroom strategies. Figure 1 displays faculty participation in global competency training based on when workshops occurred, faculty status, and gender.

Figure 1. Attendance at Global Competency Training. This figure displays trainings by faculty.



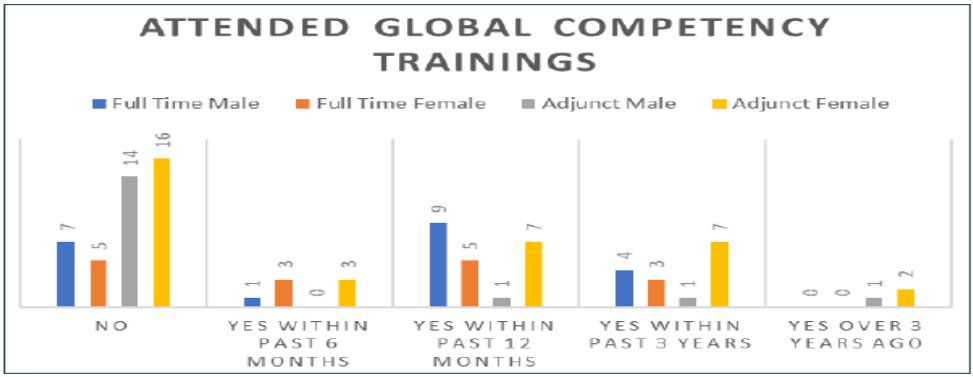
Based on these results, it is evident that full-time faculty were more likely to have attended training for global competencies within the past year. This reflects the university's commitment to celebrating cultural differences inside and outside the classroom. It might not be the case for adjunct faculty who teach remotely and may be associated with other institutions. Thus, not familiar with the mission and guiding principles of the institution where this study has taken place. These findings correspond to prior research concerning the importance of training and cultural competency for faculty teaching at international branch campuses (Healey, 2015).

Therefore, to increase the awareness of adjunct faculty and their level of inclusion, training and initiatives should be universal and include full, part-time, seated, and remote faculty.

Data gathered in Figure 2 suggests that individuals who completed global competency training were consistently more likely to have a

"strongly agree" or "agree" response which reflects a positive attitude toward other cultures and a lesser degree of ethnocentrism. Findings from this study have shown formal training correlates with a positive faculty attitude towards students of other nationalities. Additionally, results have also shown that a statistically significant correlation between training and a diverse strategy of instruction exists. However, formal training is not the only path to building global competency. For example, travel experiences can broaden the individual's exposure and acceptance of other populations (Delpechitre & Baker, 2017; Korzilius et al., 2017; Ramsey & Lorenz, 2016).

Figure 2. Average Responses Based on Global Competency Training.



On 11 out of 15 questions (73%), of the responses of faculty who have completed the training within three years tended to reflect a higher level of acceptance of other cultures as compared to faculty who have completed training more than three years ago. Furthermore, those who have never attended a global competency training were consistently more likely to have an "agree" or "somewhat agree" response, with numerous outliers falling below disagree. These individuals were also less likely to understand world organizations, their own culture, world history, and current events than those who have attended global competency training within the past three years. These findings echo those of previous research concerning the importance of frequent and quality intergroup contact in shaping close social distances between people of different cultures (Buzzelli, 2016; Collier et al., 2017; Lee, 2016; Lee et al., 2017).

To address research question 2, a correlation between global competency training and instructional strategies was conducted at a *p*

level of 0.01. Results showed that the relationship was significant (r = 0.270, *P*= 0.009) as identified within Table 1.

Table 1. Correlations

		Global Competency Training	Instructional Strategies Implemented
Global Competency Training	Pearson Correlation	1	.270**
	Sig. (2-tailed)		.009
	N	93	93
Instructional Strategies Implemented	Pearson Correlation	.270**	1
	Sig. (2-tailed)	.009	
	N	93	93

** Correlation is significant at the 0.01 level (2-tailed).

From these findings, it is unknown what motivated the faculty to participate in this study or engage in taking a global competency training. However, faculty feel the more they know about their students, the better equipped they will be to teach a diverse group of students. Faculty may have been motivated to engage in trainings to improve their ability to teaching students within an internationalized classroom. The reason faculty engage in global competency training is to help them adapt to a new ecology of teaching and learning as student demographics continue to change. Faculty who have not participated in a global competency training might have missed an opportunity to reshape their understanding of teaching and learning in today's globalized classroom.

Overall, findings from this study suggest that faculty members with previous exposure to global competency training are more likely to engage effectively in internationalized classrooms. Findings also

suggest that exposure is a statistically significant predictor to the inclusion of a variety of teaching strategies that would promote a positive learning experience for global learners. Although this research was partially based on the assumption that global competency skills correlate to distinctive instructional strategies, future research should be conducted to account for this assumption by incorporating a combination of observational and survey data. It is also worth noting that the findings from this study may not suggest that a causational relationship between global competency skills and effective instruction exists. However, global competency skills do correlate with increased awareness about and implementation of diversified teaching strategies in globalized classroom environments.

Implications and Further Research

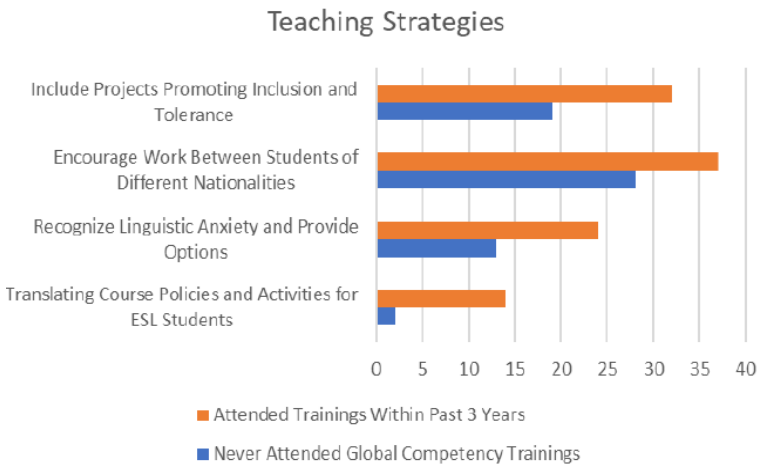
These findings suggest that there is a relationship between an instructor's level of exposure to cultural and global competency training and their level of engagement in the classroom as reflected by the variation in the instructional strategies implemented. Additionally, it also shows that the internationalization of higher education constitutes or represents a disruption that many institutions have yet to address, at least in terms of training and awareness (Healey, 2015; Tawagi & Mak, 2015; Lombard, 2015). Figure 3 also shows that faculty who have completed training were more likely to incorporate teaching strategies that promote a globalized classroom environment as compared to those who have never attended. For example, American born students were asked to mentor their international peers in writing classes and discuss the grammatical and phonetic rules within the English language. International students have also shared stories about their learning experiences and how they anticipated learning a second language based on their native languages. In other instances, international students brought food to the classroom and shared with their native classmates the stories and the history behind these items. In a more formal approach to teaching strategies, faculty have organized a poster session for students to showcase their cultural heritage and learn about the traditions and customs of students with varying nationalities.

From a practical standpoint, students who are taught by faculty with knowledge about global competencies may be exposed to additional learning experiences such as: traveling abroad, working at international organizations such as The World Bank, or learning a

second language; providing them a higher change to engage with and work for international organizations. Both faculty and student exposure to global competencies may open up opportunities for international employment and global partnerships (Menashy & Dryden-Peterson, 2015; Butz et al., 2015). Knowledge about global cultures has the tendency to reduce human conflict as they will be more understanding of each other's differences and values by reducing ethnocentrism and increasing sensitivity towards others (Collier, Rosch, & Houston, 2017).

Within the area of STEM, one of the strategies that faculty members have implemented is teaching through storytelling. For example, faculty teaching mathematics could talk about its history of origin such as when teaching Geometry, introducing Rene Descartes, a French Mathematician and sharing the history behind the Cartesian Plane. In teaching Biology, epidemiologists could reference the story of Louis Pasteur, a French Biologist who discovered Penicillin by accident within his lab in the early 1870s, which revolutionized the medical field. Likewise, faculty teaching Chemistry could tell stories about the Periodic Table and Dmitry Mendeleyev, a Russian scientist who organized the sequences of the Periodic Table while on a train during the 1800s. This strategy of storytelling can help students visualize the global context of scientific discoveries as many civilizations and cultures have contributed to existing knowledge.

Figure 3. Teaching Strategies Selected Based on Attendance in Global Competency Training.



One of the limitations of the study was the sample size, as the survey was only distributed to faculty at a single private University. Therefore, the responses may not accurately represent the global competency levels of all higher-education professors and cannot be generalized. Another limitation was that the survey did not distinguish between online instructors and on-campus instructors. As the level and type of interaction with students are different, the responses to questions could vary, and not accurately represent the global competency levels of all faculty. A third limitation included confirmation bias that may have occurred within the surveys as instructors identified globalized strategies within their own classrooms. To address this limitation in the future, researchers could utilize a checklist of the globalized classroom strategies presented and conduct individual observations of teacher's classrooms to verify that survey responses match the participants' actions.

If further research is conducted, it is recommended that a larger sample size is utilized, the population be expanded, and special considerations be made as to the instructional modality of the faculty. Researchers could also conduct a training and assess the practicality of the global knowledge used in the classroom setting, attitudes and beliefs of faculty, and student perceptions as they interact in the classroom. Given the increased number of international students studying outside of their home countries, researchers may be able to assess whether global competency training correlates with positive student interaction and academic success. Finally, it is recommended that the total number of training attended, the type of training (online, face-to-face, etc.), and its effectiveness in adjusting one's attitude should be analyzed as this study only addressed the time when the training occurred. More research is needed to assess the specific implications regarding global competency training on both faculty members and students.

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A comparative study of female Chinese STEM PhD students in China and New Zealand: Gendered experiences at academic conferences

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Abstract

Attending and presenting at academic conferences is an essential aspect of the doctoral journey. Academic conferences offer opportunities for PhD students to present their research, network with other researchers, and learn about the newest developments in their field. This small-scale, qualitative study explored conference experiences of nine female Chinese PhD students, four studying in China and five in New Zealand. Comparing their experiences – both at conferences and in their doctoral programs generally – provides a comparative glimpse into the ongoing gender bias faced by women in academia. Findings from semi-structured interviews indicated that domestic Chinese students faced more obstacles of a 'glass ceiling', gender-biased behaviors, and more limited support from their supervisors than their counterparts studying in New Zealand. Chinese students studying in New Zealand still faced similar gendered expectations in regard to family responsibilities, however they reported stronger support systems from supervisors and universities. Future research is needed as universities in both countries work to mitigate gender inequities in STEM fields.

Keywords: Higher education; gender bias; women in STEM; doctoral student experiences, qualitative research

Since the 1980s, doctoral education in China has experienced a rapid increase in student enrollment due to the nation's need for skilled researchers to boost social and economic development (Dai et al., 2021). In 2012, China reported a higher number of PhD graduates (53,011) than the United States (50,977) for the first time, making China "the largest incubator" of PhD students (Shen et al., 2018, p. 285). In addition, an increasing number of Chinese students pursued their PhD studies outside of China in universities with high global rankings, often with funding support from the Chinese government (Shen et al., 2018). A particular emphasis by the Chinese government is on growing doctoral expertise in Science, Technology, Engineering and Mathematics (STEM) fields because research in these areas is seen as strengthening the knowledge economy and increasing the country's global presence (Wei & Johnstone, 2019).

However, women continue to be under-represented and report gender-based inequity and marginalization as PhD students and researchers in STEM fields (Dai et al., 2021; Shen et al., 2018). According to a survey of Chinese PhD graduates in 2018, the male-female ratio was 1.78:1 (Sohu News, 2018). Data from the New Zealand Tertiary Education Commission also reveal that fewer than a third of all students working towards a STEM-related tertiary qualification are women (Government Communications Security Bureau New Zealand, 2018). Thus, there is a strong underrepresentation of women in STEM fields in China and in New Zealand.

The metaphor of the 'leaky pipeline' has been used to describe the loss of female PhD students over the course of their academic careers (Dai et al., 2021; White, 2004). Specifically, females have a lower rate of degree attainment and a higher drop-out rate than their male counterparts, due in part to implicit biases in these fields (Booker, 2018), gender-based discrimination (Ampaw & Jaeger, 2011), and low psychological well-being (Schwanke, 2013). In addition to marginalization in academia, female PhD students also report barriers related to childcare responsibilities (Case & Richley, 2014; Cidlinská, 2018), and having more complex life situations than male PhD students (e.g., undertaking domestic chores, managing social ties) (Hill & McGregor, 2006).

Attending academic conferences is seen as a gateway into postdoctoral fellowships, academic positions, and industry-related professions. Academic conferences offer PhD students opportunities to both present their research and network with experts in their field. Moreover, for female PhD students, attending academic conferences can provide positive role models, support and encouragement from women in senior academic positions (Cidlinská, 2019). Despite the importance of academic conferences, much of the prior research on female PhD students' experiences at academic conference has identified conferences as gendered spaces that present numerous challenges, including funding difficulties (Mwenda, 2010), pressure from male-dominant conference environments, a lack of female role models or peers, and family responsibilities (De Welde & Laursen, 2011). Urry (2005) notes that "the slow drumbeat of being underappreciated, feeling uncomfortable, and encountering roadblocks along the path to success" (p. 6) becomes internalized, eroding self-confidence and reinforcing to women that they do not belong in science.

China and New Zealand both have extensive education resources in the Asia-Pacific region. In the 2020 QS World University Rankings, seven of New Zealand's universities were in the top 100 in at least one subject. Tertiary education programs in New Zealand include research-intensive universities that operate separately from polytechnic vocational universities and institutes (New Zealand Government, 2021). As noted, doctoral education in China has experienced rapid development since the 1980s and now has one of the largest doctoral education systems worldwide.

Although New Zealand and China both offer research-based postgraduate education, their doctoral education structures are different (Yang, 2012). China employs a PhD model that combines coursework and research while the PhD in New Zealand universities consists solely of independent research. In addition, cultural differences in the two countries should not be overlooked: the Confucian tradition in China emphasizes the role of women to be mothers and looking after a household. It thus restricts women's engagement in the academic field and is at odds with an academic science identity (Rhoads & Gu, 2012). On the other hand, New Zealand's more open and diverse society and comparatively higher protection of women's rights may have an impact on women's engagement in academia. As a part of a larger study of female

doctoral students' experience in New Zealand, and with these different cultural contexts in mind, we compare the experiences of female Chinese PhD students studying within and outside of China to determine whether their experiences differ. Such a comparison may provide insights into the persistent gender inequities in the STEM fields. As such, the current comparative study draws on interview data from female Chinese PhD students in STEM fields in a domestic Chinese university and a New Zealand university. We look at the experience of their doctoral study broadly, and then focus more closely on their academic conference experiences.

Literature Review

This section first reviews the literature on women's tertiary participation in STEM fields, followed by a review of literature specifically in relation to their conference experiences. Finally, the theoretical framework for this study which draws on theories of gender and science identity is presented.

Women in STEM Fields

Women's persistent underrepresentation in STEM disciplines at the tertiary level is well documented (Ampaw & Jaeger, 2011; Booker, 2018; Schwanke, 2013). Although the gender gap is closing in some specific fields (e.g., biological science) and in some countries (Evers & Sieverding, 2015), gender bias persists (Booker, 2018; Ampaw & Jaeger, 2011; Lubienski, 2017). Booker (2018) defines the implicit biases in these career fields as a "glass ceiling" (p. 6), as women's chances of getting hired, promoted, or tenured in academia are limited by invisible barriers related to their gender. Lubienski's (2017) survey of doctoral graduates from a top-ranking university found that males submitted and published more articles than women across many fields, especially in natural science, bioscience, and engineering subjects, due to barriers including gendered differences in faculty support and assistantships. In addition, Schwanke (2013) and Seifiert and Umbach (2008) found that lower income expectancy for female than male researchers was an important deterrent from working in STEM fields.

In addition to factors within academia, Mandleco (2010) found that non-academic related issues also contribute to gender bias and female students' doctoral journeys. The influence of female doctoral students' family responsibility is widely discussed in the literature

(see, for example, Brown & Watson, 2010; Case & Richley, 2014; Cidlinská, 2019). Brown and Watson (2010) reported that female PhD students needed to consider demands at home when planning their studies, more so than male students. Carter et al. (2013) found that a PhD degree competes with other family goals such as marriage and having children.

In the Chinese context, research has found that non-academic related issues play a significant role in women's decision to pursue a PhD in a STEM field (Dai et al., 2021; Shen et al., 2018). The Chinese Confucian tradition emphasizes women's role as xiangfujiaozi ('相夫教子') (He, 1994), meaning women are supposed to stay at home to support their husbands by doing housework and educating children. Women rarely got educated in ancient China because the Confucian tradition believed that "lack of talent in a woman is a virtue" (He, 1994, p. 88). This traditional belief persists in Chinese society. Rhoads and Gu (2012) noted that gender-based stereotypes are quite prevalent among faculty at some universities in China. Although Dai et al. (2021) claimed that China's opening and globalization has begun to reshape the Confucian tradition, they could not conclude that gender biases have eased.

Significance of Academic Conferences

Eden (2016) noted that academic conferences reflect the structural contradictions in academia because they "constitute a space for solidarity and hierarchy" (p. 409). Despite this duality, attending academic conferences, both presenting research and attending networking events, is viewed as a critical component of the doctoral journey (Chapman et al., 2009; Cidlinská, 2018). Conference attendance acts as a direct factor influencing recruitment into post-doctoral positions and academic promotion (Sabharwal et al., 2020), creates a community of practice for knowledge development (Chapman et al., 2009), and provides networking opportunities (Brown & Watson, 2010).

In addition to practical aspects of career advancement and networking, Chapman et al. (2009) found that disciplinary understanding is heightened while participating in the socio-cultural practices of academic conferences. In addition, Cidlinská's (2019) study female PhD students in Czech illustrated that high-achieving women at conferences (e.g., female keynote speakers) provided a positive role model to encourage female PhD students to become

successful in academia. For doctoral students, attending conferences can be a deciding factor for pursuing an academic career.

The role of networking opportunities at academic conferences has also received attention in the research literature (Brown & Watson, 2010; Chapman et al., 2009; Dai et al., 2021). Whether formal or informal events, networking can allow PhD students to access senior scholars whose work has shaped their own studies (Chapman et al., 2009) or provide access to researchers who share the same research interest for future collaboration (Brown & Watson, 2010). Networking at conferences provides opportunities for PhD students to become socialized into the research field beyond their own institution.

Identification of the Research Gap

In summary, being a doctoral student is the first step to starting an academic career and a space in which they develop their researcher identity. However, most of the research on gender bias in academia has focused on early career researchers with little or not attention paid to the impacts of such gender bias onPhD students. Moreover, although several prior studies have examined gender bias in STEM fields, little research has been conducted regarding female PhD students' conference experiences. Academic conferences play an essential role in academia and are closely linked to PhD students' entry into academic fields. Investigating the conference experiences of female PhD students begins to address the research gap about gender bias persisting in female STEM students' doctoral education and may point towards strategies to address bias and increase women's retention in STEM careers.

In addition, there is a lack of research on the conference experiences of female Chinese students. Female Chinese PhD students may be influenced by factors that differ from those experienced by their western counterparts. For example, the Confucian traditions that Chinese society adheres to puts a strong focus on marriage and family. Given the growing number of postgraduate students from China, it is important to further our understanding of the differential impacts of gender on these students' academic conference experiences. Thus, the current study aimed to investigate the motivation and experiences of female Chinese PhD students studying in China and New Zealand with a specific focus on

conference experiences. The research questions guiding this study were:

1. What is the motivation of female Chinese students to pursue doctoral studies in STEM fields?
2. What are the gendered experiences of female Chinese PhD students in STEM-related PhD programs in China and in New Zealand?
3. What are female Chinese PhD students' experiences attending and/or presenting at conference?
4. How does science identity development differ between female Chinese PhD students studying in China and in New Zealand?

Study Framework

In this study, we focus on female doctoral students' conference experiences using gender and science identity conceptual lenses. We identify gender as a socially constructed concept that is pervasive, largely unconsciously applied, and embedded in structures, practices, and discourses. As such, gender is embedded in academic environments such as conference spaces and the interactions within them.

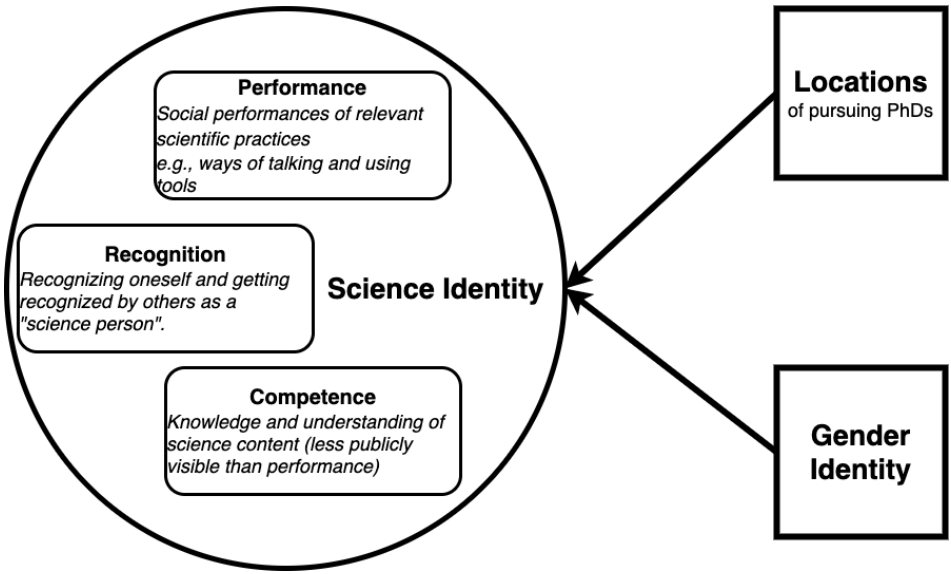
Gendered actions and interactions are based on societal views and perceptions around what constitutes femininity and masculinity (Lorber & Farrell, 1991). The conceptions of gender and the actions that confirm and sustain them influence and interact with one's identity (Barton & Osborne, 2001; Ridgeway & Kricheli-Katz, 2013). Furthermore, common gendered perceptions or stereotypes exist around science. These perceptions reiterate the notion of 'cultural fit' (the perception that 'science is for men') and 'ability' (the perception that 'men have more ability') that are pervasive in both subtle and overt ways in verbal and behavioral interactions. Within the academic environment, students learn and internalize normative behaviors, such as the accepted practices, behavior, and styles of communication, as they become part of a community of scientists through the process of socialization, for example, at conferences. Hence, we examine female doctoral students' experiences of participating in and presenting at conferences in typically male-dominated STEM fields.

Further, we draw on Carlone and Johnson's (2007) model of science identity development which stresses that identity development requires interactions with others and includes three interrelated and

overlapping dimensions: competence, performance, and recognition. Competence presents one's level of knowledge and understanding of science content and is often less overt or visible than the performance dimension. Performance entails the social performances of relevant scientific practices (e.g., ways of communication, use of tools or procedures). Recognition refers to the recognition of oneself and by meaningful others as a 'science person'.

Figure 1

Carlone and Johnson's (2007) Model of Science Identity Development



According to the reviewed literature, attending academic conferences shows a potential connection with the formation of science identity. The formation of science identity is influenced by the cultural background of female PhD students and the locations they are studying in, which may emphasize different values in relation to gender identity. A strong science identity may support female PhD students' motivation to pursue a science career, and thus increase their retention in doctoral study (Carlone & Johnson, 2007). This science identity model will be used in the discussion of findings of this study.

Methodology

Through collecting rich narratives, this study explores the detailed descriptions of female PhD students' experiences of doctoral education in STEM fields, with an emphasis on their experiences of

attending academic conferences.An interpretive approach was selected as an for uncovering participants' perceptions of their doctoral journey, conference experiences, perceived support from supervisors and the university, and apparent gender biases.

Participants

Participants were from a university in China (UC) and a university in New Zealand (UNZ). Participants were recruited through snowball sampling in the UC through the social networks of one of the members of the research team. Participants in UNZ were recruited by sending invitations to the doctoral students' directory.

We selected UC and UNZ as research sites because they share several similarities and thus enable comparison of contextual factors of interest (Creswell, 2014). UC and UNZ are both research-based, top universities in their nations. They are both large universities, each serving around 40,000 students.

Four female PhD students from UC and five from UNZ were recruited. Most of the participants were between 25-35 years old, in their second, third, or final year of their doctoral journey, and they were pursuing their doctoral studies in a range of STEM disciplines. See Table 1 for an overview of participants' demographic information. Pseudonyms are used for the participants to preserve their confidentiality.

Table 1

Study Participants' Demographics

Pseudonym	Age	Uni	Major	Year in PhD	Marital status
Linda	28	UNZ	Computer Science	2	Single
Winnie	27	UNZ	Chemical Sciences	3	Single
Alysa	26	UNZ	Bioscience	3	Single
Grace	34	UNZ	Bioscience	4	Married
Ming	25	UNZ	Environment	1	Single
Bonnie	25	UC	Chemistry	2	Single
Tina	27	UC	Chemistry	3	Single
Lily	27	UC	Bioscience	2	Single

Daisy	31	UC	Bioscience	2	Married

Interviews

The research team developed the interview protocol based on a review of prior research and validated the questions through expert advice (Dillman et al., 2009) from a STEM professor with twenty years' experience mentoring female doctoral students. Furthermore, the research team reviewed the recording of the first interview to make final modifications to the interview protocol (Willis, 2005). The interview protocol consists of four main topics: students' doctoral study, conference attendance, experiences presenting at conferences, and perceived support (see Appendix 1 for the interview protocol). The interviews were semi-structured to cover all areas of interest while allowing for follow-up questions by the researcher.

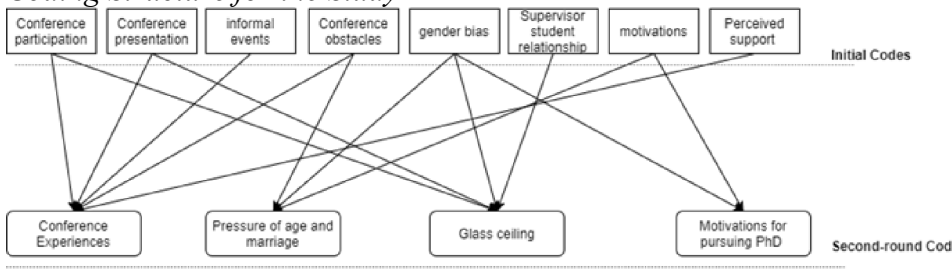
Interviews were conducted in Chinese by the first author to allow participants to express their opinions without language barriers. The interviews lasted around 40 minutes and were conducted via zoom or face-to-face. Interviews were transcribed by the first author and translated into English for analysis.

Data Analysis

A thematic analysis of the interview transcripts was conducted (Braun & Clarke, 2006). Using a mix of deductive and inductive approaches, the research team created an initial list of eight codes based on the interview topics (see Figure 2) (Miles et al., 2013). Two research team members conducted a pilot test of the broad code list in which they both coded three of the transcripts and discussed any discrepancies in coding to ensure inter-rater agreement (Armstrong et al., 1997). A second coding iteration collapsed the broad codes into four overarching themes to answer the research questions; double coding enabled excerpts from the first iteration to contribute to multiple themes. For example, a participant's description of their conference participation could be captured as a negative conference experience as well as an example of their perception of a glass ceiling. Considering that the focus of this study was conference experiences, the theme identified in this example included three sub-themes: conference participation, academic support, and supervisor- student relationships.

Figure 2

Coding Structure for the Study



Findings

The interviews yielded four main themes in regard to female Chinese PhD students' doctoral study and conference participation: their motivation to pursue a PhD, a perceived pressure of age, experiences of facing a glass ceiling, and conference experiences broadly. Within these themes, we highlight differences and similarities among participants studying in China and in New Zealand. We also consider the potential impact of participants' experiences on their science identity development.

Driven by Career Goals

For female Chinese PhD students both in China and New Zealand, their decisions to pursue a PhD were mostly driven by their aspirations for a career in academia or related industries. All the participants felt that obtaining a PhD was compulsory as an "entry ticket" for a career in academia:

> *To be honest, the motivation for my PhD study is to find a job. Graduates in the major I study (chemistry) face extreme competition in the job market. There are few suitable jobs for bachelor's and master's degree holders. (Bonnie, China).*

While the motivation to earn a PhD as a career step was common in both settings, a highly competitive job market was emphasized more by participants studying in China, where PhD degree holders compete for entry-level positions in STEM industries and universities. This phenomenon is termed "involution" in the Chinese setting (Pang & Li, 2010, p. 24), referring to the process of incessant competition from which no one benefits. Participants' reports indicated that Chinese graduates faced much more intense

competition in the job market in China than in other countries, including New Zealand.

> *Everyone in this research field has good publications, and the job vacancies in universities are always limited. The key reason [to pursue a PhD] was that I thought there were limited positions in the industry that fit our training or specialty, as a result we must compete to find a job in academia (Bonnie, China).*
>
> *If I wanted to work in higher education, I would have to have study experiences in top-ranking universities abroad. Local PhD students are always disadvantaged (Lily, China).*

Lily noted that local doctoral graduates were disadvantaged because Chinese universities prefer overseas experience and connections when employing academic staff. Alternatively, female Chinese students in New Zealand seemed to feel more confident than their local Chinese counterparts about securing a position after completing their degree. For example, Winnie said, "I think I will go back to China. I have choices, both teaching in universities and working for the government or enterprises" (Winnie, NZ).

Compared with Brown and Watson's (2010) findings that female doctoral students complete doctoral degrees to fulfill their pragmatic (career-focused), emotional and psychological needs, female Chinese PhD students in the current study were motivated foremost by their career goals as they felt they needed a PhD to be able to compete in the job market. Only one of the students noted a competence goal in regard to pursuing a PhD. Thus, we saw little mention of developing a science identity when the participants discussed their motivation to earn a PhD.

Pressure of Age and Marriage

Although the motivation to earn a PhD for career advancement is not specific to women, our study participants reported pressure to earn their degrees before a certain age.

> *Some Chinese universities … only employ PhD graduates under 35 years old (Ming, NZ).*

Additionally, nearly all of the study participants reported pressure to get married and have children. They explained further that this pressure originated from both the Chinese society generally and from within their own families specifically.

> *My parents could not understand why I put all my effort into getting a PhD, as the Chinese society has a big stereotype [against] women with PhDs. Women are expected to focus more on marriage and family (Alysa, NZ).*

Participants' comments echo Dai et al.'s (2021) argument that the traditional Confucian belief in "confining women's work to the domestic sphere" (p. 1352) tacitly restricts women from putting effort into academic careers. Although some of the female Chinese PhD students in this study noted that family responsibilities should be shared by males and females, they reported that the reality is that women are expected to balance their professional goals with family responsibility more so than male PhD students.

> *It may be more stressful for female PhDs to balance their study and family issues…especially when you are over 25 years old, pressure from parents and relatives will automatically come (Ming, NZ).*

Participants felt the pressure to get married relatively young and were worried that their choice to spend three to four years pursuing a PhD could jeopardize their chances of finding a suitable partner. Additionally, participants noted that Chinese parents generally see marriage, rather than a career, as a pathway for social mobility for their daughters, putting more emphasis on their daughter's marriage than academic success. As Lily put it:

> *As a female, I think that my parents focused more on success in marriage rather than obtaining a PhD. My family is concerned whether getting a PhD degree will prevent me from getting married and having a child. But my male colleagues in the lab do not have the same concern about marriage as I do because their parents seem less concerned about marriage (Lily, China).*

This is consistent with findings from Carter et al.'s (2013) New Zealand study that found out that female PhD students experience more societal pressure and make more concessions than male PhD students in their choices of university, effort in study, conference attendance, and employment after graduation.

In addition, although Dai et al. (2010) argued that China's modernization and globalization has brought feminist perspectives to China, resulting in less overt pressure to priorities having a family over a career, our study participants felt that this pressure is less

visible but not less real. The “pressure of age” was noted across the sample for female Chinese students pursuing their PhD in China and in New Zealand. Female Chinese students studying in New Zealand did not seem to escape the gendered expectations of Chinese society and their own families.

This pressure likely impacted on their development of a strong science identity as they felt that their families and society valued a different identity more strongly – that of a wife and mother.

Glass Ceiling

Our sample of PhD students in both China and New Zealand reported that in their experiences, especially in bioscience fields, the gender gap between PhD students seemed to be reducing. However, participants reported that even with a more equal gender distribution, they were acutely aware of a "glass ceiling" that restricts female students from success in STEM research fields (Booker, 2018, p. 6). This finding aligns with Schwanke's (2013) finding that female Canadian early career researchers' low psychological well-being comes from family pressure and societal expectations on top of the differential pressures of academia encountered by female researchers.

All four participants studying in China reported differential behaviors towards them as female PhD students. For example, they noted that supervisors had lower expectations of their work, seemed to prefer to take on male PhD students, or did not believe female researchers needed a PhD.

> *My supervisor said, "It is already good enough for females to finish their master's study, you do not necessarily need a PhD." (Tina, China).*
> *My supervisor gives me fewer chances and more "tolerance of being less productive" than male students. He did not expect me to have good academic output initially, then he gave me fewer resources [than male colleagues], then being marginalized [from the overall research process], being untrusted [to undertake individual research] afterwards, and he would challenge me more when I eventually had an output. This is like a vicious circle that I could not break (Bonnie, China).*

These narratives mirror De Welde and Laursen’s (2011) findings of female PhD students’ exclusion from the ‘old boys’ club’ of senior researchers in STEM fields. Instead of providing positive

role models and having high expectations on par with their male colleagues, supervisors' attitudes and actions weakened participants' confidence in their abilities to conduct rigorous academic research. As a result, female PhD students in our study felt it was harder to gain recognition for their abilities and negative evaluations of their competence impacted negatively on their development of a science identity. This contributed to the perception of a glass ceiling.

It is worth noting that, in this study, participants in China specifically reported that the resources distributed to female PhD students, including supervision time as well as conference and networking opportunities, are relatively limited compared to those of male students. These obstacles further served as barriers to female students' science identity development and represented a vicious cycle that inhibited female PhD students' ability to break the glass ceiling and enter careers in STEM fields.

Although study participants reported that these barriers were overt, they noted a culture of silence in which their experiences of gender bias are a 'little drama in their head' (Bonnie, China) that goes unspoken. As Bonnie stated:

> *I never tell [my supervisors] about this kind of feeling. I could feel [gender bias], but I could not tell them. I am afraid they think this is a 'storm in a teacup'; they do not even care about this! They are overwhelmingly focusing on their research (Bonnie, China).*

In contrast, Chinese female doctoral students studying in New Zealand reported better experiences compared to their counterparts in China. They described a gender-balanced, positive, and supportive community of researchers in their STEM fields. Thus, participants studying in New Zealand noted that competence and performance would be recognized and there were fewer barriers for female PhD students to succeed and develop a positive science identity. However, Winnie noted that it is not yet a post-gendered world:

> *It would be better if we do not over-focus on the word "female". If a woman has high achievement, like Chinese researcher Tu Youyou, the media or the public always report her as a "female" scientist. If an actual gender balance is achieved, we would not emphasize her female identity (Winnie, NZ).*

In comparing study participants' experiences of gender bias in their STEM programs, Chinese participants in New Zealand described

the STEM research community in New Zealand as more inclusive and supportive, which helped to build a platform for both academic and emotional support for doctoral students to achieve and gain recognition, developing a science identity (Carlone & Johnson, 2007).

Conference Experiences

In relation to conference experiences, study participants highlighted three aspects in which gender bias was apparent and that seemed to influence their science identity: conference participation, academic support, and supervisor-student relationship.

Conference Participation

A noticeable gap exists in the opportunity to attend conferences between study participants in China and in New Zealand. While female Chinese PhD students in New Zealand had attended both national and international academic conferences in their research field, local female Chinese PhD students rarely went to conferences regardless of the stage in their PhD. Beyond attending conferences, four of the five Chinese PhD students in New Zealand had presented at least two individual papers at conferences. Even Ming, who had only been enrolled in her PhD study for a few months in New Zealand at the time of the interview, had already presented a poster session at a conference. In contrast, among participants studying at domestic Chinese universities, only Bonnie and Lily had attended conferences. The conferences were not international but domestic conferences, and they had not presented their research. Thus, the students in China had fewer opportunities to gain recognition for their work outside of their own place of study.

Participants' attitudes towards conference attendance also varied by the location of their PhD study. Female Chinese PhD students in New Zealand tended to see themselves as "presenters", whereas female Chinese PhD students studying in China tended to define themselves as "listeners" (Bonnie) or "learners" (Tina), signaling different science identities. Participants in New Zealand shared their positive experience of presenting at international conferences:

> *I felt confident with my content. I thought the presentation went quite well (Winnie, NZ).*
> *I even got an offer for a post-doctoral study in Hong Kong. There is a senior researcher who is very interested*

in my work. After the presentation, he found me and asked me if I would do a post-doc (Grace, NZ).

Winnie's and Grace's narratives affirm the construction of their science identities by presenting their work (performance) and receiving positive feedback and job offers (recognition) acknowledging their skills and knowledge (competence).

In contrast, study participants in China felt that attending conferences was a passive process of receiving knowledge rather than an active process of networking and presenting. As Lily and Tina said:

My supervisor rarely took me to those kinds of formal academic events [e.g., conferences] before. In my experience, academic conferences mean more like a lecture with free food and drinks rather than a presentation (Tina, China).

In one case, Bonnie even stated that she was more likely to be a volunteer at a national conference in her field than being a registered participant.

As the conference was really advanced, we undertook some of the organizational work as volunteers. The rest of the people at that conference were mostly advanced researchers… with good articles; they interacted with each other. We were more likely to be Misses Etiquette or, simply an embarrassed "tool" of consuming free food and drinks (Bonnie, China).

Although for the female PhD students studying in China, attending conferences as part of science identity development (performance and recognition) seemed limited, the way they spoke about their experiences implied that even attending conferences as a volunteer helped them to develop the competence dimension of their science identity. These participants felt that their understanding of their research field increased by attending presentations. Nevertheless, the difference in conference experiences between Chinese domestic PhD students and those studying in New Zealand reflects a disparity of experiences and thus a disparity in their science identity development.

Academic Support

Regardless of whether our study participants were studying in China or New Zealand, they shared a concern about their English

proficiency when presenting their research. Lack of sufficient proficiency in English, especially in oral presentations, reduces their self-confidence at conferences. While this sentiment was shared across the study participants, female Chinese PhD students in New Zealand reported that they received several kinds of academic support from the university, including workshops about research methodologies, academic writing, and organizing presentations. Grace (NZ) and Winnie (NZ) also reported that their faculty held trial presentations for them to receive feedback and gain confidence before presenting at conferences. Participants studying in China seemed more concerned about their English proficiency than their counterparts studying in New Zealand. They reported that the English language support from their university and faculty was limited. Tina (China) reported that there was no support to prepare them for conference presentations and Bonnie (China) stated that the lack of confidence when using English had become a severe barrier to her research, for example when reading literature and writing drafts to be published g.

Supervisor-Student Relationship

The supervisor-student relationship was described as positive and supportive by participants studying in New Zealand, while it was reported as a challenge for participants studying in China. The adjectives that participants in New Zealand used to describe their supervisors were mainly positive. Examples of these adjectives include nice (Linda, Winnie, Ming, Alysa), friendly (Winnie, Alysa), and supportive (Linda, Winnie). This positive relationship was further reflected in the conference preparation process with supervisors giving support and guidance on presentation outlines, poster designs, and providing practice opportunities for presenting.

Bonnie, Tina, and Lily, who studied in China, referred to their supervisors as bosses and described them as being directive and holding strict control over their students' work.

> *Usually, PhD students' conference attendance is based on the supervisor's networking… I think it is a serious problem in China that supervisors dominate the study of PhD students. My supervisor determined whether I could graduate from his lab. So, I have to satisfy my supervisor to get good resources. (Daisy, China).*

The supervisor-student relationship as described by the Chinese students studying in China seemed to restrict opportunities for them to develop their own identity as scientists. They were neither able to develop their work nor see themselves as independent researchers capable of presenting their research and receiving acknowledgement and recognition for it.

In addition to Chinese supervisors being perceived as 'bosses', Lily and Bonnie felt that they could not dedicate time to attend and present at conferences without falling behind on lab work and writing journal articles. Tina noted:

> *The emphasis of the university is on publishing as much research outputs as possible. This forms an evaluation system for doctoral students as well. The graduate requirement for us includes publishing articles as the first author in high-ranking journals. I have to be really careful where I spend my time, because they may defer my graduation [if I don't reach the publication target]. (Tina, China).*

Tina's narrative illustrates a criticism that Chinese doctoral education is publication-orientated (Huang, 2021). However, as Carlone and Johnson's (2007) science identity development framework posits, the development of science identity requires not just competence but also the performance and recognition dimensions. The overwhelming focus on doctoral students' research outputs could break the balance of the science identity development by squeezing PhD students' time for conference attendance, networking, and other activities that may be beneficial.

Discussion

Drawing on Carlone and Johnson's (2007) science identity development model, this study compared female Chinese doctoral students' experiences in China and New Zealand with a particular focus on their experiences of participating in academic conferences. Overall, the conference settings enabled participants in this study to have a feeling of being accepted by the STEM community, which contributed to the recognition dimension of the science identity development model. Furthermore, conferences enabled participants to exchange knowledge of science content, developing the competence dimension of the science identity model. Moreover, study participants in New Zealand had more opportunities to present their

research at conferences, giving them more chances to develop their science identity through the performance dimension compared to their counterparts studying in China. However, study participants in China tended to seek the development of the competence dimension more through publications. Our nine participants all saw publications as necessary to survive in this competitive environment and a job market in which females are disadvantaged (Brooker, 2019).

Second, students' gender identity seemed to play a bigger role on female Chinese doctoral students' development of science identity than did the location in which they pursued their PhDs. Female Chinese doctoral students studying in China and New Zealand both strongly felt a 'pressure of age' to marry and start a family given the Confucian belief system, which they reported is strongly embedded in Chinese society. Their beliefs around female identity thus stood in strong contrast to developing a science identity through pursuing a PhD. Such societal perceptions also pervaded in the academic environment in China with study participants reporting a 'glass ceiling' effect exemplified by low expectations from supervisors and disproportionate access to funding, resources, opportunities, and support in comparison to their male colleagues under the same supervisor. Further, they reported having the added challenges of balancing family and childcare responsibilities during their studies. These findings are similar to previous research (De Welde & Laursen, 2011) and add barriers for female PhD students to develop a science identity in all three dimensions – performance, recognition, and competence.

Differences in the experiences of participants based on the location of where they pursued their PhD – in China or in New Zealand – resulted in differences in their science identity construction. Our findings also reveal a gap between conference attendance of participants studying in China and in New Zealand. Overall, the New Zealand environment was reported by participants to be more supportive for the development of female Chinese PhD students' science identity across the three dimensions of the science identity development model. Female Chinese doctoral education was reported to have a strong focus on the competence dimension, in the form of publications, and offered less support for their holistic development. Consequently, these students have fewer opportunities to attend and present at academic conferences, thus presenting a barrier to develop

the recognition and performance dimensions of their science identities.

Conclusions and Implications

Attending conferences is one key mechanism for the development of a science identity and the extent to which women feel included in the science community. It is important to understand the experience of female PhD students in attending conferences as a first step in making positive change toward a non-biased and inclusive academic environment that provides equitable opportunities for women in STEM fields.

This study found that gender identity perceptions continue to have a strong influence on the development of scientific identities among female Chinese PhD students, regardless of where they opted to complete their PhD studies. The interaction of personal (i.e., the pressure of age) and organizational factors (i.e., the perception of a glass ceiling) compounded the difficulty our study participants studying in China faced in their doctoral education, leading to more psychological and emotional pressure compared to participants studying in New Zealand. Meanwhile, the absence of psychological support from Chinese universities made our study participants feel more isolated in seeking emotional support during their study than their counterparts studying in New Zealand.

One implication of this study is that Chinese universities could adopt some of the support structures participants studying in New Zealand experienced. We suggest that a platform (e.g., discussion forum) of faculty, supervisors and doctoral students could be set up in Chinese universities to allow exchanges of ideas related to gender or broader academic and non-academic issues that emerge in female students' doctoral study processes, and more psychological care could be made available to female PhD students through a variety of channels beyond their supervisors.

Along with the rapid growth of China's economy, postgraduate education in China likely will experience a sharp expansion in the coming years. It can thus be expected that more Chinese students will pursue their doctoral studies abroad. There will be more women who enter STEM research fields. However, neither China nor New Zealand has worked out a solution to beat visible or implicit gender biases. In the novel Mrs. Dalloway, Virginia Woolf wrote, 'Mrs. Dalloway said she would buy the flowers herself'. This

notion indicates women are not limited to being 'angels at home', but can chase their personal and professional goals, breaking free from societal expectations. To support women in succeeding in academia, academic institutions and the wider society needs to combat persistent gender biases that support female PhD students' science identity development.

One of the limitations of this study is the small-scale sample which does not allow us to robustly compare differences within each country or to make generalizations. Rather, the two settings illustrate potential differences and commonalities in the experiences of these nine female Chinese PhD students. A larger-scale study could examine the phenomenon in a wider population that compares the phenomenon either within a specific country or in relation to other overseas study locations. An examination of other factors such as supervisors' own gender, which has been shown to influence student experience in previous research (White, 2004), can also be pursued as a research objective within this context.

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Virtual Gallery – A Multidisciplinary Approach

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Abstract
The COVID-19 pandemic has led to a new era where applied learning has to go virtual. This hastened the need for students to be equipped with virtual skillsets, including the ability to manage 3-D augmented reality tools for future work. This paper introduces the virtual art platform as a means to prepare students for the new world, which requires a multidisciplinary approach to solving problems and digital skills to work within the virtual environment. The paper will examine the multidisciplinary practice and perspectives involved in setting up the virtual art gallery, introduce features of Virtual Art Gallery platforms and finally consider the potential benefits of using these platforms for the student's professional careers.

Keywords: 3D virtual reality, multidisciplinary learning, virtual art exhibition, studio-based practice, art-based learning.

Worldwide, the COVID-19 pandemic accelerated the need for Universities to adapt and deliver the university curriculum beyond physical campus and for students to be able to horn in on practical skillsets for future proof careers. What COVID-19 has done was to ramp up digitalization efforts, especially in the use of virtual reality, which is an emerging trend that will fuel the future of the workplace in

terms of virtual presentation, marketing, and engagement. The takeaway lessons are that we need to prepare students with multidisciplinary skillsets, which will help them remain resilient in the future workforce. COVID-19 also hastened the uptake of the Fourth Industrial Revolution Age (4IR) technologies which also created opportunities for mutating disciplines where the future of work requires knowledge and skillsets from the different areas.

The COVID-19 pandemic resulted in Universities worldwide ramping up digital efforts in the face of the pandemic. This has resulted in Universities taking the leap of faith to design programs with virtual elements that are not only cross-disciplinary but also to potentially design those that are multidisciplinary, cross-functional, and cross-industry in nature.

We believe that arts in all their various cultural forms nourish us in times of the COVID-19 pandemic during the lockdown. There is also immense value in the art supporting interdisciplinary or multidisciplinary work. We would argue that art has been reshaping 4IR, given that future generations would need to be well versed in empathy, imagination, and creativity. This requires lifelong learning, which allows us to deep dive into the various possibilities of the future. The more recent years have seen art and design being embedded in the heart of conversation on what the future of curriculum entails, touching on areas from technology to culture and society at large. The interface of art and other disciplines provide a broad range of collaborative projects and interdisciplinary experiences not often found elsewhere.

We have been exploring the use of virtual reality platforms through a project which introduces multidisciplinary skillsets using immersive virtual training. Virtual immersive training in curatorial design, when embedded within the curriculum in higher education, can offer tremendous opportunities for 21st-century multidisciplinary skillsets and perspectives to be acquired (Papanastasiou et al., 2019; Antonaci, 2013). The last century has seen a dramatic increase in projects requiring the need to utilize design or art-related expertise to contribute to contemporary practices or even contemporary issues. There is currently an abundance of literature on how art supports interdisciplinary work and equips students with interdisciplinary skillsets. To liberal art educationists, art is a way of thinking that both imagine possibilities and impossibilities. It also introduces abstract, non-material ways of being and thinking. Both are immensely useful for students across disciplines in a real-world situation.

The multi- and inter-disciplinary possibilities for learning through the Arts support the curricular restructuring discussion is now taking place. It calls for teaching in ways that reflect the interdisciplinary nature, the project focus, and the connection to the real world even more closely (Sakatani, 2005). At the same time, the emphasis on 21st century digital literacy and the significance of the 3D virtual environment for the modern world points towards the need for students to be digitally equipped (Papanastasiou et al., 2019). Virtual learning and multidisciplinary learning are making significant strides in the world of higher education. Within the higher education sector, multidisciplinary approaches have taken root, and these tended to be located in the applied sciences, engineering, or medical sciences (Hero & Linfords, 2019; Burden & Ornas, 2016; Admiraal et al., 2019). Students work together in small groups in virtual labs or other forms of virtual platforms using multimedia technologies to address a common issue. However, not all multidisciplinary projects are issue-driven to solve a problem. We also sometimes find courses contrived as they are based on a hypothetical situation and/or are sometimes too instructional, leading to a one-tracked solution, lacking in opportunities for creative explorations and interactions. They might also be too technologically centered on the use of the tool and not sufficiently pedagogically-driven to trigger transdisciplinary thinking and practices.

The objective of this paper is to introduce an arts-related project building on three design principles: multidisciplinarity, authentic task situation, and social interactions. Using the virtual gallery as a platform, students will work together to generate different creative options for a virtual Arts Gallery showcase, using business, finance, and logistics skillsets acquired in other courses. The course "Curatorial Practice," requires students to interpret and see the relationship between artworks, exhibition spaces, and audiences. Students also had to appraise collaborative-led work and assemble their programme collaboratively, reflecting coherence at a personal and group level. They also had to decide on the market segment for the programme, how to procure the art pieces and how to market the art exhibition. The learning outcomes are such that the lessons had to be activity-driven. Through the collective design and constructions, and bringing complementary expertise from different discipline, students had to negotiate meanings and utilize cross-contextual skillsets to complete the project. The virtual platform is a means for students to explore and work together. As such, the virtual platform is a tool to facilitate cross-

disciplinary learning. We strongly believe in using the Arts as a means to create multidisciplinary possibilities for learning.
In this paper, we will introduce the process for setting up the virtual gallery, including introducing the features of the 3-D virtual reality platforms the students could use. Finally, the paper will consider career opportunities arising and provide our personal reflections.

Gallery Design as a Multidisciplinary Practice and Pedagogy

According to SEGD (2020,), curatorial or art exhibition design is "the process of conveying information through visual storytelling and environment. It is an integrative, multidisciplinary process that often combines design experience, multimedia and technology, lighting, audio, and other disciplines to create multilayered narratives around a theme or topic"(p.1). Unbeknownst to many, behind the scenes of curating and displaying art pieces are multidisciplinary skillsets that could be taught as different students from different disciplines come together. These could be classified as core skills and contextual skillsets, which are essential for the 21ste century workplace (Rios et al., 2020 ; van Laar, 2017), and these include core and contextual skillsets essential for 21st century contemporary workplace. The core skillsets primarily consist of context-specific skillsets developed for a specific task as well as cross-contextural skills which could be applied to a larger domain of social activities, and these include the following:

- Planning skills: The curation of the art gallery takes effort, and this requires meticulous planning in terms of creating meeting plans, budget and time estimates, resources plan and briefs.
- Time management: the ability to keep track and adhere to timelines for the completion of tasks
- Creative skills: Creative ability to test how different combinations of pieces work together to hone in on the perfect exhibition for a targeted audience
- Organizational skills: Organizational skills to catalog and organize the collections of artwork
- Market Analysis skills: Such skills are needed to identify the potential audience, and this may well include the audience's degree of knowledge and topics, as well as their needs so that this could be factored in when designing the gallery space.

- Narrative skills: The success of the art gallery depends on how the student narrates the artist's story and connect the audience to the artists' works.
- Communication skills: The ability to work with other groups to get the exhibition launched
- Targeting Customer's Needs: The ability to identify potential clients in the market and may well include understanding the target audience's needs and the degree of knowledge and interest.
- Critique skills: The ability to critique artwork and art collections for the purpose of setting up the art gallery based on a given theme
- Visual and spatial sensitivity: The ability to identify and interpret space structures for art and the placement of art pieces for display
- IT technical skills: The ability to navigate around the 3D virtual space where students are able to move and perform interactions within 3D spaces, including the manipulations of objects in virtual spaces
- Problem-solving skills: This refers to the ability to manage and handle complex or unexpected situations or challenges encountered at the workplace.

Complementing the core skillsets are the contextual skillsets, and these are existential skills that could be applied throughout the lifetime in different situations. These include the following:

- Ethical awareness: This includes the skills to behave in a socially responsible way, demonstrating the ability to apply legal and ethical principles when carrying out work tasks
- Cultural awareness: The ability to respect different cultures when working collaboratively with peers
- Flexibility and adaptability: This refers to the ability to adapt one's thinking in response to changing contexts
- Self-management or self-direction: This refers to the ability to develop, manage and reach one's goals set.
- Lifelong learning: The skills to constantly explore new opportunities for continual learning and gather ideas to apply in an ever-changing environment.

The above skillsets and experience are essential for every discipline, including the area of management, media, or even research.

One of the best approaches for instilling creativity is to simulate work conditions that allow for the testing of ideas and problem solving, and the use of a 3D virtual art gallery is one of the emerging virtual learning spaces for students to do so. Students learn to navigate around the 3D virtual space where students can move and perform interactions within 3D spaces, including the manipulations of objects in virtual spaces.More galleries than ever are bringing their art pieces to the virtual audiences, especially during the COVID-19 pandemic period, where art institutions are forced to explore alternative digital spaces. The pandemic has also made virtual galleries go viral. The new normal in the art world calls for students to be equipped to work with contemporary technologies with 3D Augmented Reality tools and within virtual space to develop new aesthetic experiences.

According to Piacente and Lord (2014) and Iaonnou (2018), setting up an exhibition or gallery is an ongoing process that welcomes open practices such as group discussions and spontaneous tutor-students interaction across different disciplines. Modeling after studio pedagogy, setting up an exhibition or gallery is also a socially active environment of experimentation and collaboration amongst students to help create immersive, engaging experiences for the virtual audience. Teamwork is not only expected; it is also an essential evaluated practice where students work together in groups to complete a range of tasks requiring expertise across different disciplines. It brings together fields of socio- psychology, organizational management, marketing, and public relations related to the interdisciplinary skillsets mentioned above. In the East Asian culture, traditional artistry and art teaching are often apprentice-based, collective, and oral driven, and this approach could be adapted for interconnectedness in relation to each person's identity.

The Virtual Art Curatorial Activity

Clear guidance and framework are needed. The virtual gallery setup activity is adapted from Lu (2011) 's concept of the Integrated teaching model for 3D Virtual Reality. Unlike Lu's model, the tasks for this project involved defined tasks that take place in a real-world situation based on authentic cases. These cases are gathered from the world of Art and Exhibits. Within this activity, students are expected to work in a team to curate and design their projects presented in an exhibit, beginning with research and finishing using a virtual art design online platform. Students have the option of selecting different

artifacts (2D or 3D) for display. Incorporating Piacente and Lord's (2014) concepts to setting up exhibit involves the five steps: Theme development, design, installation, publicity, and event/assessment. These are elaborated further below.

Theme Development

In this first phase, identifying a theme is crucial as it serves as a conceptual basis for the exhibition. The theme could revolve around how COVID-19 has impacted lives at home and in countries worldwide, or it could revolve around a comparison of pre and post-COVID-19 experiences encountered by students. This involves students working in a team to study the theme and study the narrative surrounding the themes. They need to identify the targeted audience, capture the narration and imaginaries. Imaginary art pieces are created and chosen with the targeted visitors in mind. To guide thinking, the following broad format taken from the curatorial framework could be used: Issue-oriented, descriptive, metaphoric, didactic, emotive, or even honorific. Using a narrative that exemplifies the body of art that is presented, students decide on the story which best fits the virtual art exhibits and experience. Organizational skills are required to catalog and organize the collections of artwork and thematic ideas for display. During this phase, students would draft out detailed plans and timetables, which would guide them through the rest of the exhibition process. This phase involves planning skills and market analysis skills, and the ability to narrate.

Design Planning and Installation

With the targeted market in mind, students need to have the ability to create the concepts likely to appeal to the targeted profile and fit into the theme. The knowledge of the audience's profile, such as age level and profile, or even interests and aesthetic leanings, will enable students to decide on the artifacts (or art pieces) for display, and this calls for visual and spatial sensitivity. Curatorial skillsets kick in as students need to decide why, how, and where the art pieces should be placed. This requires much deliberate thought and discussion. Identifying, creating, and interpreting space structures for art and the placement of art pieces for display is another level of architectural skillset which students will also learn.

Navigating the 3D virtual spaces required the ability to work with virtual or augmented reality tools. Strategic thinking and the planning process play a critical role. Points to consider include how the objects should be displayed to tell the story and which art piece would make a strong opening statement. Students need to creatively map out the virtual spaces for display. The directional flow of visitors becomes important. He or she needs to consider if they wish to have guests mix and mingle around in the virtual space or whether there should be a virtual space for fostering dialogue with artists and participants.

In designing the installation, students need to consider if they wish to make connections between contrasting works to have visitors ponder more deeply to resolve the tension posed by the different visual pieces. In contrast, placement of collections could be arranged according to similar overall formal designs found (e.g., rhythms, balance, or color harmony). The students could also decide on a linear design without any connections made between pieces. However, such a design offers little incentive for visitors to make visual or cognitive connections to visitors. For each decision made, students need to rationalize and justify their choices.

Throughout the process, there is active experimentation and testing out how different combinations of pieces combined could result in the perfect exhibit for the audience. This requires both creative thought processes and visual sensibility. The tutor will act as facilitators to guide the thinking and to introduce vocabulary terms related to the art gallery and curatorial practice (UMD, 2020) and ethical design guidelines (Andreyev, 2016 and Gazi, 2014). The installation of the art pieces gets more varied with increased experimentation with the different genres or a variety of media or subjects given. The process is dynamic, which requires students to test how different combinations of pieces work together to hone in on the perfect exhibition for a targeted audience through manipulating the art objects in the virtual spaces. This required the negotiation of ideas and constant communication amongst team members.

Guided Tour

A guided tour pieces together a good story. It narrates the exhibition/gallery story in a way that connects the audience to the artwork. The virtual space and the highlights of the visual pieces will determine how the guided tour should proceed. In the authors' experiences, a sequential flow and design are needed, leading visitors

through the exhibits in a pre-determined order, from the beginning till the end. The artworks, therefore, need to connect to one another, along with supporting text information. Sequential design unfolds progressively, allowing each work to build upon preceding work ones and informing the work that follows it. For the students, the thinking process involves going through the various stages of development in installation and in various iterations, culminating in the final art piece.

Publicity

Usually, at the beginning, as soon as the theme of the event is confirmed, the student publicist pursues a two-fold mission. This includes whetting the public's appetite for the coming virtual exhibition. Through creative write-ups in reviews, publicity catalogs, and social media platforms, the student publicist attempts to draw the attention of the targeted audience. Networks are crucial in reaching out to different publicity platforms. As with marketing, publicity entails a wide range and variety of skill sets, most of which involve communicating with different agencies and creative writing units.

Event Assessment

According to Piacente and Lord (2014), this phase is the crux of the exhibition. The success of the event is dependent on the visitors' feedback and response to the gallery. Within the virtual space, this feedback is done through the online forum or chat groups. The feedback could also be found in the feedback or survey platform ending the guided exhibit. It could also be done through online poll pop-ups. There are varying means of achieving feedback for improvement and gathering comments for publicity purposes. The students need to decide which avenue to pursue and the degree to which visitors are persuaded into providing feedback.

As shown above, the outcomes of the virtual art exhibition program are cemented through the following interdisciplinary mechanisms, such as teamwork and collaboration, publicity, network, and logistic. Time management is essential to keep track and adhere to timelines for the completion of tasks. Throughout a sequence of virtual studio works, students collaborate in teams to solve a problem. Communication skills are important. Taking on problems requires students to learn how to communicate concerns, to take on other people's perspectives and views.

Leveraging on Different Virtual Gallery Platforms for teaching and learning

Interesting applications have been developed in recent years, bridging arts and 3D virtual worlds (Kim et al., 2007). Research has highlighted the positive effects that emanate from the use of 3D virtual worlds in the development of thinking processes related to art planning, learning, and assessment (Taylor, 2014). In pressured teaching environments, online platforms, such as Arts Steps, Artland, Roomful, 3-D Art Gallery 2, offer ready-made and immediate solutions for the student.

Virtual art spaces serve their purpose well. According to Julian and Crooks (2011,), the platform also creates "a sense of presence as well as offering opportunities to display art, to share aesthetic experience, to collaborate with others, and to connect over geographic distance" (p.5). Within the field of curatorial work, the exploration of space is essential. The virtual space allows one to experiment with space and experiment with the arrangement of artifacts without the fear of damaging artwork.

Added to this advantage is that 3-D augmented reality technology has now enabled artworks to be scaled to their actual size in proportion to other pieces of works and furniture found in the virtual space. The textures of the pieces can be made as photorealistic as possible. This allows the artworks to be presented as it appears in reality when they are zoomed in (Rahn and Kjaergaard, 2014).

Each piece can be accompanied by the information of the artwork, including its dimension, the author, the style of the artwork (e.g., oils, acrylic on canvas), as well as the write-up of the artwork. Introductory statements to the gallery could be made pasted onto the walls of the exhibit. Guiding the gallery walk is a combined walk tour that could be created. The "curator" could position each guiding point where commentaries on the artwork can be created.

Viewers could take their time to virtually move around the gallery, move back and forth between the artworks to gaze and compare the different art pieces. Within the virtual space, they could also share their thoughts and work with others. Thus, though geographically distant, the different visitors occupy the same virtual room and examine the same art at the same time (Julian and Crooks, 2011). The added layer to this platform presentation includes text comments by guests or visits to the gallery generated over time from student groups across different disciplines and other visitors. The

engagement could bring about rich discussions of the exhibits, along with interactive exchanges and feedback for the student curator.

Through the multidisciplinary learning approach, students are not only able to make connections between concepts across different disciplines; they are able to utilize the knowledge acquired and applied in one discipline to another as a way to enhance and deepen the learning experience. Other than surface learning, where students acquire the technical skillsets, deep structure learning also occurs through the constant negotiation/ confrontation of exhibition ideas and through the production of virtual space design ideas and artifacts and continuous feedback from their instructors or appraisals from the team panel.

Learning Opportunities from Art Gallery Project

Worldwide, internet use is achieving phenomena growth rates, 4.66 billion active internet users as of January. Southeast Asia represents a growing region with high internet penetration rates (Statistica, 2021). Universities in Southeast Asia have fast been adopting immersive technologies but have yet to fully capitalize on ways in which 3D Virtual Reality could be used effectively. According to a report by Technology in Asia, Asia is predicted to lead the augmented and virtual reality markets by 2020, which are estimated to be worth $120 billion by 2020.

According to Van Laar et al. (2019), the creative industries worldwide are at the forefront of applying new technologies, which are described as state of the art. This gives rise to exciting possibilities of ICTs use within the field of the Arts for interdisciplinary teaching. The identified 21st-century digital skills are technical, information, communication, collaboration, creativity, critical thinking, and problem-solving (Van Laar et al., 2017, 2019), as expressed through the above virtual art project activity. Through the process, students will learn to manage self-goals and adapt to a different environment, issues and problems encountered. They also learn to embrace differences, respect diverse perspectives and opinions from others of different races and cultures working in the same team in Singapore's multicultural settings. These are contextual skillsets mentioned at the beginning of the paper.

The virtual gallery multidisciplinary approach provides opportunities to develop creative skillsets. It is useful for students seeking a creative visual art career. It could also be a start to immersive

virtual training for other students wishing to venture further into the multidisciplinary work with visual and service design elements.

Students could assume a variety of roles that they otherwise not have the opportunity to do so. The activity can also be a strong introduction to a career within the Arts field. For non-artists, the opportunity to experiment in media, art can open a new help to determine their interests and move into an industry that requires multidisciplinary thinking. Students could also cultivate their talents in what will be the best and most rewarding field for them. To us, learning through virtual space is not considered just a cognitive process. It is also a product of socio-cultural interactions amongst different students. Through the exploration and interaction with a wealth of visual and contemporary ideas, students have the opportunity to build new cognitive schemas based on their previous experiences and perceptions (Mikropoulos, 2006). The virtual art platform could also potentially be a platform for virtual galleria projects created by the multidisciplinary community at University, further enhancing their learning experiences at the University.

Reflections on the Project

Our own personal observations are that setting up a multidisciplinary learning approach involving virtual learning could be challenging. It involves much time and effort in planning, executing and co-ordination with different parties across different schools. Tasks, activities also tend to be more complex, and this requires careful planning and collaborations between disciplines. Planning also has to be very tight, with stringent deadlines given at each stage of the project. The virtual learning dimensions could also entail further virtual training so that students are able to use the virtual platform. Given that the process involves diverse learners from different fields and backgrounds, considerations have to be given to support the diverse learners' needs, so as to negotiate the different disciplinary meanings and practices. The benefit of the process for students, however, is the valuable opportunity to gather cross-disciplinary experiences and the acquisition of disciplinary thinking outside of their own fields.

Broader Implications

We believe the proposed approach has curricular implications for international higher education sectors. The use of virtual learning need not to be expensive affair as the current virtual platform has low

barrier entry, and it does not require heavy investment in technological development and set ups. What is crucial is how we plan the activities around a project to offer possibilities of multidisciplinary opportunities for collaboration and learning. In addressing COVID-19 challenges, the virtual learning approach within a multidisciplinary setting holds much promise for educational administrators and policy makers in that it reduces the need for physical meet ups whilst ensuring safety amongst students and delivery of lessons in the most efficient manner.

Conclusion

This paper introduces a virtual art gallery pedagogy as a means to introduce interdisciplinary skillsets to students. It has provided some guidelines pertaining to how the virtual gallery platform could be used for interdisciplinary teaching. Situated within the worldwide trend of Universities needing to future-proof students with interdisciplinary skillsets and the rise of virtual reality use in Asia, the use of virtual art platforms will go a long way towards serving the needs of students at Universities as it continually evolves in enhancing tools for professional work. With the virtual world fast becoming a reality, there is a greater need to leverage immersive technology for multidisciplinary practice within the curriculum and teaching. The project-based virtual art gallery approach is one of them.

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Challenges of Virtual Learning Environment in Mathematics in the Context of Nepal

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Abstract
The aim of this study was to identify the challenges faced by the learners in virtual learning in mathematics. A qualitative case study was conducted in Mid-western University, Nepal. Altogether ten participants from different districts of Karnali Province were chosen purposively. In-depth interviews and focus group discussions were the tools of data collection. Collected data were transcribed, coded and categorized to develop themes. The method of data analysis is thematic with quotations and block quotes. The study revealed that virtual learning is an opportunity in higher education for job holders and married women as well as others who could not join face to face classes, although it has many challenges. The finding indicates that the learners have faced pedagogical challenges, technological challenges, challenges of time management, environmental challenges and psychological challenges.

Key words: virtual learning environment, mathematics learning, challenges, technology, Nepalese context

Virtual learning environment (VLE) is a technology-based learning environment via internet. Different softwares and technological devices are necessary to conduct virtual learning. It is an alternative way of formal education as well as non-formal education. Dillenbourg (2000) highlights VLE as a social space that

integrates different technologies and multiple teaching approaches. Similarly, Siemens (2004) suggested that the virtual learning situation occurs through network connection as individuals share their interests, knowledge, perspectives, expertise, and opinions through synchronous and asynchronous learning strategies. Likewise, Joseph and Ekemini (2014) stated that the Virtual Learning Environment (VLE) is human-directed with the machine processing process, enabling learners to participate from a distance in both synchronous and asynchronous modes.

After the1960's, computers had come into practice in different areas and with the rapid development of technology, e-learning has come into the practice since the past two decades (Pappas, 2015). At the beginning of 21st century, technology is rapidly changing and different organizations and learning institutions have started a blended learning approach. According to Pappas (2015), developed countries in the world had practiced ICT integrated approach in learning from the beginning of 2000. After the worldwide terror of Coronavirus (Covid-19), most of the developing countries started online mode of learning from school to university level. Mostly, distance learning through radio and television, online learning via the internet and virtual classes through different software like Zoom, Google meet, Skype and Team has come into practice at the university level as well as school level in Nepal.

In the context of Nepal, Ministry of Education (MoE) launched the Radio education teacher training project in 1978 as the first distance education program. According to Dahal (2014), audio broadcasting started in 1980, which focused on enhancing the professional capabilities of in-service primary teachers with qualifications under the School Education Examination (SEE). Distance Education Centre (DEC) was established under MoE in 1994. The center conducted teacher training and education awareness programs through radio broadcasting (Dahal, 2014). Also, Pangeni (2016) mentions that limited flexibility of higher studies is being expanded by Tribhuvan University and Kathmandu University through open and distance learning. After the establishment of Nepal Open University (NOU) in 2017, postgraduate level has been flexible and accessible in a different discipline through virtual mode.

After the pandemic of Covid-19, more schools and Universities have started a virtual environment in Nepal. Starting virtual mode at the school level is not an easy job, but there is an option to engage the

learners for a long pandemic period. The government of Nepal has started the classes at the school level through Radio and television also. The Government has also requested the stakeholders to conduct virtual mode as the alternative way of teaching at the future school level. In the pandemic period, most school and university level teachers are busy preparing online classes in different subjects

Rationale of the Study

This study aims to identify the challenges that the learners have faced in virtual learning in mathematics in higher education in the context of Nepal. The virtual learning situation in Mathematics is a new and relevant issue in Nepal. Addressing the challenges related to virtual learning will help to mitigate potential threats in the learning process. This study will help the concerned students, teachers, program coordinators, curriculum designers, and all the people interested in e-learning. From my perspective, this study will be beneficial to all university authorities and concerned people in the virtual learning environment.

Purpose of the Study

The main purpose of this study is to explore the challenges faced by the learners regarding the virtual learning environment in Mathematics.

Research Question

1. What are the learners' experiences of learning Mathematics virtually along with the challenges they face?

Delimitations of the Study

This study is limited to the learners' challenges towards the virtual mode of learning mathematics in Mid-western University. As a case study with limited time and resources, I have taken small sample size using purposive sampling strategy. The findings of this study may not be generalized in the programs of other universities as well as the other subjects. I could not conduct an extensive sample survey to identify perception and challenges in a broad area. In my perspective, this study is limited in the experiences of the learners in the case of virtual learning environment in Mathematics.

Literature Review

I have reviewed the theoretical literature as well as empirical studies regarding the virtual mode of learning Mathematics throughout this section.

Theoretical Review

Different theories have been developed regarding online learning. Among them, I have selected connectivism; the theory of George Siemen as the theoretical base of my study. According to Siemens (2004), "Connectivism is the theory of the digital age (p. 3)." Connectivism advocates that learning occurs through network connection as individuals share their interests, knowledge, perspectives, expertise, and opinion in the online or virtual environment. Siemen (2004) also focuses that learning depends on the diversity of opinions and learning is the process of connecting a unique source of information to develop a new concept. Connectivism accepts that learning might be through non-human tools and the capacity of knowing new is more critical. Therefore, I have taken connectivism as the theoretical foundation of my study.

Empirical literatures

The main challenges of online Mathematics learning are the availability of network, lack of contact with teachers and peers, lack of easily manipulative mathematical objects, lack of skill on ICT, lack of proper designing of modules and the lack of administrative support (Gadanidis et al., 2002). Likewise, Durmus (2006) mentions that computer manipulative (virtual manipulative) play an important role to make virtual mode of teaching-learning mathematics more effective. He also emphasizes that virtual manipulation makes the learners more active and engaged. The main challenges that the learners perceived in the virtual mode of learning mathematics were accessibility, availability and the students' ICT skill. Also the institutions and the instructors need to identify the perceived challenges and opportunities of e-learning and provide practical support (Joseph& Ekemini, 2014). Also, the internet connectivity, personal computing devices and the teachers' efficiency impacts on virtual learning (Dhakal & Sharma, 2016). Similarly, Gunga (2010) reviewed the challenges of implementing e-learning in Mathematics, Science and Technology Education in African schools. The study indicated that understanding mathematical and scientific concepts is a

challenge in ordinary/traditional pedagogy. It would require a renewed revolutionary approach to implement effective e-learning strategies for math and science in African nations.

In the context of Nepal, Heyjoo et al. (2020) examined the effectiveness of online classes in Nepal in the pandemic period of Covid-19. The authors used a close-ended questionnaire for 23 participants who were engaging in online classes at the university level. The study indicated that the learners used expensive data packs for online classes due to limited availability of technological infrastructures in academic institutions as well as in their homes. Also the researchers suggested that the respective institutions should support the low cost data pack and sufficient training for the teachers to make online classes more effective in Nepalese context. Geographical diversity, technological infrastructure, lack of awareness and attitude, economic condition, lack of readiness and the trained facilitators are the challenges of e-learning in mathematics (Dahal & Dahal, 2015). Similarly, Kunwar et al. (2020) argue that most of the higher education institutions do not have enough preparation for the support to online pedagogy, online resources, digital library, learning requirements and the competencies in present context. Due to the teacher-centered curriculum and traditional lecture method for school to university level, learners remain as passive recipients of knowledge, however, the challenges can be overcome by the combined efforts of the stakeholders (Kunwar et al., 2020). Likewise, e-learning is the most desired, effective and cheaply available tool for the learners because they can acquire more information from the internet. The learners of rural areas were still facing the problem of infrastructures and the internet. However, there is a rapid growing trend of e-learning in higher education in Nepal (Shakya, Sharma, & Thapa, 2018).

Methodology

I have mentioned the philosophical perspectives, research design, population, participants, tools, procedure of data collection and data analysis and interpretation throughout this section. All the terms are described as follows:

Philosophical Perspective

In this study, knowledge is based on subjective perspectives as it is generated through the students' perspectives who are taking a

graduate mathematics course through the virtual learning environment. My epistemological position in this study is accepting multiple realities obtained from the participants' different perspectives. In this study, the reality comes from the emic perspective. I have followed local realities from multiple perspectives of learners. This study accepts subjective reality as it differs according to the different perspectives of the participants. That is real for them what they felt and shared. I believed that every participant in my research has his/her own perceptions, assumptions, feelings, and experiences. Thus, the reality is based on their lived experiences and is not single. I have given equal value to their different feelings and perceptions. I have respected all the views equally because they were equally important to me to complete the study. I did not show the value of my feelings/experiences during the interview and focus group discussion because I had no objective value.

Research Design

I have used case study design in my research because it includes only the virtual learning environment in Mathematics education of Mid-western University. I have conducted this study in a small sample as well as a small group of the population. The findings of this study may not be generalized in other programs and the virtual environment of other universities as well. So, it has been a case of one of the universities of Nepal.

Population and the Participants

The study population were the students doing graduation in Mathematics education in mid-western university, Nepal. There were altogether thirty students in the second batch of graduate level. As a teacher of the population group, I was known to all the population units individually. I also had the contact number, permanent address and email address of each individual. I selected ten participants using a purposive sampling technique from the ten different districts of Karnali province. I had to collect the challenges of the participants on virtual learning. I thought that experiences and the challenges might be affected by geographical area and gender. So, at first, I made a list of the population with their hometown and gender. Among them, I found that some of the study units were from the same geographical area. Therefore, I selected ten participants (eight male and two female) as the representative participants of my study. I have used the

different symbols A, B, C, D, E, F, G, H, I and J to represent the ten participants and requested them to manage time for an in-depth interview and focus group discussions.

Data Collection Tools

As per the purpose of my study, I used an in-depth interview and focus group discussion (FGD) as the data collection tools. I had constructed an interview guideline for the in-depth interview and FGD guideline for conducting focus group discussion. An in-depth interview was conducted through phone, messenger and video call with the participants from different geographical areas. Since I was in contact with all the participants through phone, Facebook, messenger group and email, I did not feel any difficulty while conducting in-depth interviews. I could not conduct face to face FGD due to the lockdown period of data collection and also the participants were in their home town. So, FGD was conducted through online mode using zoom.

Methods of Data Analysis and Interpretation

Analyzing results for a case study tends to be more opinion based than statistical methods. I used in-depth interviews and focus group discussions as the tools of my data collection. I conducted an in-depth interview through direct call and video call using mobile. Similarly, I conducted FGD through online mode using Zoom.

In the in-depth interview, I recorded the call by taking permission of the participants for analysis purposes. I had also noted the important points in my diary in the process of conversation. I listened to the call recordings many times and transcribed the audio recordings to note the required information. The interview was conducted in the Nepali language. After listening to the call recordings many times, I translated the required information in the English language without changing the meaning. After listening to the audios several times carefully, I explored the emerging themes.

In the case of focus group discussions, I recorded the zoom discussions on my personal computer with the participants' permission. After completing the discussions, I watched the video several times to note the required points. Most of the discussions were in the Nepali language but the main points were in English. So, it did not take more time to transcribe data from an interview. Data collected by two different sources were triangulated, coded and

categorized to develop the themes. I tried to identify the differences and similarities within the data between two different sources.

Data Analysis and Interpretation

According to the view of the participants in in-depth interviews and focus group discussions, I have classified the challenges of virtual learning in mathematics as pedagogical challenges, technological challenges, psychological challenges, time management challenges, environmental challenges and the content-based challenges. I have described the different challenges of virtual learning in mathematics expressed by the participants in the following way:

Pedagogical Challenges

Different study reports and the experiences show that virtual mode of learning is useful in higher education than at the school level. Participant 'A' explained that:

> We are habitual in face-to-face learning and our course facilitators also are habitual in the same learning culture. Virtual learning needs extra knowledge and skill on ICT, but we and our facilitators are in the beginning stage of ICT. So it has created conflict in our teaching-learning culture. The nature of the course in virtual mode should be practical rather than theoretical. And it has been a challenge to the learners.

He further explained that the curriculum should be flexible and should be offered instead of traditional theoretical courses and the learning environment should also be collaborative. When I raised the issue of pedagogical challenge in FGD, participant 'B' said "There is a lack of harmony in curriculum designing and implementation." The participants' experiences reflect the need for newness in curriculum designing, collaborative approach in learning, group work, harmony in curriculum designing and implementation, practical work in research, flexibility and applied curriculum to make virtual learning more effective.

Technological Challenges

Technological challenge has been the main challenge of virtual learning in Nepalese context. Participant 'C' said,

"Irregular electricity supply and inconsistent internet connectivity is

the main problem of virtual learning." In supporting this challenge, another participant 'D' argued that–

> The main challenge of virtual learning is slow and irregular internet facilities in the context of Nepal. Irregular electricity is the main problem in remote areas. Alternative resources like solar, inverter, data pack are not easily available and also expensive. Slow connection causes the break in sound and slide share. The slow internet connection disturbs audio and PowerPoint presentations. Irregular electricity supply, inconsistent internet connectivity, and the web portal's slow speed were the main challenges that I faced in virtual learning.

From the participants' real experiences as mentioned above and in my own experience, the technological problem is the main problem faced by the learners in a virtual class. Due to the irregular electricity and unstable internet connection, learners have faced many problems in joining virtual programs, submitting assignments on time, and completing all the assigned activities. Lack of sufficient knowledge on ICT and irregular electricity has been the greatest challenge of virtual classes in the Nepalese context.

Environmental Challenges

In the process of the interview, participant 'E' said "Background noise disturbs the virtual class. Sometimes we cannot control it and need to leave the class." Other participants also shared their experiences on background noise and disturbance. Participant 'F' expressed the feeling about the environmental challenge as "Secret rooms and a peaceful environment are compulsory for a virtual class. In the time of family members gathered together at home, managing a peaceful home environment is a great challenge for all; especially for women." The common view of participants in FGD was that learning from home/room is not disciplined as face to face learning. It is so difficult to control the mind and concentrate on learning in an informal situation. Video sharing is not necessary for the virtual class. Generally, instructors mute all the learners in presentation and learners raise a hand if they want to say anything. Learners can leave class after joining and do other work if they think the presentation is not important.

Psychological Challenges

According to the common view of the participants in FGD, there is a lack of students' motivation in virtual class. Student motivation can only truly happen intrinsically, creating the right online environment where students want to learn and feel successful. The instructor's main responsibility is to motivate the learners and make them confident of success. There is a lack of teacher presence, face-to-face interaction, and teaching support. The most common psychological challenge of an online instructional environment is to sustain enough learner interest or support intrinsic motivation. On the other hand, learners who are new to an online learning environment typically lack the level of awareness, time management skills, and self-directed learning needed to be successful. Participant 'G' shared his view as

> The primary role falls on the teacher to anticipate and prevent motivational challenges unique to e-learning. One way this can be done is by increasing face to face interactions through a variety of technological modes. Learners often have anxiety about learning online and need to feel connected, reassured, and safe to contribute in their new learning environments. E-learning environments often lack various communication options, creating an unwelcome online learning atmosphere that only the instructor can control. To help students in anxiety, instructors should provide various alternative ways of interacting and communicating through such applications like chat forums, or discussion boards.

In support, some other participants emphasized that virtual learning makes the learners isolated than in face to face learning. It affects social behavior and face to face interaction on social issues. Face to face interactions with friends helps the learners to learn concepts and behaviors. It also helps to develop social adjustments. Learners cannot get such opportunities in virtual learning. From learners' experiences and the researcher's own experience, virtual learning increases isolation and affects the ability to participate in social activities.

These opinions indicate the lack of student motivation and social interaction in virtual learning. The common view was that the facilitator should help the learners individually in their problems and make them confident that they can do so. Different methods of interaction should be applied to increase interpersonal communication.

Challenge of Time Management

One of the participant shared his experience regarding the time management in higher education as "workload is necessary and compulsion to earn for the family but it created difficulty in time management in learning. It is not easy to continue higher education for job holders and guardians of children."

From the participants' real experiences, I concluded that time management is one of the great challenges of jobholders in virtual learning. In my own experience and the participants' viewpoints, most of the mathematics teachers who have completed undergraduate level take classes from morning to evening in different schools and tuition centers also. Due to the large number of classes of different levels they become tired in the evening.

Content-based Challenges

Virtual class on mathematics is different from other theoretical subjects. The numerical solution, drawing chart, table, pictures and long steps of solutions with complex symbols are not easy to type. When I asked about the challenges of mathematical content in the virtual process, participant 'J' stated

> I felt more difficulty in the solution of Numerical problems. Instructors also can not present all the steps of long numerical problems in the slide. Learners could not show the teachers to address the mistake and correct it immediately. It is not an easy job to type all numerical steps in a short time and show the teachers. Sometimes the learners solve a on [notebook] and send an image to the teachers. The images of the solution may or may not be clear and the teachers find it difficult to check out images and identify mistakes. A long numerical problem may have more images and if the series of images could not be managed, the solution becomes zigzag. This process is difficult in the virtual class of Mathematics.

In the process of FGD, all the participants shared their different experiences on the solution of the numerical problem through virtual mode. Participant B stated

> Some of the problems of mathematics are pictorial, graphical and need the table. Creating graphs, pictures, and tables takes more time. It is difficult to show in powerpoint because power point breaks the long tables, pictures and figures that create difficulty in understanding.

He further explained that long steps of numerical problems with complex operators and symbols are difficult to type and make slides. So the learners should do in [notebook] and it is difficult to show teachers immediately. Other participants also supported him and said that instructors expect an e-copy of the solution rather than images of handwriting because the handwriting image may not be clear and may not be in chronology. It is the problem of virtual classes in mathematics.

Findings and the Discussion

This study examined the challenges faced by the learners in virtual mode of mathematics learning. The challenges expressed by the learners are classified into six major themes as pedagogical challenges, technological challenges, psychological challenges, the challenge of time management, environmental challenges and the content - based challenges. In the discussion of the pedagogical challenge, most participants said that the curriculum of virtual learning should be different from the traditional curriculum. The practice-based and applied curriculum should be designed to implement virtual learning. They shared their feelings about the need for newness in curriculum designing, collaborative approach in learning, group work, harmony in curriculum designing and implementation, practical work in research, flexibility and applied curriculum. Bringula et al. (2021) also identified the challenges faced by the learners in mathematics online learning as intermittent internet connection, power interruption, learners personal challenges, domestic challenges, pedagogical challenges, assessment challenges, consultation and anxiety. They said "technological challenges are the most pressing concern in online learning" (p.13). Likewise, Irfan et al. (2020) pointed out that lack of proper knowledge and skill in online platforms, availability and accessibility of mathematical software and the limitations of writing mathematical symbols are the main challenges of mathematics learning through online mode.

The content-based challenge was another challenge of mathematics learners. All the participants interviewed and participated in FGD told that virtual classes on pure mathematical contents and long numerical problems are more challenging than theoretical classes. According to them, slide shows in numerical problems are not effective as direct solutions. Most of the learners want to solve the numerical problems with teachers together but it is

not possible in virtual class. They said that submission of assignment on numerical content is more difficult than theoretical because it takes more time to type. Image of handwriting may or may not be clear. So the learners had shared different problems on mathematical contents through virtual mode. In an investigation of learners' experiences of online mathematics learning in Zambia, Mukuka et al. (2021) reported that more than 56% of the respondents do not have sufficient access to ICT and internet service. They also focus that most of the learners take mathematics as a subject that is best learned with face to face interaction between teachers and the students. The attitude of learners towards mathematics impacts learning mathematics through online mode. Similarly, Kunwar et al. (2020) argue that most of the higher education institutions in Nepal do not have enough preparation for the support to online pedagogy, online resources, digital library, learning requirements and the competencies in present context. However the challenges can be overcome by combined efforts of the stakeholders.

Conclusion

The main purpose of the study was to find the learners' difficulties or challenges of the virtual learning environment in Mathematics. A qualitative case study based on interpretive research design was conducted. In-depth interviews and focus group discussions were used as the tools of data collection. The experiences of the participants were discussed and interpreted on the basis of thematic analysis. The study revealed the learners' experiences as a shift to the new learning models which can be accessible and affordable from the remote. The virtual learning environment has been observed as the paradigm shift to uncover contemporary thoughts with the response to technological immersion and the maintenance of soft skills in teaching-learning context in Nepal. The study revealed the challenges in the implementation phase of the virtual learning environment in mathematics in higher education. The challenges associated with virtual learning were; psychological, pedagogical, technological, physical, lack of sufficient knowledge on ICT and other socio-cultural factors. Similarly, challenges were also associated with the learners and the situation they had in terms of installing cyberspace for virtual learning. On the other hand, time management for assignments and recommended presentations and project works were also challenging for the job holders and those who remain busy in household works. As per the nature of the subject

matter of the Mathematics symbols, operators and the procedures were considered as the challenges. In my perspective, this study would be equally beneficial to the policy makers, curriculum designers, university authorities, teachers, and students and all of the stakeholders for the need to be conscious and responsible for minimizing the challenges of virtual learning in Mathematics for its effective implementation.

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The Benefits of Sectoral Accreditation and Reflections for Educational Organizations

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Abstract
Accreditation is an instrument of academic quality, transparency, efficiency and accountability at every step of educational systems. However, usually very few benefits of accreditation are listed when talking about educational context. The purpose of this study is to emphasize the benefits that accreditation processes in such sectors as health, management and business provide and adapt them to the context of educational organizations since these sectors have a longer historical background in quality assurance concerns and are more experienced than education. A sampling frame was established and the benefits of accreditation processes stressed in some articles, a guide book and a book from management, business and health sectors were investigated. Inductive document analysis was used and several themes and sub themes have emerged. Findings showed benefits for service recipients (clients/costumers), benefits for personnel, organizational benefits, inter-organizational benefits, benefits for the field/discipline, national and international benefits. They show that great effort should be put by all higher education institutions towards establishing notably reliable, acceptable and quality educational practices and outcomes by attaining accreditation.

Keywords: Quality assurance, standards, efficiency, higher education, accreditation

Quality has always been a primary concern and one of the most important factors for any individual and any kind of organization's success and survival. Therefore, firms, companies, institutions and educational organizations provide high quality service for their service recipients and satisfy their needs for long-term sustainability. It is such a common word that there are several collocations used with "quality"; for example top quality, maintain quality, quality measurement, build quality, and of course quality assurance and quality standards. Regardless of organizational size; every institution seeks to improve its quality standards. In order to assess concerns and to figure out to what extent high quality standards are achieved, "Accreditation" is one of the precious tools to be utilized as it facilitates quality education and improves services and transparency (Kumar et al., 2020).

Accreditation is outlined as formal and independent verification that a program or institution meets established quality standards with the capacity to carry out specific conformity assessment tasks (IAS, 2019). Turkish Accreditation Agency (2019) defines accreditation as a quality infrastructure tool supporting the credibility and value of the work implemented by conformity assessment bodies and thus of the corresponding attestations issued by them. Widespread demand for extensively reliable, quality and safe products and services makes accreditation a necessity since it is accepted as one of the best ways to prove highest level of service and good value. Accreditation is especially fundamental if one is doing work that directly has an important impact on public safety and service due to rising pressures to improve the value of services and strengthen the viability (Mays, 2004). As Buetow and Wellingham (2003) state, by means of accreditation, the quality of the services and organizational quality are improved. What is more, Giraud (2001) claims that accreditation leads to greater transparency and accountability to ensure public confidence in health care systems. As a result, organizations that are responsible for public safety and welfare such as building units, certification agencies, hospitals, laboratories, universities, and police and fire departments and higher

education institutions seek accreditation to demonstrate their competence and reliability.

Higher education plays a vital role in supporting social cohesion, financial growth and international competitiveness. Concerns relating the quality of higher education is not new and they have been intensified in the last two decades because of several factors such as: the increasing trend of internationalization and globalization, the increasing number of courses and student enrolments, growing number of institutions, the expansion of distance and e-learning education, the emergence of a multicultural workplace environment (Patil & Codner, 2007). Thus, governments around the world have raised new questions concerning the quality and relevance of their systems of higher education. This new questioning, and a general shift towards more formal systems of quality assurance, can be seen as a response to the increased size, complexity and diversity of the higher education sector (UNESCO, 2001). Quality assurance should ensure a learning environment in which the content of programmes, learning opportunities and facilities are fit for the main purpose. Without adherence to the quality assurance systems, it is impossible for any institution to know how well it is performing (Beckford, 2002). However, as Aebischer (2018) states, quality is not just a question of defining processes and should not be reduced to a "tick the box" approach. It has to be defined in accordance with the university's ambition, vision and culture.

At the core of every quality assurance activity are the twin purposes of accountability and enhancement. Taken together, they create trust in the higher education institution's performance. A successfully carried out quality assurance system will provide information to assure the higher education institution and the public of the quality of the higher education institution's activities (accountability) as well as provide advice and recommendations on how it might improve what it is doing (enhancement). Quality assurance and quality enhancement are thus closely related. They can support the development of a quality culture that is accepted by a wide variety of stakeholders, including: students, academic staff, institutional leadership, and management.

In Europe, the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) were accepted by the Ministers who are responsible for higher education in 2005 following a proposal proposed by the European Association for

Quality Assurance in Higher Education (ENQA) in cooperation with the European Students' Union (ESU), the European Association of Institutions in Higher Education (EURASHE) and the European University Association (EUA). Since 2005, substantial progress has been made in quality assurance and in other Bologna action lines such as qualifications frameworks, recognition and the promotion of the use of learning outcomes, all contributing to a paradigm shift towards student-centered learning and teaching (ESG, 2015). A key goal of the Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) is to contribute to the common understanding of quality assurance for learning and teaching across borders and among all stakeholders. They have played and will keep playing a significant role in the development of national and institutional quality assurance systems across the European Higher Education Area (EHEA) and cross-border cooperation. Engagement with processes of quality assurance, specifically the external ones, allow higher education institutions to demonstrate quality and gives transparency, thus helping to build mutual trust and better recognition of their qualifications and programmes.

As a robust quality assurance tool, the process of accreditation has evolved in time and universities, colleges have continued to accept it as a legitimate mechanism and tool for providing such assurances to the public about the quality of higher education. Higher education accreditation refers to the processes of evaluation and external quality assurance in which the accreditation agency assesses whether the higher education institution fulfills a set of predetermined academic or disciplinary standards in a specific field (YÖKAK, 2019). It is voluntary and promotes institutional self-evaluation, self-regulation and accountability. The role of the accrediting body is to ensure the attainment and maintenance of quality through the application of educational standards.

The purpose of this study is to determine the benefits of accreditation by searching management, business and health sectors and to figure out the contributions these benefits will make and imply for the education sector. Another aim of this study is to develop a scale in future based on the possible benefits that will be specified. The following research question has been developed to achieve these goals:

"What are the benefits of accreditation for educational organizations from the perspective of health, business and management sectors?"

In this case study, qualitative research design and document analysis were used to answer the research question above. Bowen (2009) defines document analysis as a systematic procedure for reviewing or evaluating documents-both printed and electronic (computer-based and Internet-transmitted) material- and states that documents as a part of studies take a variety of forms. There has been great interest in the use of document analysis recently and it has several advantages. Firstly, it is less time consuming and less costly when compared to many other types. Also, documents provide broad coverage; they cover a long span of time, many events, and many settings (Yin, 1994).

Maximum variety sampling technique is used in the study. The main aim of maximum variety sampling is to reflect the variety of the participants that can be partial to the problem through forming a relatively small sample (Yıldırım & Şimşek, 2000). In the study, document analysis is used to examine the following sources: a guide book prepared for chambers of commerce and commodity exchanges by a union in Turkey, a book on accreditation standards in hospitals and several articles on the accreditation of health and management sectors.

"Qualitative content analysis process" in this study consists of searching in detail for the benefits of accreditation in each of those documents mentioned above and identifying main and subthemes. The related benefits are first categorized into subthemes and these subthemes are brought together to reach larger themes which we call "main themes" in this study. Then, the list of themes and subthemes are reviewed for completeness and accuracy. The researchers involved in the project had the opportunity to perform a check of the themes, subthemes and categorization.

Findings

Benefits of accreditation derived from the health, management and business sectors for educational organizations emerged in seven main themes including "benefits for service recipients (clients/customers), benefits for personnel, organizational benefits, inter-organizational benefits, benefits for the field/discipline, national and international benefits". These themes are displayed in Figure 1

below (the circles below are empty. There are no themes. In each circle there should be the themes):

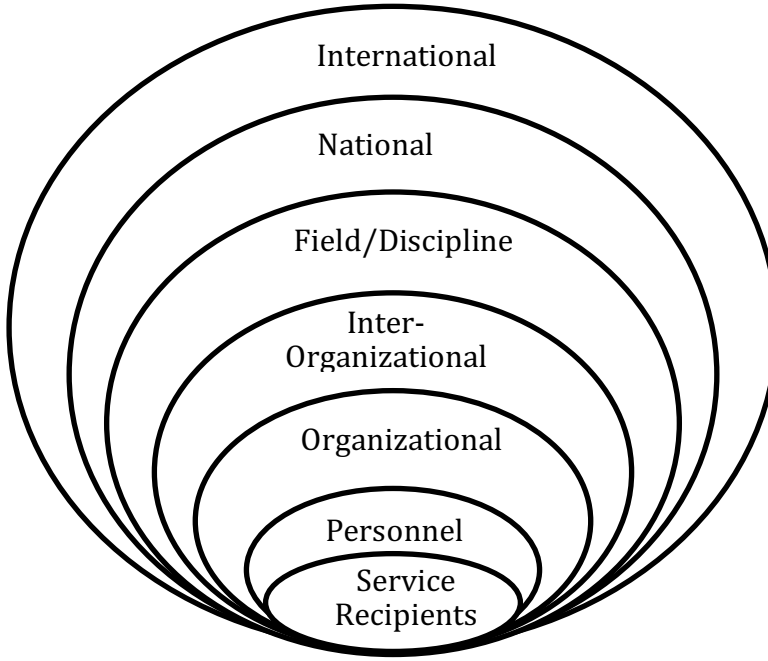

Figure 1. *Main Themes*

Table 1: *Benefits of accreditation for educational organizations*

Service Recipients	Personnel	Organizational	Inter-Organizational	Field/Discipline	National	International
Providing Quality Service Accountability Offering Options	Work Safety Economic Contribution Attitude towards work	Cooperation Accountability Process management Organizational policy development Organizational development	Preparing for the accreditation process by meeting with other institutions.	Cooperation Ethical Dimension Development of the Field Quality	Organizational Learning Organizational Image Organizational Trust	Enables being part of the international network for financial

Reliability of the Service	Continuous Professional Development	Organizational memory Organizational image Communication Productivity Quality Organizational trust Organizational vision Efficiency Economic contributions Audit Organizational success	Good relations are developed with other organizations.	opportunities, informatics, networking and personal development

Benefits for Service Recipients

Looking at some of the articles and two books explained above, it is seen that the customers and clients, in other words service recipients, are the ones who benefit a lot from accreditation processes and that they are one of those who are at the core of accreditation. Accreditation provides these service recipients with high quality service (Akyurt, 2008; APA & AAIM, 2012; Dicks & Taylor, 2005; Desai, 2016), accountability (Akyurt, 2008; Desai, 2016; APA & AAIM, 2012), different kinds of options (Akyurt, 2008; APA & AAIM, 2012) and reliability (Desai, 2016; APA & AAIM, 2012) as shown in Table 2 below.

Table 2
Benefits for Service Recipients

Providing h High Quality Service	Accountability	Offering Options	Reliability of the Service
Use of new and advanced practices Meeting the expectations	Clear address for complaints, suggestions and wishes	Information about organizations with high quality service	High quality, reliable and consistent service

Learning is strengthened	Respect and protection of rights	Helping identify quality service providers	Representing the views of objective external parties
Customer satisfaction is improved	Direct information about activities		Conforming to quality standards
Assurance of standards	Providing disciplinary process		Confidence in service providers
Attracting partners and lowering uncertainty			

The first benefit for service recipients is the chance to get quality service. Akyurt (2008) states that this can be achieved by the use of new and advanced practices. He also claims that accreditation meets the expectations of clients and customers. Also, learning can be strengthened considerably (Dicks & Taylor, 2005) and accreditation improves customer satisfaction and gives assurance that accredited institutions have complied with a common set of requirements and standards (APA & AAIM, 2012). It attracts potential exchange partners and lowers the uncertainty of transacting with the organization (Desai, 2016). The second benefit of accreditation for service recipients is accountability. According to Akyurt (2008), the address to which complaints, suggestions and wishes can be conveyed is clear. This system works effectively and is checked and recorded by the competent authorities. Also, service recipients are respected and their rights are protected. Moreover, it provides direct information about an organization's activities (Desai, 2016) and provides a disciplinary process to follow in case of complaints (APA & AAIM, 2012). Another benefit is the fact that accreditation offers students options. It helps to know which organization provides high quality service (Akyurt, 2008) and also helps in identifying quality service providers (APA & AAIM, 2012). The last benefit is the reliability of the service. Desai (2016) proposes that accreditation convinces the service recipients that the products and services are of high quality, reliable and consistent. Also, it is an appealing signal that it represents the views of potentially objective external parties rather than those of organization's own members. It also states that an organization conforms to certain quality standards or follows specific socially acceptable practices or guidelines. This therefore increases confidence

in service providers, helps to develop a quality enhancement plan focused on an issue that will make a significant impact on the quality of student learning.

Benefits for Personnel

In addition to service recipients, the ones working for an educational organization, that is personnel, benefit from the accreditation. By means of accreditation; their work safety is under control (APA & AAIM, 2012) and they are economically safe (Akyurt, 2008). Besides, accreditation affects their attitude towards work positively (Akyurt, 2008, APA & AAIM, 2012, YÖK, 1999) and helps and ensures their continuous professional development (Akyurt, 2008, APA & AAIM, 2012). These benefits are discussed below.

The first benefit is increasing safety (APA & AAIM, 2012). Unfortunately, every day people get injured or die due to occupational accidents. With the help of accreditation and the measures taken, personnel work safely and are aware of potential risks at their institutions. As a result, they become more knowledgeable about emergency situations that may occur in their universities and about the related procedures. Another benefit is financial. Sometimes teachers experience payment delays in their institutions. This situation affects their performance and belongingness negatively. As auditions are stricter with accreditation, insurance payments are made easier and regular (Akyurt, 2008) which prevents any kind of disappointments. Accreditation also has tremendous effects on attitude towards work. Employees' sense of responsibility increases and their attitude towards the organization changes (Akyurt, 2008). It increases morale (YÖK, 1999). Therefore, people work more efficiently. Furthermore, it affects the competence level of employees in a positive way and strengthens involvement of all constituents in enhancing institutional quality and effectiveness (APA & AAIM, 2012). What is more, accreditation processes require continuous development of personnel in every kind of organization. This is also true for educational ones. Therefore, their performance increases with continuous education (Akyurt, 2008). It supports the continuous professional development of employees and provides the opportunity for career advancement and/or increased earnings.

Organizational Benefits

Especially, accreditation has a lot of benefits for organizations. These relate to cooperation (Akyurt, 2008), accountability (APA & AAIM, 2012; Travers, 2002), process management (APA & AAIM, 2012; Desai, 2016), organizational policy development (Akyurt, 2008; APA & AAIM, 2012), organizational development (Travers, 2002), organizational memory and image (Akyurt, 2008; APA & AAIM, 2012; Travers, 2002; Yawn, 2004), communication (Akyurt, 2008; Davis, 2002), productivity (Akyurt, 2008; APA & AAIM, 2012; Yawn, 2004), quality (Akyurt, 2008; Dicks & Taylor, 2005; Desai, 2016; Travers, 2002; YÖK; 1999), organizational trust (Akyurt, 2008; APA & AAIM, 2012; Desai, 2016; Yawn, 2004), vision (Desai, 2016), efficiency (Desai, 2016), economic contributions (Davis, 2002; Desai, 2016) , audit and organizational success (APA & AAIM, 2012; Davis, 2002; Mills, 2005) which are detailed below.

The first benefit for educational organizations is cooperation. Akyurt (2008) claims that accreditation provides full team work and team consistency. Further cooperation is provided between administrators, specialist units, professional groups and support services during accreditation visits and meetings. They come together and learn from each other, which also results in strong organizational culture within the university. It also helps educational organizations demonstrate its accountability to all constituents (APA & AAIM, 2012) and shows that they have complied with nationally recognized standards of best practices and quality (Travers, 2002). Process management is about improving organizational performance and providing other advantages (Desai, 2016). At this point, accreditation is also useful in making employment decisions (APA & AAIM, 2012). Accreditation also provides institutions with the opportunity to examine its mission statement, goals, programs, services to determine the extent to which they reflect its mission. This way, it helps to evaluate the effectiveness of the programs, operations and services (APA & AAIM, 2012). In short, this is a kind of revision of all policies (Akyurt, 2008). Organizational operations in an organization play significant roles which contribute to success. These operations are everyday activities carried out especially by administrative staff. Accreditation improves such organizational operations (Travers, 2002). As a result coordination and communication among staff become easier and more efficient. Organizational memory refers to

the collective ability to accumulate, store, and retrieve knowledge and data. Accreditation enhances and increases organizational memory by strict documentation (APA & AAIM, 2012). Files, documents and all other important materials are kept with care and can all be found easily when necessary. In addition, especially today, organizational image is very important for organizations. It provides recognition to organizations, serves as a differentiator in a competitive job market, demonstrates a high level of commitment to the field of practice and a level of knowledge and skill, proves compliance with industry regulation and government requirements (APA & AAIM, 2012), increases marketability (Yawn, 2004), provides competitive advantage in obtaining and maintaining market share (Travers, 2002) and also improves the image of the organization and attracts qualified staff to the organization. (Akyurt, 2008). Moreover, with accreditation, public relations develop (Akyurt, 2008) and it clarifies the language in the organization (Davis, 2002). Therefore people can easily communicate and have less difficulty conveying meaning. Accreditation also leads to high efficiency and low costs (Akyurt, 2008). It increases institutional effectiveness and enhances professional accomplishment (APA & AAIM, 2012). Yawn (2004) states that preparing for accreditation can result in effective, system-wide change for organizations. Akyurt (2008) claims that a continuous quality agenda ensures compliance within the organization and improves service quality. This way, the organization achieves the standards. Improving quality means that the organization has certain practices and directives that have certain quality standards and are accepted by the society (YÖK, 1999). It also reflects perfection (Desai, 2016) and it is an expression of an institution's commitment to quality towards the market. (Travers, 2002). Apart from these benefits, it provides quality improvement, aims for the continuity of quality improvement with a systematic approach (Travers, 2002; YÖK, 1999) and hence helps to maintain the standards. (APA & AAIM, 2012). Accreditation reflects the credibility, legitimacy, reliability and trustworthiness of the organization's products and services (APA & AAIM, 2012; Desai, 2016; Yawn, 2004). Furthermore, quality of documents increases (Akyurt, 2008) and organizational legitimacy and performance are boosted (Desai, 2016). It provides extrinsic criteria of fitness and reduces the ambiguity caused by the lack of standards and the absence of complete knowledge and the opportunity to strive for a higher level of

performance (APA & AAIM, 2012; Desai, 2016). Vision is defined as an aspirational description of what an organization would like to achieve or accomplish in the mid-term or long-term future. Accreditation facilitates such new ventures and market entry of organizations (Desai, 2016). It protects organizations against competitive threats by uncertified rivals (Desai, 2016). Also, it enables them to score favorably in relation to their rivals and induces the organization to devote resources to visible criteria of performance (Desai, 2016). Besides, accreditation stratifies organizations and generates status orderings of organizations that determine their access to resources. It reduces the technical repair and maintenance costs of the organization and helps to save labor (Davis, 2002). What is more, it leads to increases in executive compensation (Desai, 2016). Accreditation gives organizations the opportunity to self-regulate. (APA & AAIM, 2012). It allows risk assessment. Thus, it enables organizations to evaluate their practices in a structured and reasonable format. (Mills, 2005). And more importantly, it ensures that the maintenance and controls of the equipment are carried out at regular intervals (Davis, 2002) which helps organizations save money, time and energy. Accreditation is finally a mark of achievement (APA & AAIM, 2012). It shows others that an accredited organization is a successful one that has accomplished several standards.

Inter-Organizational Benefits

Preparing for accreditation is a long and demanding process. During such preparations, meetings with other institutions that are also experiencing similar procedures is a great advantage for organizations (Akyurt, 2008). This way, good relationships are developed with other organizations.

Benefits for the Discipline/Field

Accreditation also improves the discipline and the field of study by improving cooperation, ethical issues and quality. It improves the cooperation of organizations in the same field (APA & AAIM, 2012). They start working together and share experiences throughout the process thus improving the collaboration and teamwork. Professional ethics are principles which shape the attitudes and behaviors of people in a business setting. That is to say, it tells the rules about how people have to behave in an organization. Accreditation provides a means to establish and enforce such an

ethical code in the field (APA & AAIM, 2012). It advances the field and improves higher education (APA & AAIM, 2012). It confirms that higher education meets a necessary set of standards and seeks continuous organizational and professional development. It helps to describe quality and provides standardization of practices (APA & AAIM, 2012). Quality in terms of education is the one which helps all learners get the necessary skills they will need both in academic and everyday life. As a result they will have more chances in life such as better jobs.

National Benefits

There are also national benefits of accreditation. These are organizational learning (Dicks & Taylor, 2005), organizational image and trust (Akyurt, 2008). People receiving goods and services can easily trust the accredited organizations and feel safer. As stated before, accreditation is the sign of perfection and credibility. Organizational learning is defined as a process in which all members in an organization put great effort to create and transfer knowledge. In organizations such as firms, educational institutions, hospitals etc. there is a great deal of interaction and communication. People are eager to learn new things and share them with others. Accreditation strengthens such community learning (Dicks & Taylor, 2005) in educational organizations by involving professors and other staff thoroughly in institutional planning and evaluation (Hegji, 2020). Organizational image represents impressions people have of an organization. In other words, it is the perceptions of how people perceive it. It is not easy to build up good impressions as it takes quite a long time to achieve such an identity in the mind of target groups. Depending on such an image, customers make selections when they have needs to meet and the public develops goodwill or unwillingness towards the organization, considered as a social entity (Schuler, 2004). Also, public trust is raised with accreditation (Akyurt, 2008) and therefore people have faith in their university's activities and operations. Building and maintaining trust in educational organizations is really important. Because it helps higher education institutions become more remarkable and popular in the market. Also, it makes them more reliable and trustworthy. Accreditation fosters this confidence in educational enterprise.

International Benefits

Accreditation also has international benefits. It enables being part of the international network for financial opportunities, informatics, networking and personal development (TOBB, 2016). In other words, accreditation is an internationally recognised system which is used to develop and sustain new entrepreneurs and ventures all over the world. It helps educational organizations join international networks and boost expansion on foreign settings.

Discussion, Conclusion and Recommendations

Accreditation, as one of the main means of assuring quality and trustworthiness in various sectors, has also become a widely accepted tool among higher education institutions. Accreditation is a review process to determine if educational programs meet defined standards of quality. Once achieved, accreditation is not permanent-it is renewed periodically to ensure that the quality of the educational program is maintained (ABET, 2020). Accreditation is a term covering both the initial and ongoing approval of a postsecondary institution, or program offering as meeting the standards established by a nationally recognized accrediting association for membership in the association.

Accrediting associations are voluntary membership organizations that undertake to monitor the academic and administrative quality of their members, which are either entire institutions or components (CODA, 2020). It is a kind of proof system that an educational institution does its best to maintain standards and equip graduates with best practices. It also helps to ensure that education provided is acceptable in terms of quality.

This study aimed to determine the benefits of accreditation by searching health, management and business sectors and to find out the contributions these benefits will make to the education sector. In other words, this study examined the benefits of accreditation from the perspective of institutions accredited in different disciplines and their written texts based on their experience. Of course there already exist several benefits specified just for educational organizations in literature and on the web. To illustrate, CEPH (2020) outlines some of them as follows;

- For prospective students and their parents, accreditation serves a consumer protection purpose.

- It provides assurance that the institution or program has been evaluated and has met accepted standards established by and with the profession.
- For graduates, it promotes professional mobility and enhances employment opportunities in positions that base eligibility upon graduation from an accredited institution or program.
- For the university, it provides a reliable basis for inter- and intra-institutional cooperative practices, including admissions and transfer of credit. For the faculty and administrators, it promotes ongoing self-evaluation and continuous improvement and provides an effective system for accountability.
- For the institution or program, accreditation enhances its national reputation and represents peer recognition.

In addition, higher education accreditation is said to enable compliance with international academic standards, increase trust, drive self-reflection and change, provide a chance to demonstrate excellence and support quality enhancement (ZEVA, 2017). As can be seen, just within the scope of educational accreditation, the benefits gathered together are limited both in number and theme. However, the benefits of accreditation gathered from different sectors for educational organizations are much more and they fall into seven main themes and their sub themes which are shown in Table 1 above. The main themes are categorized as "benefits for service recipients (clients/costumers), benefits for personnel, organizational benefits, inter-organizational benefits, benefits for the field/discipline, national and international benefits." Therefore, there is no citation)

As seen clearly from the table, organizations benefit most from accreditation. Organizations are followed by service recipients, personnel, field/discipline, national and international ones in terms of the amount of benefits they get from accreditation processes. This sequence seems to be quite normal and predictable since services of any kind are provided and delivered by organizations. Therefore, they are the ones which necessarily make the most of accreditation because worldwide demand for reliable, safe products and services makes accreditation a necessity for them (IAS, 2020). And accordingly, accreditation provides a template for making comprehensive organizational changes that improve the overall performance of the organization (CAAS, 2020). The benefits for organizations are categorized as cooperation, accountability, process management,

organizational policy development, organizational development, organizational memory and image, communication, productivity, quality, organizational trust, vision, efficiency, economic contributions, audit and organizational success. Accreditation gives educational organizations, universities the opportunity to improve documentation and communication, become more efficient and productive, reorganize its policies and improve their image as accreditation is established on continuous improvement principles (Romanowski, 2021).

Accreditation provides service recipients with high quality service, accountability, different kinds of choices and reliable service. Therefore; students, as service recipients of educational institutions, have the chance to get reliable and high quality education and they can easily make reasonable choices for their educational lives. In addition to service recipients, people who work for an educational organization also benefit from the accreditation. They work safely, their attitudes become more positive and a significant amount of time and effort is invested in their continuous professional development. As a result, teachers become much more knowledgeable about current trends in teaching and learn about best practices in the field. As for inter-institutional benefits of accreditation, preparing for the accreditation process by visiting other institutions is a great advantage for educational organizations and especially universities. Consequently, good relationships are developed with other institutions during such visits to each other and with their close cooperation. Accreditation also improves the field by improving cooperation, ethical issues and quality. There are also national benefits of accreditation. These are organizational learning, organizational image and trust. People feel safer and happier to see that the universities they are choosing are trustworthy and reliable. And finally accreditation also has some international benefits. It helps any kind of educational organization to be a part of an international network for financial opportunities, informatics, networking and personal development. Therefore, universities become a part of global trends and get world-wide recognition.

Finally, it was found that “quality, accountability, cooperation, image, development and trust” are more commonly used and can be found under more than one category. This detail clearly portrays the fact that accreditation is a great tool especially to make sure that educational organizations are of high quality, developed and

trustworthy where cooperation, image and accountability are of great importance. Therefore, great effort should be put by all higher education institutions towards establishing notably reliable, acceptable and quality educational practices and outcomes by attaining accreditation. Further studies on the very topic of this study may focus on developing a scale in order to measure the extent to which newly accredited educational organizations have achieved the benefits listed above. Also, new studies are needed to reveal whether such benefits will increase the awareness of academicians about institutional/programmatic accreditations and break their resistance. Besides, as the scope of the study is limited to the data obtained from business, management and health disciplines, new studies can search for the benefits from some other sectors.

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Cap-and-gown collaboration in community development: Implications for counselling

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Abstract
This research explored the power of dominant partnerships in promoting community development. Two local communities sited in a coastal West African town, recorded notable transformation as a result of their members' long-standing interaction with a famous close by higher education institution. With a sample of three hundred and seventy-two community members, the initial survey explored the physical influence of the university, on the lives of the studied communities. Purposive and convenient sampling techniques were used in the initial case to reach the respondents but the ensuing qualitative inquiry engaged four additional purposively selected participants to generate more data through structured interviews on education, transportation and health, as key emerging physical indicators, from the quantitative aspect. The SPSS, descriptive statistics and percentages facilitated the quantitative data analysis, but thematic analysis was used to make meaning from the gathered qualitative data. Efficient triangulation of gathered data from both approaches generated interesting findings regarding the research topic. As a result of proximity to the university, the natives presently enjoy pipe borne water, hydro-electric power, easy access to formal education, better transportation and modern-styled cement buildings.

Further collaborations were recommended among the stakeholders to sustain the identified infrastructural changes that have taken place within the studied communities. Some counselling implications of the research were also drawn.

Keywords: higher education, collaboration, community development, counselling, partnership

Introduction

The world is fast becoming urbanized as a result of diverse factors. It is projected that two-thirds of the world's population in developing Africa, Asia and Latin America especially, will be living in urban centres in the nearest future (Gollin et al., 2016; Ikumapayi et al., 2020; Afolalu et al., 2021). The developed world has clearly taken the lead in this advancement movement, though the advancement journey has been plagued with myriads of issues. Enhanced communication, technological resource management and outsourcing, including natural resource development have remained the primary elements driving the transformation movement (Gollin et al., 2016; Ikumapayi et al., 2020; Afolalu et al., 2021). In Africa equally where resources are often limited, many have received the news of imminent change with immense excitement, irrespective of the clear challenges the move brings to bear on the disadvantaged poor. In Nigeria, several governments engaged private sector partnerships to meet their development needs (Fadeyi et al., 2016). It is generally acknowledged that fruitful partnerships generate worthwhile results, especially when the partners carefully deliberate the benefits they each bring to the collaboration table. Hunger and Muchtar (2013) have also emphasized the importance of longer partnership experiences in generating fruitful collaborative outcomes Over ten years of 'eye-level' collaborations between the Universiti Kebangsaan Malaysia (UKM) and University Duisburg-Essen (UDE) in Germany accordingly engendered marked positive effects on the partners (Hunger & Muchtar, 2013). In effect, the aims of each engaged partner and the methods they adopt in charting their collaborative experiences, largely define their relationship outcomes. This justifies the many rewards the Rwandan nation gained from their private sector collaborations (Nkurunziza, 2021). Partnering others thus demands careful ally selection while simultaneously engaging

painstaking planning, (Korah et al., 2017) 'under extrinsic and intrinsic uncertainties' (Snider et al., 2015, p. 1) for greater benefits. In the absence of both or either factor, dire repercussions are likely to occur on both or either partner. The pivotal role of education and resource mobilization cannot also be down-played in seeking sustainable development goals (Zenchanka, & Malchenka, 2017). One cannot fathom the effect of relevant higher education support on the international students' overall progress, not to mention the rippling effects on the students' respective societies (Dassin et al., 2018; Campbell & Baxter, 2019). The innate desire for advancement is thus real to all and sundry, no matter the cost hence the focus of this research, to explore the infrastructural influence of a famous higher education institution in Ghana, on its surrounding communities.

Background to the Study

Education to date remains the most powerful weapon that notably transforms the world. It has often been described as the bedrock of advancement, in view of the invaluable returns it brings to the human resource, physical territories and natural resource, infrastructure and socio-economic development of the nation (Schofer et al., 2021). Particularly in recent times when national development has gained significant attention among government bodies, the importance of higher education has so firmly been associated with the number of universities, colleges of education and polytechnics a nation possesses (Awuzie & Emuze, 2017). Critical thinking, detailed exploration of relevant factors, resilience and diligence are to date believed to be effortlessly attainable through higher education (Awuzie & Emuze, 2017; Schofer et al., 2021). Each of the afore-mentioned factors unequivocally promote both individual students' educational and overall life goal- achievement, that also has ultimate favorable influence on the quality of the nations' human resource (Owusu-Bio et al., 2015; Schofer et al., 2021). It is for this reason that many simply describe universities as the backbone of the nation's economy (Campbell & Mawer, 2019; McCowan, 2019).

By virtue of their educational focus, universities are obliged to disseminate, transmit and enlarge the nation's heritage through teaching, conducting research and community engagement (Awuzie & Emuze, 2017). The purpose of new knowledge creation in higher learning set-ups is desired to instill problem-solving skills, that transform graduates into engines of societal advancement (Owusu-Bio

et al., 2015; Schofer et al., 2021). It is a well-known fact that higher education is the prime resource for able leadership and an overall responsible work force for a robust nation (McCowan, 2019). The purchase of the institutional land from the local chiefs in the early 1960s by the first government of Ghana, Osagyefo Dr. Kwame Nkrumah today, may be considered a blessing in disguise (Kwarteng, Boadi-Siaw & Dwarko, 2012). In this study, we focus on the physical transformations recorded within the two mentioned local communities, since the university's inception some sixty years ago in the vicinity.

A Brief History of the understudied communities as revealed by the opinion leaders' interviews

The name Amamoma was coined from the Fantse adjective "a*man-aman*", that literally means *'different towns or countries'.* It reflects the heterogeneous nature of the settlers who were believed to have migrated from different parts of Africa to the studied site for various reasons. Difficulties of the educated university community to rightfully mention the typical local name, culminated in the modified name '*Amamoma*', that to date reflects no clear meaning. As the first to be established near the University of Cape Coast, Amamoma is currently one of the oldest Cape Coast communities (Owusu et al., 2016). It was couched precisely in 1824, long before the arrival of the British Colonialists in the Gold Coast. Presently, the pnce small and primitive Amamoma farming community, populated with mud huts with thatched roof, where long winding foot paths run through the vicinity with no schools, hospitalsand potable water, to mention just a few, boasts of modern infrastructure (Zume et al., 2021). Population increase and territorial expansion of the community today has also created three sub-divisions, namely the Zongo, Kwesi-Pra and the main Amamoma township from the original locality. The sole original water source for the locals at the time, a lone stream known as '*Nsu-Brim'* has reportedly dried up due to neglect and the members' access to potable water.

The Apewosika community was also believed to have emerged from a group of Ethiopian migrants in the year 1945. This larger and wealthier group was compelled to settle in at a far away site to keep away from persistent harassment from their envious Amamoma neighbours who forcefully demanded portions of their wealth (i.e. their gold and other resources). The strong verbal

resistance the Ethiopians later developed to confront their oppressive Amamoma neighbours in subsequent months (Appiah & Bosiwah, 2015) ended up creating their name 'Apewosika' meaning *"Have you lent me any money, that you make such demands from me?" (*Appiah & Bosiwah, 2015). Like their neighbours, the early life experiences of the Apewosika members was simple..

A Brief History of the University of Cape Coast

The University of Cape Coast is the third Ghanaian public institution established in 1962 by the Osagyefo Dr. Kwame Nkrumah. Its primary aim was to train and produce highly skilled and competent teachers to meet the nation's urgent educational needs (Ankrah & Atuase, 2018), an undertaking that could not at the time be fulfilled by the two earlier established universities, (the University of Ghana, 1948 and the Kwame Nkrumah University of Science and Technology, (1952) (Lartey & Marful, 2021). With only three faculties namely, Arts, Education and Science and a small population of a hundred and fifty-five, comprising only fifteen females (Ohene, 2010), the institution had a huge responsibility to serve the entire motherland population at its inception. It was not until October 1, 1971, that the university college attained the status of a full and independent university (Ohene, 2010), hence gaining the authority to confer its own degrees, diplomas and certificates pursuant to the University of Cape Coast Act, 1971[Act 390] and subsequently the University of Cape Coast Law, 1992 [PNDC Law 278]. With the motto "Veritas Nobis Lumen" (Truth, Our Guide) which can be found emblazoned on the institution's coat of arms (School of Graduate Studies Handbook, 2016). The University of Cape Coast (UCC) has since its establishment added to its original functions the training of educational planners, administrators, business entrepreneurs, legal professionals, agriculturalists and health professionals (Kwarteng et al., 2012). The University of Cape Coast (UCC) nicknamed 'Cape Vars', is situated about five kilometres west of Cape Coast, in the Central Region of Ghana, West Africa (Owusu et al., 2016)..

Theoretical Background

The institutional theory acknowledges the effect of both formal and informal education on human behaviour (Bruton, Ahlstrom, & Li, 2010; Tomizawa, Zhao, Bassellier, & Ahlstrom, 2020). Formal institutions' use of carefully structured and systematic

procedures to train their students often engenders enduring effects on their physical partners (Bruton et al., 2010). Proximity and frequency (familiarity) serve as two significant factors that engender marked transformations in the lives of higher education students. While frequency refers to the consistency in physical partner interactions, proximity or immediacy connotes easy physical access or contact. Both elements inadvertently strengthen partnership processes and therefore efficiently promote notable transformations between and among collaborating partners. The familiarity principle inherent in the institutional theory suggests that the more frequently intimate partners interact, the greater their association and therefore the more pronounce their influence on each other. The element of time is therefore crucial in determining the physical effect or impact extent among collaborating partners. In this sense, the institutional theory enunciates the socio-economic and infrastructural changes that have occurred in the lives and physical terrain of the Apewosika and Amamoma natives in the past sixty years, as they shared physical boundaries with the University of Cape Coast community in Ghana. The excesses of this long-standing collaboration equally deserve mention as every social encounter usually attracts some disadvantages.

Statement of the Problem

Life is essentially about seeking advancement. A stagnated life is therefore deeply problematic and never desired by any. Communities, societies, homelands and nations equally deserve development with time. Change however often comes from diverse activities including collaboration. While perfect matching often yields invaluable returns, endorsed with industrious relationships (Fadeyi et al;, 2016) a lot more is often desired of laborious, exploitative and misguided partnerships (Hargreaves 2019). Both Hunger and Muchtar (2013) and Nkurunziza (2021) attest to the benefits accrued to fruitful and lasting partnerships. Yet the pains and groans of the disadvantaged poor, not to mention the debilitating effects of preying partners never tells an interesting life story (Hargreaves 2019). Governments' reduced support for communities' infrastructural development in recent times, has meanwhile heavily saddled African nations with the challenging responsibility of independently seeking to make ends meet (Fadeyi et al., 2016). Many are those who for that matter continue to engage diverse partnerships to overcome their

difficulties. Our investigation of the physical infrastructural effects of the Amomoma and Apewosika communities, while interacting with the University of Cape Coast in this research, portrays collaboration as a reliable community change agent. The partners' over sixty years of interaction in the Cape Coast vicinity obviously has a lot to offer. But could this co-existence be described as one of bountiful blessings, or rather, a bait to land the locals into bigger trouble?

Purpose of the Study

The study thus sought to investigate the long-term infrastructural changes that have characterized the Apewosika and Amamoma local communities, as a result of their interactions with the University of Cape Coast community. Sixty long years of shared physical territories with intimate partnership often generates considerable impact. As to whether the alterations can be considered as beneficial or otherwise depends solely on the individual collaborators. A focus on both sides of the coin, fairly assesses the situation in effect. This enables not only the collaborating parties, but also the general populace to gain an in-depth understanding of partnerships in order to take full advantage of the resource in future. Our research focuses on the key infrastructural changes recorded on the engaged parties' vicinities, while simultaneously highlighting the severe challenges that emerge among the partnering communities. The counselling implications of the parties' collaborative efforts were also explored.

Research Question

The primary research question that guided the study was:

> What infrastructural changes have taken place within the Apewosika and Amamoma communities, since the establishment of the University of Cape Coast, at its current location?

Method

Our research adopted a mixed methods approach, with a sequential (quantitative-qualitative) research design, to investigate the infrastructural changes that occurred within the mentioned communities, as a result of their over their sixty years' association with the University of Cape Coast in the Central region of Ghana. Mixed methods research provides a more thorough exploration and

understanding of extremely complex phenomenon (Clark & Ivankova, 2016; Halcomb & Hickman, 2015). In the initial quantitative survey, we employed the purposive and convenience sampling techniques to reach 368 respondents, comprising 174 and 192 natives from Apewosika and Amamoma communities respectively. This was in agreement with Cohen, Manion and Morrison's (2011) approved sample size for quantitative research.

In the qualitative phase however, we purposively selected an institutional head, a health worker from the university 's lone hospital,two taxi drivers who plied the vicinities of the studied local communities, the two community chiefs and an opinion leader each, from both communities to gather further data on three key social indicators namely, education, transportation and health, as primary change initiators from the previous quantitative research. At the hospital, our interviewee was a long-serving staff in the facility. We relied on a structured interview during the qualitative phase and gathered data in the familiar physical contexts of study participants, while using the Fantse language where respondents had difficulties understanding the research items, since both researchers and assistants were fluent fantse speakers. Data collected from both research phases were deeply triangulated to enhance credible findings for our study. The entire study population was however pegged at seven thousand, seven hundred and fifty-three (7,753) locals, with a breakdown of three-thousand, seven hundred and thirty (n = 3,730) Apewosika inhabitants and four thousand and twenty-three (n = 4,023) natives from Amamoma, (Electoral Commission of Ghana, 2012).

Characteristics of study participants

Study participants essentially comprised members of the Apewosika and Amamoma communities in the Central Region of Ghana. The group comprised 252 Christians, representing 70 percent of the respondents, with 78 Muslims and only 30 traditionalists. Respondents' ages also ranged between 18 and 55, with a majority of Basic and Secondary school leavers (n = 250). Many study respondents (78) were additionally engaged in petty trading, self-employed (42), farming (35), running of hostel facilities for university students (45), employed as security personnel (39), cleaners (65) and office administrators in the nearby university (48). The two interviewed taxi drivers and health workers were also local

community members, though the Primary school head engaged in the second phase of the research was simply a native of Cape Coast.

Instrumentation

According to Merriam and Tisdell, (2015), a key research element is the use of appropriate data collection instruments to mobilize suitable data. Using questionnaires, interviews and observation as the primary instruments for mixed methods research serves the most useful research purpose as the multiple data sources enhance data validity, reliability and interpretation (Zohrabi, 2013). We thus engaged a three point likert-scaled structured questionnaire (agree, disagree and indifferent), a structured interview and researcher observation guides, as data-collection instruments for this study. The questionnaire consisted of two sections, namely participants' background information and the physical or infrastructural effects of the university community on the geographical terrains of the local communities. Prior to the actual research,we conducted a pre-test with thirty members from Kwaprow, another close community to the university under study, to validate our research's questionnaire. We subsequently derived a Cronbach alpha of 0.649 at the end of the pre-test.

The structured interviews we used in the qualitative phase was most suitable for accessing firsthand information from knowledgeable informants (Zohrabi, 2013). They equally offered us exclusive data that endorsed the research's credibility.

In the case of personal observation, the researchers who happened to have grown up attained primary, secondary and tertiary education in the university's vicinity since the early 1970s, and were for that matter extremely conversant with the early structures all the studied communities, reported appropriately on the outlined research questions.

Data collection procedure

In this study, data-collection was accomplished in three phases – questionnaire administration, interview sessions and personal observation. Apart from personal observation that took place before the quantitative data-collection, both activities were conducted at the convenience of the respondents and participants.

Ethical considerations

Ethical considerations provide confidence for research informants, and thus generate candid responses to study items (Merriam & Tisdell, 2015). We thus followed due ethical processes, including assurance of confidentiality, anonymity, seeking participants' informed consent and voluntary participation among others in this study (Bryman, 2016).

Data analysis

Data was analyzed with the Statistical Package for Social Sciences (SPSS) version 20, descriptive statistics and frequency counts, but the results were presented with tables and percentages. Interview data on education, health and transportation was likewise analyzed through thematic analysis. Field reports and notes from personal researcher observations were also used to enrich and create an explicit view about the understudied institutions' physical settings.

Results

The study revealed marked physical effects on the infrastructural amenities of the understudied local communities. Table 1 shows results on the physical transformations that occurred in the understudied communities.

Table 1: Results on infrastructural changes within the studied communities

Item content	Agree	indifferent	Disagree	Total
1. The university community's interaction with us has beautified the landscape of our community.	193 (53.6%)	50 (13.9%)	117 (32.5%)	360 (100%)

2.My community's association with the university, has facilitated the construction of quality and a well-laid down road networks in my community	123 (34.2%)	98 (27.2%)	139 (38.6%)	360 (100%)
3.My community's association with the university has facilitated the construction of cement buildings in my community	327 (90.8%)	24 (6.7%)	9 (2.5%)	360 (100%)
4.My community's proximity to the university has led to the construction of shops and small business outlets in my community	335 (93.0%)	16 (4.4%)	9 (2.5%)	360 (100%)
5.the university has facilitated the establishment of stationery shops in my community	276 (76.66%)	47 (13.05%)	37 (10.27%)	360 (100%)

Results in table 1 show (193 respondents, representing 53.6%) confirming the university's influence in beautifying their communities' landscape, though as many as 117, comprising 32.5% rejected the claim. This left 50 respondents made up of 13.9% being indifferent to the assertion. On the issue of road construction, a greater majority of the respondents (139) representing (38.6%) were against the notion that the university's influence improved their access road quality and network. The case of cement block buildings within the studied vicinities was also endorsed by a great majority of 327 respondents, making up (90.8%). The university's role in establishing shops and backyard sales points were equally endorsed by a greater majority (335, 93.0%) and (276, 76.66%) respectively.

On the qualitative front, results essentially confirmed the university's influence on road construction, modern styled cement-buildings as residences and hostel facilities, as well as school buildings. Interview reports by one chief and an opinion leader for instance contained phrases like *'schooling offers wisdom', 'schooling aids development'* and *'ensures good future employment'.* An opinion leader's regrets about the former community days when education was scarce was so revealing. He noted that '*their children were often aimless during the day and could hardly speak any English …'* A chief further highlighted a key importance of education when he said the children *'…showed less innovation and creativity in their social endeavours.'* With the above results, the transformed physical terrains of the communities were indisputable.

From the personal researcher observations, phrases like a '.. a *more populated, beautified and neatly arranged setting'* were noted about the studied communities' physical settings. Common adjectives used to describe the locations included *'dense settings' 'magnificent buildings'* and *'bigger modern-styled architectural buildings.*' The lost '*green grass'* and *'long winding foot paths,* like the sole water source, *'nsu birim'* were equally confirmed both by interview reports and observer notes to have all been *neatly eroded, giving way to tarred roads, pipe stands and electric cables linking the various residences to hostel facilities and even shops.*

Discussion

Overall, the improved infrastructural facilities the local community members enjoy in recent times adds significant value to their lives. Residing in more spacious cement modern-styled buildings, indisputably comes with more comfort and prestige than living in clay-made huts. Similarly, easy access to hydro-electric power and pipe borne water (Boni & Walker, 2016), must have come to the natives with great appreciations. Immediately, the eroded stress from disturbed sleep as a result of leaking thatched roofs on the countless rainy nights has become history. Studies in cement school buildings and walking the tarred roads on rainy days are similarly more comforting and secured from reptiles than walking those early soggy footpaths to school (Zenchanka, & Malchenka, 2017). With better lighting systems in the vicinity likewise, the children would be assured of improved academic performance (Fitzgerald et al., 2016; Schofer et al., 2021). Other life transformations like reduced crime

rates as a result of increased security, more and better entertainment facilities and access to countrywide news via radio and television, equally come to play regarding infrastructural development in this study. Aside few respondents' indications that the university created slums and therefore did not beautify their communities, the study results generally aligned with earlier reports on the relevance of quality access roads, telephone communication and the use of pipe water among the local poor (Nelson & Bigger, 2021; Afolalu et al., 2021). The physical transformations are explicit and they undeniably confirm the many benefits accrued to the community members, as a result of their collaboration with the Cape Coast University community. Overall, proximity and frequency, as key aspects of the institutional theory that underpinned our research, merged meaningfully with the appropriate research methods we engaged to generate credibly interesting findings in this inquiry.

Study Limitations

The noisy settings and rather limited time in which the interviews with the taxi drivers were held may have compromised some of their responses. Similarly, the use of audio recorders for the interviews could have been uncomfortable for them eventhough assurances of confidentiality and anonymity were provided them, prior to their engagement in the data collection process. Finally, the translation of some research items during data-collection may have somehow impacted some of the responses.

Conclusion

The conclusion that the studied communities' enhanced physical settings can be attributed to the University of Cape Coast's influence is indisputable. Study findings about the locals' easy access to hydro-electric power, potable water and modern-styled cement buildings for instance attest to the famous institution's prominence in the vicinity. Additional reports about tarred and better access roads in place of the earlier long winding footpaths is equally reassuring. Ultimately, the community's siting near the University of Cape Coast can be described more as a blessing in disguise.

Recommendations

We thus recommend that:

- The community chiefs and opinion leaders should endeavour to maintain their long-standing worthwhile relations with the famous institution, in order to sustain their affirmative influence on their communities.
- Secondly, the university authorities should make provision for quarterly outreach and counselling programmes to be held among the locals to assist the native youth in particular towardsuseful future life paths, thereby maintaining law and order in the vicinity.
- Chiefs and opinion leaders should encourage community youth groups to schedule weekly sweeping and cleaning roasters to maintain high health standards within the studied locations.

Counselling implications of the study findings

- The high tendency of unhealthy competition and envy among the emancipated youth, as a result of the newly emerged modern infrastructure within the communities necessitates consistent professional counselling to direct the local youth onto a more responsible lifepath. Such a useful attitude will culminate in responsible life styles that will raise the communities' social status in the motherland.

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Disruption of Medical Education in Times of Pandemic: Reflections from the Ground

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Abstract
The COVID-19 pandemic has caused massive disruptions to conventional teaching and learning activities in medical schools worldwide. In this short essay, we discuss our experiences with various sudden changes and obstacles facing academic activities at the Universiti Teknologi MARA (UiTM) Faculty of Medicine in Selangor, Malaysia. We elaborate on the predicaments faced by students, lecturers and university administration during an undergraduate Public Health rotation in which students have to organize health promotion programs and conduct research. Subsequently, we argue that this global health crisis – and its unique impact on students' academic exercises – calls for an urgent change to student evaluation methods and approach. Taking into account the different restrictions imposed on students and lecturers alike, the old criteria for assessing students' performance should be reviewed, in order to do justice and ensure objectivity.

Keywords: COVID-19; global pandemic; disruption of academic activities; medical education; public health education

Worldwide, the impact of COVID-19 pandemic on educational institutions have been severe and are still evolving (Gupta & Goplani, 2020; Jacob, Abigeal, & Lydia, 2020; Sahu, 2020). While some countries have achieved high levels of vaccination among their populations and thus begun to gradually return to some semblance of normalcy, circumstances can be very different in other regions, especially low- and middle-income countries. Malaysia for instance – among other Southeast Asian countries like Thailand, Indonesia and The Philippines – has experienced a sudden and rapid increase in COVID-19 cases and deaths from May until August 2021 (CNA, 2021; Ratcliffe, 2021). This was despite the country's enthusiastic vaccination roll-out that began in the period between March – May 2021 (Sipalan, 2021).

As a result of the rise in COVID-19 transmissions and mortality, drastic measures were imposed including varying degrees of lockdowns and stay-at-home orders. These movement restrictions have caused intermittent closures of schools and universities in Malaysia, accompanied by massive adoption of emergency remote teaching, most of which occurred without adequate preparation. For some private institutions, such a volatile situation has led to permanent closure while for others, it caused a significant number of drop-outs (NST, 2021; Yeap, Suhaimi, & Nasir, 2021).

Disruption of Medical Education

In the context of academia, and especially medical schools, the effects of COVID-19 crisis penetrate almost all aspects of administration and teaching and learning activities (Pokhrel & Chhetri, 2021). From the administrators' perspectives, unexpected changes occur in terms of the need to rapidly adapt to, and address COVID-19 outbreaks among their staff, students and healthcare workers. In addition, medical schools that host clinical or treatment facilities have to make a tough decision on whether or not to accept COVID-19 patients as that would necessitate numerous (and often costly) adjustments related to guidelines, manpower, training and equipment. Due to the rapidly changing situation on the ground, the administration struggles to make the right and timely decisions; instructions change on a regular basis and can sometimes be confusing and contradicting.

From the perspectives of teaching and learning, disruptions of academic calendars, sudden shift of learning mode from physical to

virtual, and restrictions of student mobility have all imposed massive adaptations – which can amount to a complete 'shake-up' of existing structures – within a short time frame. Examples include adoption of emergency remote teaching (ERT) without adequate preparation, repeated changes in class schedules, cancellations of classes and exams, contradicting instructions from the lecturers or administration, and the need for students to cope academically in a new and unfamiliar learning environment.

The outcomes of these sudden changes and restructuring can be devastating on students' mental and psychological health as documented in recent empirical studies around the globe (Browning et al., 2021; Cao et al., 2020; Ghazawy et al., 2021). Studies showed that prolonged or intermittent closures of university campuses and the shift to ERT contributed to a rise in anxiety and depression levels among students (Sundarasen et al., 2020). This is further compounded by the 'digital divide' phenomenon; students from lower socio-economically backgrounds are put at a disadvantage when they are forced to study remotely (from home) without sufficient internet coverage and connectivity(Aucejo, French, Araya, & Zafar, 2020; Du Preez & Le Grange, 2020) . In addition, this group is more likely to have parents or family members affected by job losses (or furlough) due to the economic slowdown, an added reason for psychological distress.

First key challenge: Health promotion and research activities in times of movement restrictions

In a recent undergraduate public health rotation in our faculty, students were given the task to run a health promotion program for a specific target population in a nearby locality. Traditionally, these health promotion programs have always been conducted on-site, with close communication and engagement of local community leaders. The program objectives and content are also derived from findings of community profiling activities that students conduct prior to the event. At the same time, they are exposed to research by undertaking small studies and going through the basic steps of planning study designs, selecting questionnaires, collecting and analysing data, and disseminating the study findings at the end of the rotation. Prior to COVID-19, these studies were mostly conducted on the ground, with face-to-face data collection and regular meetings with community leaders and lecturers.

Due to the pandemic – along with the exponential increase in COVID-19 new cases within a few months in Kuala Lumpur and the state of Selangor – the public health rotation in our faculty was severely affected. First, students could no longer conduct health promotion activities (eg: campaign, games, etc) physically but had to resort almost entirely to virtual platforms. Second, community profiling posed a great challenge as the common gate-keepers, the community leaders, were not all familiar with online meetings. Even when they were, most of them were occupied with handling COVID-related issues within their localities which resulted in their inability to engage with academic activities with students. Needless to say, such academic exercises were seen as secondary and of lower priority, in times of a more pressing issue. This created a barrier for the students to access the supposed target population, forcing them to rely on informal sources and networks.

Third, movement restriction orders did not allow students living beyond the state boundaries to return to campus, rendering group discussions and team-work more difficult and reliant on virtual platforms. While we are aware of the advantages of ICT and online meetings, we found that the benefits were not equally reaped by all students, given the vast differences in their circumstances (geographical location, access to internet, family status and familiarity with digital platforms). On top of that, using virtual platforms and SNS (such as Twitter, Instagram and Tik Tok) for health promotion activities could potentially create inequities in beneficiaries. Older adults, children and migrant populations are less likely to receive the health promotion messages and educational materials through these channels due to issues like restricted access and lower digital literacy (Ang, Lim, & Malhotra, 2021; Nouri et al., 2019).

For research activities, challenges faced by students include restricted access to respondents given the difficulty to communicate with gate-keepers, as mentioned before. Despite the advantages of online data collection with regards to time, costs and efficiency, our students faced a number of difficulties. Since they could not obtain the complete list of potential respondents from the local council, a random sampling approach was not possible; convenience sampling was thus adopted using online (validated) questionnaires whose links were circulated through WhatsApp and SNS. Selection bias was likely, as individuals less familiar with smartphones and SNS, would be somewhat systematically excluded. Understandably, digital

literacy tends to be lower among the older age groups and those from the lower income background (Ang et al., 2021; Mulyaningsih, Wahyunengseh, & Hastjarjo, 2021). Besides, online data collection that is not accompanied by constant and close communication and guidance by researchers can easily lead to lower motivation and interest among respondents which can in turn affect the accuracy and quality of data.

Second key challenge: Should new norms call for new evaluation criteria?

Beyond the discussions on how the pandemic has impacted our public health rotation, of equal importance is to highlight the issue of student evaluation and assessment. While different fields have been affected by the COVID-19 crisis, the extent to which these fields are altered or forced to embrace changes, varies. Some may be subjected to mere inconvenience (with temporary but reversible problems) while some others have their core elements impacted, with a subsequent need for major reforms. One of them is medical education, in which distant learning strikes at two of its crucial components of teaching and learning; delivery of lessons and student assessment.

Despite the widespread acknowledgment of the disruptions that have limited students' ability to carry out their academic programs and exercises smoothly, the evaluation method and approach has not undergone meaningful changes to reflect the actual situations on the ground. Often, the old assessment criteria and standards are imposed on students without adequate consideration of the new changes (and disruptions) caused by the pandemic. It is observed that academics tend to verbally express their sympathy toward students' struggles and desire to assess them fairly, but what is needed is a thorough, objective and explicit amendment to the assessment guidelines, checklists and forms so that this 'desire for fairness' is standardized and translated into concrete action.

The old student evaluation method focuses more on a set of conventional criteria such as students' eloquence during presentation, their clarity and ability to answer questions, the quality of their presentation slides, adequacy of their work substance and their attitude in general. However, these may not be enough or even relevant in a period of 'chaos and uncertainties' where students are forced to make huge adjustments to their academic life while grappling with 'less time, more work' and the expectations to 'think

out of the box'. Evaluation of their performance in such a case needs to include elements of creativity and innovation in making use of virtual platforms, resilience in adapting quickly to changing and uncertain schedules, responsiveness and ability to work under stress, demonstration of adaptive and problem-solving skills, and awareness of how COVID-19 crisis is affecting the way we practice and view health education. In addition, assessment needs to take into account the constraints faced by students in terms of their movement, access to the internet, and the different layers of vulnerabilities to which they might be exposed.

A form of discrepancy that can stand in the way of objective/fair assessment is the gap in perception and expectations between assessors (lecturers) and students. While students may think that their struggles and the restriction in time and resources they face are sufficiently understood by other parties, a similar sentiment may not be shared by lecturers. This did not mean that lecturers are unaware of the situation on the ground, but they may perceive these challenges as less serious or not severe, thereby underestimating their impact on students' performance. From our experiences, some students reported feeling misunderstood and that their complaints were not adequately addressed or taken seriously. This caused them anxiety about their grades and assessment outcomes. Another source of frustration was the gap in digital literacy between students and lecturers. Students observed that many lecturers were not familiar with some of the online platforms they used for the health promotion campaigns and activities. This made them worried about how assessors would judge their work, and whether students' creativity would be fully appreciated.

There are several reasons why a change in student evaluation approach is urgently needed in this period. Of utmost importance is the change of realities on the ground which have affected the ways things are done and perceived by students and lecturers alike. This change in reality needs to be properly reflected in how students are benchmarked. Aligning students' lived experiences with evaluation of their academic performance is tantamount to doing justice and achieving higher objectivity, which should be the core values of academia. Other than that, incorporation of new elements such as creativity and innovation, resilience, and ability to work under stress and uncertainties is crucial to gauge students' performance more accurately – not merely from the academic but also real-life

perspectives. In a post-COVID era, these are the features and characteristics that will determine medical students' success as future health practitioners (Chesak, Perlman, Gill, & Bhagra, 2020).

In sum, our experiences of running academic sessions in general, and conducting health promotion programs in specific, have taught us valuable lessons that could benefit other medical educators and learning institutions. Other than the challenges associated with the disruptions of academic exercises by COVID-19 countermeasures, we learnt that it is extremely important to bring students' lived experiences and everyday realities into aspects of evaluation/assessment. This approach should be viewed as a way of doing justice and empowering medical students with the skills needed in a world of 'new norms'.

CONFLICT OF INTEREST
All authors declared no conflict of interest

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