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Abstract

With increased global interaction, cultural awareness among stakeholders is crucial, especially for companies seeking growth in the international environment. This study focuses on comparing the perceptions of business skill importance between student subjects from China/Hong Kong (CHK) and the United States (US). The results show that the six cues representing the business skills/attributes strongly influenced student perceptions of job offer likelihood and the relative importance of these cues was not equal, with Interpersonal Effectiveness (INPER), Internship Experience (INT), and Ethical Awareness (ETH) having a higher impact than Communication (COMM), Cultural Intelligence (CULT), and Critical Thinking (CRIT). The findings enhance our understanding of the relative importance of business skills in different cultural contexts and

provide insights for educational institutions and employers in preparing students for the global business environment. The study contributes to existing literature by providing direct comparisons of student perceptions across cultures and employing a rigorous judgment modeling methodology.

Introduction

Globalization is an ever-growing phenomenon today, fostering access to worldwide opportunities. As a result, it has transformed the technological, economic, social, and cultural aspects worldwide. In particular, it has stimulated the rise in communication, changed the way of doing business, and unified international markets. Accordingly, the interaction of stakeholders at the global level is inevitable (Lozada 2015), making it extremely important to create a cultural awareness with respect to stakeholder services (Cross 2020). This suggests that companies that want to grow in the international environment need to recruit, educate, and retain individuals with high levels of cultural intelligence. Management that is culturally intelligent is perceived to perform best in multi-cross and intercultural settings.

The above suggests that a cross-cultural investigation of students', or future managers', perceptions of the relative importance of business skills is appropriate. While previous studies have examined various facets of business and cultural influence, few recent studies have specifically investigated the direct cross-cultural comparisons of student perceptions (Wells et al. 2009; Smith et al 2018). This research fills this gap and enhances our understanding of the role culture plays in shaping perceptions of business skills. By addressing these research objectives, the study significantly advances the existing literature on cross-cultural perceptions of business skills and provides valuable insights for educators, employers, and policymakers in enhancing intercultural competency and talent development. Results suggest that student perceptions of job offer likelihood are significantly influenced by the six cues that represent different dimensions of business skills/attributes.

The study employed a decision-making exercise where students provided hire-ability judgments in levels of six business-related skills: Oral and Written Communication (COMM), Cultural Intelligence (CULT), Critical Thinking (CRIT), Interpersonal Effectiveness (INPER), Internship Experience (INT), and Ethical Awareness (ETH). The focus of this study involves only student perceptions, and not that of employers. This study accomplishes this by comparing these perceptions between two student subject groups: China/Hong Kong (CHK) and United States (US) students. The CHK and US focus of this study is appropriate, particularly given they are the two strongest economies in the world and China is one of the largest and most important trading partners of the US, as well as one of the largest foreign holders of US Treasury bonds

(https://statisticstimes.com/economy/united-states-vs-china-economy.php). Student perceptions of importance were obtained via judgment modeling methodology utilizing a repeated measures decision-making exercise. This exercise asked each student subject to provide hire-ability judgments for each of 16 hypothetical students, each thought to have a differing combination of levels of six business-related skills. Data were then subjected to statistical analysis to ultimately look for systematic differences of perception between students across the two countries.

This study makes several significant contributions to the existing body of literature. Firstly, it directly compares student perceptions of the importance of business skills between two distinct cultures, namely China/Hong Kong (CHK) and the United States (US). By focusing on these two economies, which are among the strongest in the world and share a vital trade relationship, the study offers valuable insights into the cross-cultural variations in perceptions of business skills. Secondly, the research employs a rigorous judgment modeling methodology to obtain measures of perceived importance from students, enhancing the accuracy and reliability of the collected data. This approach addresses concerns raised by previous studies regarding the accuracy of subjective reports and provides a more robust experimental framework for investigating perceptions. Thirdly, the study utilizes a focused set of business skills, namely Oral and Written Communication (COMM), Cultural Intelligence (CULT), Critical Thinking (CRIT), Interpersonal Effectiveness (INPER), Internship Experience (INT), and Ethical Awareness (ETH). This parsimonious approach allows for a more streamlined analysis and comparison of student ratings.

The remainder of the paper is organized as follows. Initially, a discussion of the cross-cultural literature examining student, recent graduate, employer, and instructor perceptions of the importance of business-related skills is presented. This is followed by a presentation of the six business-related skills/attributes chosen to be used in the study's decision-making exercise, a description of the repeated measures judgment modeling methodological approach used, the decision making exercise used, and the statement of research questions and hypotheses. Participants are next described, followed by a presentation of analysis and results. The paper closes by presenting limitations of the study and prospects for future research and conclusions.

Literature Review

Studies involving the measurement of perceptions of the importance of a variety of business skills may include perceptions of students or recent graduates, perceptions of employers, or both. The literature presented in this section of the paper is limited to studies of this type involving differing cultures. For convenient reference, the discussion below is succinctly presented in Table 1, with a reference number for each article cited.

Literature examining student/recent graduate perceptions of the importance of certain business skills include De Lange et al. (2006), Wells et al. (2009), Jackson (2013), Webb and Chaffer (2016), and Smith et al. (2018). These studies appear in Table 1 referenced 1-5. The De Lange et al. (2006) study involved recent graduates in Australia and found students ranked the importance of technical skills above such generic skills that include interpersonal engagement, oral communication, and computer literacy. The New Zealand Wells et al. study (2009) which obtained rankings of importance from recent graduates, reveals "Eight out of the top 15 ranked items relate to personal or interpersonal capabilities, four are intellectual and only one is concerned with profession-specific technical expertise. These top ranked items relate to the management of self and work and to working with others" (p. 409). Jackson's (2013) findings from students attending a Western Australia university reveal they find skill development in areas of communication and teamwork highly valued. Webb and Chaffer (2016) findings indicate recent UK graduates identify oral communication, long-term commitment, ethics, and adaptation to change as important skills. The Smith et al. (2018) study of Chinese students seeking professional employment in Australia reveals these students place the highest level of importance on communication skills.

Studies examining employer perceptions of the importance of certain business skills include Coll et al. (2002), Agus et al. (2011), Durrani and Tariq (2012), and Tejan and Sabil (2019. These studies appear in Table 1 referenced 6-9. The Coll study (2002) obtains perceptions of the importance of a variety of workplace competencies from New Zealand employers in the science/technology sector. These employers rated analytical thinking, written communication, and computer literacy as the top three hard skills needed. The soft skills rated in the top three were teamwork, ability/willingness to learn, and initiative. Further, these employers placed greater emphasis on hard skills over soft skills.

Agus et al. (2011) investigate employer perceptions of the level of preparedness of students joining their firm finding these employers perceive that work skills are below their expectations in decision-making, planning, communication, and interpersonal relationships. However, the study

reflected that students possess skills in important areas of computer literacy, ethics, and teamwork skills. The Durrani and Tariq (2012) study examines the importance of numeracy skills of graduates hired by employers in the UK. Within the umbrella of the study's numeracy construct, interpretation of data and corresponding problem solving skills were two skills ranking in the top three.

The Tejan and Sabil (2019) study surveyed Morocco employers regarding skills needed for new employees. Results revealed, in descending order of perceived importance, the following skills: organization/planning; teamwork tied with learning theory and practice; work culture attitude; conceptual and analytical skills; communication tied with leadership

Research examining both student/recent graduate and employer perceptions of the importance of certain business skills include Andrews and Higson (2008), Crossman and Clarke (2009), Atanasovski and Lazarevska (2018), and Majid et al. (2019). These studies appear in Table 1 referenced 10-13. The Andrews and Higson study (2008) involved assessing perceptions of both employers and recent graduates as to the relative importance of a cadre of 'hard' and 'soft' skills; subjects were obtained across four European countries. Hard skills involve business-specific issues, while soft skills relate to interpersonal competencies. There were notable similarities in graduate and employer perspectives of what may be termed 'core components' of business graduate employability: the value of hard business-related knowledge and skills (analytical skills, problem solving, business knowledge); the importance of soft business-related skills and competencies (teamwork, communication, presentation skills); and the need for prior work-experience. Crossman and Clarke (2010) obtained perspectives from Australian students, employers, and instructors regarding the value of international experiences in graduates obtaining employment. All three subject groups indicated perceptions that international experiences facilitate employability. The authors note these experiences promote "cultural sensitivity," knowledge, and increasing soft skill effectiveness. The Atanasovski and Lazarevska (2018) study takes place in SEE countries (South-East Europe-Macedonia) in order to assess accounting-related technical and generic skill importance for both employers and students. Technical skills include such areas as accounting knowledge (financial, managerial, audit, tax, etc.), management, statistical analysis, information technology. Generic skills encompass such areas as problem solving, communication, time management, presentation skills. On average, both subject groups assigned greater importance to generic skills than to technical. For students and employers, the

perceived importance of technical skills is the same. However, although students and employers agree that personal or generic skills are important, they differ in their relative order of importance. Students associate more importance to time management, self-confidence, and motivation as important while employers perceive oral communication, foreign language skills, ethics and long-term commitment to be more important.

The Majid et al. (2019) study focused on comparing perceptions of the importance of select soft skills between Singapore employers and students. While both subject groups agree on the importance of soft skills, there is a gap between both sets of perceptions. Participating students considered positive attitude, self-motivation, and problem solving important with respect to obtaining employment and their long term career. However, most important to employers were positive attitude, teamwork, ethics, and problem solving. Collectively, employers feel the soft skills that graduates possess are below desired levels.

The above studies examined perceptions of importance for a myriad of business skills. Common skills across most of the studies include communication, cultural intelligence, critical thinking, decision making, interpersonal interaction, and ethical awareness. Additionally, some studies included work experience via internships when measuring perceptions of importance. Other than the aforementioned common skills, comparability of results across the studies is difficult given the variety of data gathering methods used (open-ended questions and rankings, interviews, semi-structured questionnaires, ordinal rankings).

Further, while some of the studies above made direct comparisons between student/recent graduate, employer, and instructor perceptions, there appears to be a dearth of more recent studies making direct comparisons of perceptions across cultures. Direct comparisons of cultural influence for other facets of business include Kashefi-Pour et al. (2020), Driskill and Rankin (2020), and Wang et al. (2022). These studies appear in Table 1 referenced 14-16. Kashefi-Pour et al. (2020) found that, across 24 OECD countries, natural culture impacts investment-cash flow sensitivity, while the Driskill and Rankin (2020) findings indicate that US students exhibit higher ethical reasoning skills than do Chinese students. Wang et al. (2022) examined risk versus benefit perceptions between US and Japan cultures finding greater variance among raters within the same culture than across cultures.

Business-Related Skills/Attributes Employed

As noted above, there is a cadre of commonly used skills across most of the inter-cultural studies which support the business skills employed in this study's methodology. Specifically, the following six skills/attributes are incorporated into the study's judgment modeling decision exercise used to obtain student perceptions of importance (for future reference, the abbreviation).

1. Oral and Written Communication (COMM)
2. Cultural Intelligence (CULT)
3. Critical Thinking (CRIT)
4. Interpersonal Effectiveness (INPER)
5. Internship Experience (INT)
6. Ethical Awareness (ETH)

Further support for the four of the above six skills is found in Fletcher and Thornton (2023). They replicated and updated prior works that identified employer perceptions of the necessary business skills needed of students. The input obtained from US business professionals revealed that the COMM, CRIT, INPER and ETH skills ranked in the top eight of necessary skills.

Judgement Modeling

Given this study's focus of obtaining subject perceptions of the relative importance of business skills, it is important to note the relevance of the seminal work of Nisbett and Wilson (1977) in this area. This work argues that "People often cannot report accurately on the effects of particular stimuli on higher order, inference-based responses. Indeed, sometimes they cannot report on the existence of critical stimuli, sometimes cannot report on the existence of their responses, and sometimes cannot even report that an inferential process of any kind has occurred. The accuracy of subjective reports is so poor as to suggest that any introspective access that may exist is not sufficient to produce generally correct or reliable reports" (p.233). These arguments cast a concern over the accuracy of perception measures of subjects gathered by the use of questionnaires, surveys, verbal reports, etc.

In an attempt to address these concerns, a statistically based adaptation of the foundational Brunswik Lens Model was developed by Brunswik (1952). This model measures subject perceptions of the likelihood of a particular state of environment, or event, by presenting subjects with multiple cues thought to be predictors of the event. These cues in essence form a "lens" for

subjects with which to observe the event. The statistical adaptation of the model was developed by Hursch et al. (1964) and Tucker (1964) via creating a rigorous analytical framework based on regression and correlation analysis. This statistical based regression provides optimal cue weighting patterns, something subjects are often incapable of, as alluded to above (Libby 1981).

The data gathered by this study are obtained by a decision making exercise which incorporates the above Lens Model concepts. This exercise is formulated as a repeated measures design, also known as a within-subject design. This design obtains multiple likelihood measures from each subject that they associate with multiple sets of cues presented to them, with each set representing a unique combination of cue levels or strength. The primary benefit of this design is that variation between subjects is removed from the error term, generally leaving a smaller error term and a more powerful test (Kutner et al. 2005). A further benefit relates to experimental control, as the researcher has complete control over the variables, or cues, and their levels of strength as presented to subjects. This control assures there is no correlation among the cues making the measured effects orthogonal. These two benefits result in increases in internal validity of the experimental design, as discussed by Campbell and Stanley (1963).

The repeated measures concepts were introduced in the Accounting literature by Ashton (1982) and Libby (1981). Subsequent to its introduction, this methodology has been employed in business contexts by Kirsch et al. (1993), Snead and Harrell (1994), and Snead et al. (2005). Kutner et al. (2005) and Montgomery (2013) provide a more detailed discussion of the repeated measures design, including industrial examples.

It is noted that the above discussion is <u>not</u> intended to argue that research employing questionnaires, surveys, verbal reports, etc. have no value. In fact, the authors argue for the usefulness of these methods, particularly for factfinding and hypothesis generation applications. In fact, as will be seen, findings from these methods have provided valuable inputs for the development of the research design for this study. We are simply suggesting that the application of this more rigorous experimental approach to be an appropriate "next step" in the empirical investigation. The repeated measures judgment modeling exercise used in this study is described next.

Judgement Modeling Exercise

A judgement-modeling-based decision-making exercise was developed to obtain measures of importance from participants for each of the six business-related skills/attributes previously identified (COMM, CULT, CRIT, INPER, INT, ETH). This was accomplished by treating these six skills as cues, embedded in the exercise, to be presented to participants. The exercise presented sixteen hypothetical business students to participants, with participants being asked to rate, on a -5 to 5 scale, the likelihood that each of these hypothetical students would receive a job offer from a firm. This job offer assessment is based on the unique combination of the likelihood strengths of the six cues presented for each hypothetical student. These cues were presented to participants at one of two levels of likelihood of being present: MODERATE (representing a slightly below average chance) and HIGH (representing a 90% or excellent chance). Thus, each of the sixteen hypothetical students presented has a unique combination of likelihoods across the six cues. Since there would be a total of 64 unique combinations of the six cues at two levels of likelihood (2^6), this exercise represents a one-quarter (16/64) fractional factorial design. While the use of fractional factorial designs result in some effect estimates being confounded, the statistically based selection process used for these 16 combinations allowed for 15 effect estimates to be orthogonal, or uncorrelated. These 15 effect estimates enable all null hypotheses to be examined. We will discuss this in more detail in the analysis and results section.

The exercise instructions provided to the participants are shown in Table 2, with a sample situation from the exercise presented in Table 3. Note the sixteen hypothetical students were presented in random order to avoid order effects and carryover effects.

Research Questions and Hypotheses

Given the unique methodological approach used by this study in this area of inquiry, coupled with the distinctive objective to directly compare CHK and US student perceptions, the authors consider this to be an exploratory study. Accordingly, the hypotheses associated with each research question are stated in null form.

Research Question 1: Will the participants' ratings for job offer likelihood differ among the Moderate and High levels for any of the six cues, i.e. do any of the six cues have an effect on participants' ratings for job offer likelihood?

The previous studies discussed in the literature review provide some insights into the potential effects of these cues. For example, De Lange et al. (2006) find that technical skills were ranked higher in importance by recent graduates, while Wells et al. (2009) highlight the significance of personal and interpersonal capabilities. Other studies emphasized the importance of communication, teamwork, ethics, and adaptability (Jackson, 2013; Webb and Chaffer, 2016; Smith et al., 2018). Drawing from these findings, six cues representing different business skills and attributes will have a significant effect on participants' ratings for job offer likelihood. Therefore, the null hypothesis 1 is:

H_O-1: Participants' ratings for job offer likelihood does not differ between the levels within any of the six cues.

Research Question 2: For any cues that do have an effect on participants' ratings for job offer likelihood, will there be differences in the sizes of the effects among the six cues?

In addition to investigating the overall effect of the six cues on participants' ratings for job offer likelihood, we also aim to examine whether these cues have different effects on the ratings. We anticipate that participants will perceive certain cues to be more influential than others in determining job offer likelihood. Specifically, we expect variations in the impact of each cue on participants' ratings. Based on the findings of Fletcher and Thornton (2023), who identified the top necessary skills according to US business professionals, we can infer that COMM, CRIT, INPER, and ETH are highly valued skills. Moreover, considering the potential cultural and contextual differences between the US and CHK participants, it is plausible that their perceptions of the relative importance of these cues may vary. The cultural dimensions proposed by Hofstede (1991, 2001) suggest that individualism and power distance, among other factors, may influence the participants' prioritization of certain cues. Therefore, we expect that the effect of each cue on participants' ratings for job offer likelihood will differ. We put hypothesis 2 in the null form:

H_O-2: There are no differences in the size of effects on participants' ratings for job offer likelihood among the six cues.

Research Question 3: Will there be differences in participants' ratings for job offer likelihood between the CHK and US participants?

Previous studies have indicated variations in the importance of business skills and attributes between different cultures. In the paper, we examine two groups of participants: CHK participants and US participants. One potential cultural influence to consider is the concept of power distance, as proposed by Hofstede (1991, 2001). China tends to have a higher power distance, implying a greater acceptance and respect for authority and hierarchical structures compared to the United States, which generally exhibits a lower power distance. This cultural difference might impact the CHK participants' perceptions of job offer likelihood and the importance they assign to certain cues. Additionally, Driskill and Rankin (2020) find that US students exhibited higher levels of ethical reasoning skills compared to Chinese students. This suggests that ethical awareness, one of the cues in our study, might be perceived differently by participants from the two countries. There will be significant differences in participants' ratings for job offer likelihood between the CHK and US participants. We expect that the CHK participants will, on average, assign different ratings to the job offer likelihood compared to the US participants, reflecting their distinct cultural perspectives, educational backgrounds, and societal contexts. Therefore, the null hypothesis 3 is:

H_O-3: There are no differences between the CHK and US ratings for job offer likelihood.

Participants

The CHK student participants were international students participating in a symposium (unrelated to this study) at a Hong Kong, China university. The US student participants were enrolled at a midwestern private university. The CHK data consist of 63 students from mainland China and Hong Kong, combined; there were 24 business students and 39 non-business students. Gender distribution was 62% female and 38% male. The US data consists of 108 participants; there were 57 business students and 51 non-business students. Gender distribution was 34% female and 66% male. Ages of all CHK and US participants was predominately in the 20-23 range.

Analysis and Results

As previously noted, the study's design is often called a repeated measures within subjects design in the social sciences. The within subjects treatments are the 16 "Moderate" and "High" cue combinations embedded in the decision-making exercise, and the between subjects treatment is Country (CHK and US). Subject ID is used for the purpose of controlling for differences between

subjects. “Moderate” and High” cue levels are coded as “1” and “2,” respectively. The dependent variable is the -5 to 5 job offer likelihood rating provided by subjects for each hypothetical student. With the subjects being considered random effects, each term of interest in the model should be tested against its interaction with subjects. For example, in testing for a COMM effect, we would compare the mean square for COMM to that of COMM:ID resulting in $F_{COMM} = MS_{COMM}/MS_{COMM:ID}$. However, each of the denominator MS are relatively similar in magnitude, so we pool them into one common error term. This analysis treats the subjects as blocks and is known as a block design. We initially studied the CHK and US datasets separately.

The CHK data consist of 24 students from mainland China and 39 from Hong Kong. We found that neither the location (China vs. Hong Kong), nor the business vs non-business field of study (Field), had a significant effect or interaction with any cues. Accordingly, in later analysis we treat the CHK data as one homogeneous sample.

For the US data, one of the business students failed to respond to any questions and was removed. As with the CHK data, we tested to see if there was any effect or interaction associated with Field. While there was no main effect of Field, we did find one significant interaction with Field. The Field:ETH interaction indicates that US business students perceived ETH to have a larger effect than non-business students, perhaps due to ever increasing efforts to create ethical awareness in business programs of study. With only this one significant interaction effect and no main effect of Field, we treat the US data as one homogeneous sample as we did with CHK.

Table 4 shows a partial Analysis of Variance for the combined US and CHK datasets. We will use these results to test the hypotheses defined earlier. Our first hypothesis was H_O-1: “Participants’ ratings for job offer likelihood does not differ between the levels within any of the six cues.” We can see from the first six rows of Table 4 (COMM through ETH) that we can reject H_O-1 for each cue ($p < .001$) and conclude that each cue does affect the mean job offer likelihood rating.

What is perhaps of more interest is which cue effects differ from each other. This leads to our second hypothesis test, H_O-2: “There are no differences in the size of effects on participants’ ratings for job offer likelihood among the six cues.” Figure 1 plots the effects (difference in means at the two levels) of the six cues. These means are calculated across all of the data, i.e. with US and CHK combined. The fact that COMM, CULT, CRIT, and INT do not interact with Country

implies these plots would be very similar for these cues if they were done separately for the two countries. The plots would vary somewhat by country for INPER and ETH as we will discuss later.

In Figure 1, the horizontal line is the mean of all ratings, 2.34. The vertical lines stretch to the mean rating of job offer likelihood at levels 1 and 2 for each cue. For example, the mean job offer likelihood rating for COMM=1 is 1.97 and the mean is 2.70 when COMM=2. All six cues have a positive effect in that the mean at level 2 is greater than at level 1. We see that COMM, CULT and CRIT are similar in magnitude as are INPER, INT and ETH with the second group being larger. Formally testing for differences, we find that within the first group, there are no significant differences nor are there any within the second group. All in the second group are highly significantly larger than the first group (all $p < .01$) with two minor exceptions. Comparing the INT effect to that of CULT we have mild significance ($p = .057$). Similarly, the comparison of ETH and CULT yields $p = .013$. So essentially, INPER, INT, and ETH have similar effects that are larger than COMM, CULT, and CRIT that have similar effects.

Our third hypothesis was H_O-3: "There are no differences between the CHK and US ratings for job offer likelihood." The seventh row (COUNTRY) of Table 4 tests this hypothesis and shows that there is indeed a Country effect ($p < .001$). The mean job offer likelihood rating for US was 2.58 compared to 1.93 for CHK so US provides higher overall ratings. But we also see that there are significant interactions between Country and INPER, as well as Country and ETH.

Figure 2 Shows the Country:INPER interaction ($p=.048$). The magnitude of a two-factor interaction is the difference in the effect of one factor as the level of the other factor changes. In other words, it is the difference in "slopes." We can see that for US, the increase in mean from INPER=1 to INPER=2 (1.08) is slightly less than for CHK (1.27). So CHK participants perceived INPER to be somewhat more important than US participants.

We also see the ETH effect depends on the Country ($p = .003$). This is displayed in Figure 3. The US students perceive a difference of 1.24 between ETH=2 and ETH=1 while this difference is only 0.93 for CHK students. So here we have the opposite of the Country:INPER interaction in that the US perceives ETH to be more important than CHK.

Due to the fractional factorial design implemented, only 16 of the 64 combinations of cues were studied. As a result, interactions fall into groups that cannot be separated. For example, we cannot separate the CULT:ETH effect from that of CRIT:INPER. So if we calculate the mean square (and associated F statistic and p-value) for CULT:ETH, its magnitude is a result of just

CULT:ETH, just CRIT:INPER, or the combination of both. These effects are said to be confounded, i.e. inseparable. As these interactions were not involved in our three hypotheses, and in the interest of brevity, we did not include these two-cue interactions and the interactions between COUNTRY and two cues in Table 4.

Summary of Findings

The study's findings were sufficient to reject all three null hypotheses. The rejection of H_{O-1} indicates that student perceptions of job offer likelihood were strongly impacted by the six cues representing dimensions of business skills/attributes which were incorporated in the decision-making exercise. This is due to the large F-statistic associated with each cue as well as the resulting increase in mean job offer likelihood rating when every cue was increased from the Moderate to High level. Thus, Oral and Written Communication (COMM), Cultural Intelligence (CULT), Critical Thinking (CRIT), Interpersonal Effectiveness (INPER), Internship Experience (INT) and Ethical Awareness (ETH) were perceived as relevant to the likelihood of receiving a job offer. If collectively, subjects felt any of the skills(cues) to be unimportant to the hiring likelihood, we would expect the corresponding F-value would have failed to achieve statistical significance. These results are consistent with the previously mentioned findings of Fletcher and Thornton (2023).

The rejection of H_{O-2} denotes the relative importance participants placed on the six cues was not equal. As presented in Figure 1, the effect of COMM, CULT and CRIT on job offer likelihood is similar to each other and lower in impact than are INPER, INT and ETH. So essentially, INPER, INT, and ETH have similar effects with each other. And these effects are larger than the effects of COMM, CULT, and CRIT, that also have similar effects with each other. It is also important to note that this pattern of clustering is the same for both countries, which was determined from separately analyzing country results. While it is difficult to conjecture, conceptually, why this pattern of clustering of the cue importance emerged, some of the recent literature provides some guidance. And as stated, what follows applies to both countries.

The COMM and CRIT association is supported by Bandyopadhyay and Szostek (2019) and Terblanche and Clercq (2021) who identified communication skills as a necessary attribute of critical thinking. Specifically, the Bandyopadhyay and Szostek (2019) assessment measures for critical thinking include issue identification, information gathering, option exploration, reaching a

final decision (p. 261). The authors go on to describe communication-based elements required for each of the measures which include, “explaining,” “asking questions,” “seeking clarification and input from others,” “discussing alternatives’ viability,” and “justifying.” Terblanche and Clercq (2021) also draw attention to the need for strong communication skills to be included in their comprehensive framework for evaluating the critical thinking competency of accounting students. This is based on their interpretation of the work of Yusuf and Adeoye (2012), which argues that both critical thinking and communication skills are both vital competencies. They base this on their view that solid communication skills enhance critical thinking skills via the interactive process of sharing ideas and facts.

The CULT and CRIT pairing might also be supported by the aforementioned work of Terblanche and De Clercq (2021). Based on their synthesis of the critical thinking literature, the competencies they identify comprising critical thinking are cognitive and dispositional. The cognitive skills noted include the obvious interpret, analyze, evaluate, infer, explain. But the most interesting aspect of their framework involves the dispositional traits necessary, which include being inquisitive, self-confident, open-minded, ethical, systematic, and intrinsically motivated. It would seem that these dispositional traits could be culturally sensitive, suggesting the potential for future research in this area.

The COMM and CULT connection may possibly relate to the study by Kleckner and Butz (2021) where they obtained more recent employer input regarding changes having occurred with respect to needed elements of oral and written communication. The more interesting, and perhaps culturally sensitive, updated outcome priorities for oral communication include comfortably providing feedback, brainstorming, tactful communication with superiors, and accurately interpreting nonverbal cues. Cultural sensitivity may be more likely for the oral outcomes of comfortably providing feedback, communication with superiors, and assessing nonverbal cues. Again, more research is called for regarding this skill pairing.

As to the clustering of INPER and INT, the Rogers et al. study (2021) determined that the internship job characteristic of dealing/working with others was consistently and positively associated with four of the six internship outcomes measured. Specifically, this communication characteristic associated positively with internship outcomes related to internship satisfaction, obtaining occupational knowledge, becoming aware of the challenges of occupational field, and organizational socialization.

One explanation for the INPER and ETH interplay may relate to the explanation provided below for Ho-3 findings for differences between the two countries regarding ETH. As will be noted, cultural differences thought to contribute for this difference may involve the influence of INPER on China's ETH behaviors. Testing for the three way interaction of INPER*ETH*COUNTRY would be required to examine this possibility, but the fractional factorial design of this study precludes this. As will be discussed in the study's limitations, increasing the combinations of cues presented to subjects would remedy this.

The rejection of H_{O-3} demonstrates that systematic differences in job offer likelihood ratings exist between the CHK and US participants. This is represented by the significant Country:INPER and Country:ETH interactions noted in the Analysis and Results section. The Country:INPER interaction indicates that CHK participants perceived INPER to be somewhat more important than US participants. A possible explanation for this finding is provided by Hofstede's works on cultural dimensions (1991, 2001). Hofstede developed a model of national culture via the dimensions: Power Distance (accepting of authority); Individualism (individual achievements recognized and rewarded) or Collectivism (low Individualism; individual success is determined how group members view them); Uncertainty Avoidance (high levels require stable work environments with clear rules; low levels indicate comfort in dealing with unpredictability); Masculinity (high levels suggest work is a top priority with earnings and achievements emphasized; low levels prefer smaller work hours and have modest career ambition). Of relevance to this study, Hofstede assigns low levels of Power Distance to the US and high levels to China. As to Individualism, China and the US have low and high levels, respectively. US is perceived to tolerate more risk than China, and is also higher in the Masculinity dimension. The above discussion will be used below in an attempt to explain this study's differences between the two countries.

Two of Hofstede's cultural dimensions that relate to INPER involve individualism and collectivism. Individualism (low collectivism) is characterized by a culture that recognizes and rewards individual achievements, while collectivism (low individualism) determines individual success by how group members view them. Given the description of Hofstede's cultural dimensions above, the high ranking for individualism for the US is associated with valuing personal success and accomplishment, with most rewards of employment, promotion, driven by individual performance. Conversely, China's low ranking for history is steeped in collectivism

attributes which prioritize group harmony and social order over individual desires. This results in close relationships with family, friends, and colleagues being highly valued. As a result, CHK places great value on one's ability to develop strong interpersonal skills. One way this manifests itself is via following the philosophy of "guanxi" which motivates the establishment of personal relationships in business, often times via gift giving. Much of the above discussion is corroborated by the literature review conducted by Shafer et al. (2007).

With respect to the Country:ETH interaction, US participants perceive ETH to be more important than CHK participants. This interaction is consistent with the Driskill and Rankin (2020) finding that US students exhibit higher levels of ethical reasoning skills than do Chinese students. Driskill interprets the study's findings based on the cultural differences between the two countries. And these cultural differences are evaluated using some of Hofstede's cultural dimensions (1991). Driskill notes from previous works that "Specifically, the lower ethical reasoning skills [of China] were related to moral dilemmas that invoke power distance, collectivism, concern for face, and an emphasis on interpersonal skills (p. 292)." Hence the interplay between. Hence, it is argued that China's cultural dimensions of greater power distance, collectivism, and importance of interpersonal relationships, have significant influence on the country's ethical values. Specifically, these dimensions may facilitate unethical business practices (corruption, bribery, etc.) when confronted with moral dilemmas. In contrast, it is suggested that the US's high rating in individualism and low rating in power distance will likely mitigate tendencies toward unethical behavior when faced with moral dilemmas.

While failure to reject Ho-3 for four of the skills does not imply there are no difference between CHK and US students in these areas, the fact that no statistically significant differences were observed may suggest further research regarding perceived similarity between the two subject groups is warranted.

Limitations and Corresponding Areas for Future Research

Given the exploratory nature of the experimental design used in this study, coupled with the finding that the country main effect is significant, replication of this approach in additional CHK and US studies is necessary to provide a stronger test of the validity of this study's findings, particularly for those discussed in Ho-3. Further, only two countries were included in this study, both

convenience samples. Future research utilizing this design could be conducted in other countries to promote generalizability of findings.

While judgement modeling could provide a more rigorous examination for future research involving cultural perception differences across students and across students and employers, the authors feel that cross-cultural comparisons of employer perceptions would be most valuable. It could be argued that "bridging the cross-cultural gap" across employers is essential for those engaged in cross-cultural work assignments. This would better prepare them to anticipate the management implications of the differences. Hofstede (2001) provides examples of these implications for four dimensions of cultural awareness: Power Distance, Individualism vs Collectivism, Uncertainty Avoidance, and Masculinity. Findings in this area could identify needed areas of improvement within the International Business curriculum. Students could be made better aware of varying employer perceptions of skill importance across cultures, which would better prepare students engaged in cross-cultural internships and/or full time employment, to anticipate and manage the differences.

While no differences were found in responses between business and non-business students, differences may have been masked by the holistic comparison of these two groups, instead of comparing specific functional areas within each. Additional research might also investigate perception differences across specific business areas (e.g., Accounting, Marketing, IT, Finance, Management) and across specific non-business areas (e.g., occupations and areas of study within the Colleges of Arts and Sciences, Education, Technology, Music).

As noted in the Analysis and Results section, the one-quarter fractional factorial design complicates the interpretation of two-factor interactions, since they are confounded with other-two factor interactions. These confounded effects cannot be separated statistically without gathering additional data. Future research could eliminate the two-factor confounding issue by using a one-half fractional factorial design, resulting in participants needing to provide 32 hire-ability assessments. Otherwise, the number of cues would need to be reduced to five to keep the number of hire-ability assessments to 16. Each of these approaches to eliminating the confounding have a downside. Increasing the required assessments to 32 may result in participant stress or carryover effects. Reducing the number of cues obviously requires casting a smaller net of investigation.

It is important to note that the each of the six skills employed by this study subsume multiple attributes/constructs that were not considered. Accordingly, another limitation of this study is that only the holistic skill, and the corresponding description, were presented to subjects. As noted in the recent literature used to attempt to explain the findings presented in the Summary of Findings section, all six of the skills used in this study subsume multiple underlying constructs that would need to be controlled for in any future research efforts in this area of inquiry. This, coupled with increasing the number of cue combinations to increase the number of interaction effects that could be examined, might be a start in explaining many of the interplays between the six skills observed, as well as explaining some of inconsistencies of findings across studies.

Conclusion

At the onset, the authors note that the major contribution of this study is to demonstrate the applicability of the more rigorous judgment modeling methodology in measuring perceptions of importance. It was demonstrated that this novel research paradigm is effective in this area of inquiry, and so it is hoped that this study will be perceived as the "first step" in moving forward with this more rigorous research design in this important area. Obtaining more reliable research results should facilitate even greater improvements in International Business curriculum design regarding the existence of cultural difference in this ever-increasing global economy.

Table 1 Literature Review Summary

Ref. #	Subjects	Location	Findings	Citation
1	Recent Graduates	Australia	Technical Skills more important than Interpersonal, Oral Communication, Computer Literacy Skills	De Lange et al. (2006)
2	Recent Graduates	New Zealand	Personal/Interpersonal Skills most important	Wells et al. (2009)
3	Students	Western Australia	Communication and Teamwork most important	Jackson (2013)
4	Recent Graduates	UK	Oral Communication, Long-Term Commitment, Ethics, and Change Adaptability most important	Webb and Chaffer (2016)
5	Students	China	Communication Skills most important	Smith et al. (2018)
6	Employers	New Zealand	Top three hard skills are Critical Thinking, Communication, Computer Literacy; top three soft skills are Teamwork, Wanting to Learn, Initiative	Coll et al. (2002)
7	Employers	Malaysia	Students perceived weak in Decision-Making, Planning, Communication, and Interpersonal skills; stronger in Computer Literacy, Ethics, Teamwork	Agus et al. (2011)
8	Employers	UK	Data Interpretation and Problem Solving skills ranked in the top three of importance of numeracy skills	Durani, Tariq (2012)

9	Employers	Morocco	Skills needed in descending order of importance- Planning, Teamwork, Culture Attitude, Analysis, Communication tied with Leadership	Tejan, Sabil (2019)
10	Students/Recent Graduates, Employers	Four European Countries	Students and employers similarly value skills of Analysis, Problem Solving, Business Knowledge, Teamwork, Communication, and Prior Work Experience	Andrews, Higson (2008)
11	Students, Employers, Instructors	Australia	Students, employers and instructors perceive international experiences promote graduate employability, and Cultural Sensitivity.	Crossman, Clarke (2010)
12	Students and Employers	SEE Countries	Students and employers similarly value technical skills. Generic skills- students most value Time Management, Self-Confidence, Motivation; employers most value Communication, Foreign Language, Ethics, Long-Term Commitment.	Atanasovski, Lazarevska (2018)
13	Students and Employers	Singapore	Students perceive Positive Attitude, Motivation, Problem Solving most important; most important to employers- Positive Attitude, Teamwork, Ethics, Problem Solving.	Majid et al. (2019)

14	Data-Stream and Thomson One Database of Firms	Cross Cultural- 24 OECD countries	Investment Cash-Flow Sensitivity varies across cultures.	Kashefi-Pour et al. (2020)
15	Students	Cross Cultural- US and China	Ethical Reasoning Sills higher for US.	Driskill, Rankin (2020)
16	KnowledgePanel® Panelists- US Manufacturing and Service Industries- Japan	Cross Cultural- US and Japan	Risk Assessment Variance greater within culture than across cultures.	Wang et al. (2022)

Table 2 Exercise Instructions

This exercise will take about 20 minutes to complete.

You will be asked to make decisions related to the job employment process. Information for 16 different hypothetical business students who have been through the interview process will be presented. The information you are given represents the interviewing organization's impression of the likelihood or chance that an individual student would exhibit certain aspects of job performance, if hired. Only two levels of likelihood are used in this exercise: moderate (representing slightly below average chance) and high (representing a 90% or excellent chance)

Given this set of impressions, you are asked to decide for each hypothetical student, the likelihood that the student will receive a job offer from the organization. Make your decisions based only on the information given to you for each student. Therefore, assume that in all other aspects, the 16 hypothetical students are identical. After making the first few decisions, you should be able to complete the exercise fairly quickly.

Understand that there are no "right" or "wrong" responses, so please express your true feelings. It is important that you make a decision for each of the 16 hypothetical students (printed on both sides of the page). Otherwise your responses will not be usable. So before submitting your completed exercise, please double check that you have provided a response for all 16 hypothetical students, as well as having provided responses to the demographic questions on the last page!

Thank you!

Table 3 Judgement modeling exercise- Hypothetical Student # 1

The organization believes that if it hired this student, the likelihood that--

the student will be able effectively communicate observations and ideas orally and in writing is ..... MODERATE

the student will be able to identify and appreciate cultural differences in the international business setting is ……..... MODERATE

the student will be able to critically evaluate business decisions and make recommendations for solving organizational problems is ..... HIGH

the student will be able to work well with other organizational members and with customers is ..... MODERATE

the student will be able to apply skills learned from internships is ..... HIGH

the student will perform in an ethical manner by making decisions that are in the best interest of all concerned is ……..... HIGH

Taking into consideration the above information, indicate your feeling as to the likelihood that this student will receive a job offer from the firm: (circle one)

-5	-4	-3	-2	-1	0	+1	+2	+3	+4	+5
Very Unlikely										Very Likely

Table 4 Analysis of variance for the combined US and China data (Country = CHK or US). A:B represents the interaction between A and B.

	Df	Sum Sq	Mean Sq	F value	p-value
COMM	1	363	362.5	227.101	< 0.001
CULT	1	462	462.0	289.423	< 0.001
CRIT	1	326	325.5	203.939	< 0.001
INPER	1	900	900.5	564.092	< 0.001
INT	1	755	755.0	472.948	< 0.001
ETH	1	860	859.5	538.439	< 0.001
Country	1	272	272.2	170.524	< 0.001
Country:ID	168	2566	15.3	9.568	< 0.001
Country:COMM	1	1	1.0	0.617	0.43230
Country:CULT	1	0	0.4	0.267	0.60572
Country:CRIT	1	1	1.3	0.789	0.37434
Country:INPER	1	6	6.3	3.923	0.04775
Country:INT	1	1	1.1	0.670	0.41306
Country:ETH	1	14	13.8	8.656	0.00329
Residuals	2524	4029	1.6		

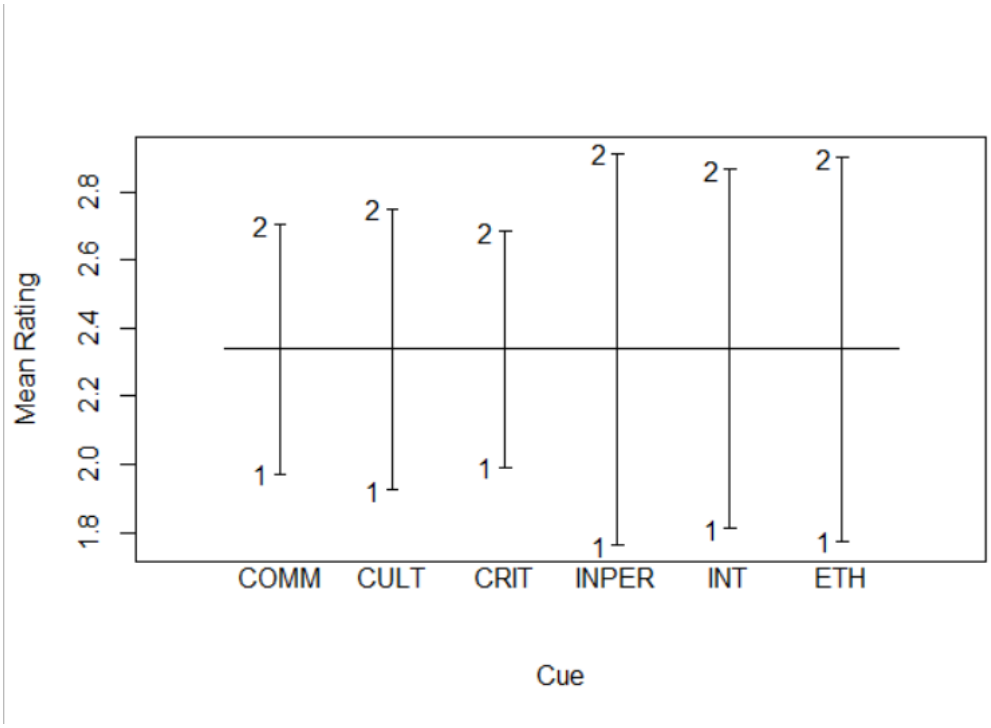

Fig.1 Main effect plots for the six cues. 1 = Moderate, 2 = High.

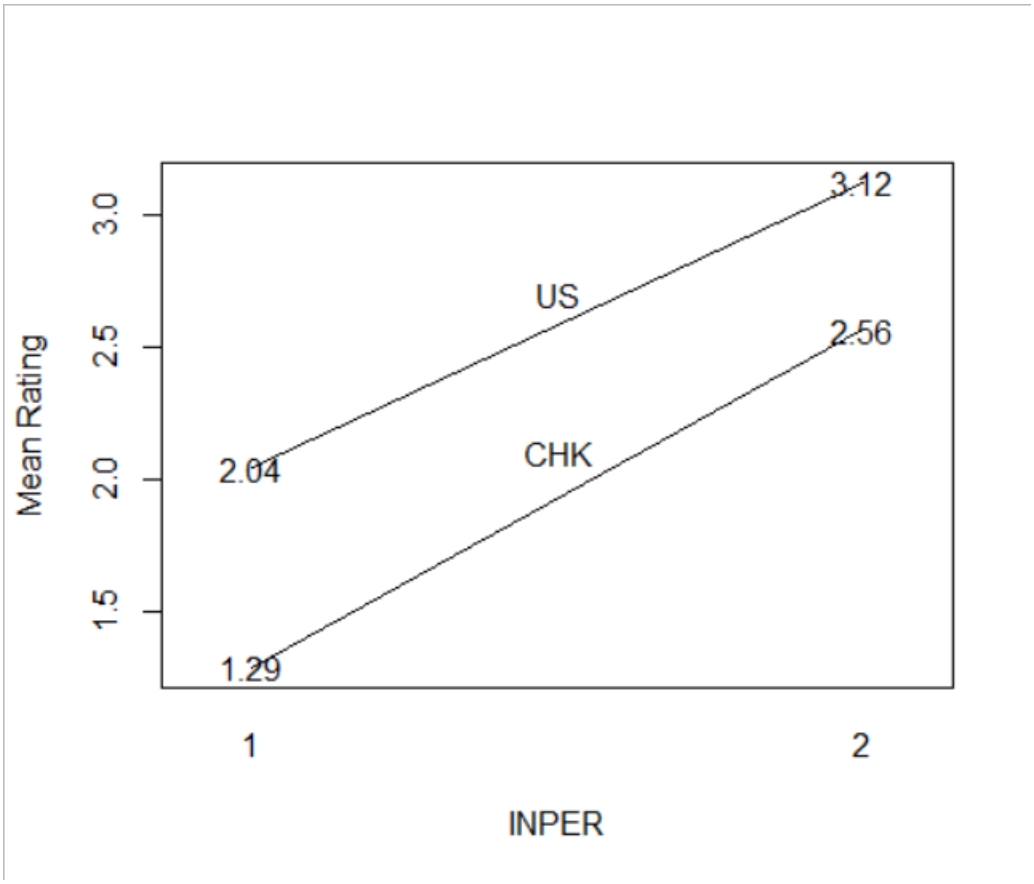

Fig. 2 Interaction plot for Country:INPER (p=.048). 1 = Moderate, 2= High.

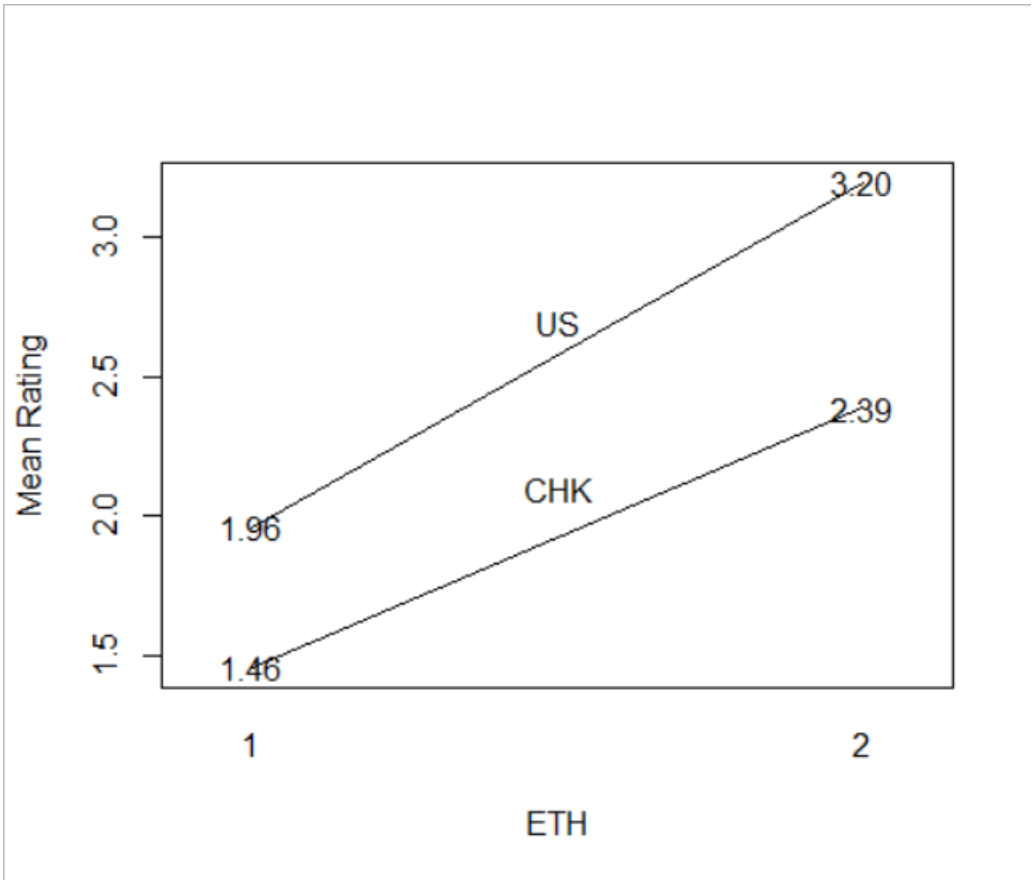

Fig. 3 Interaction plot for Country:ETH (p=.003). 1 = Moderate, 2= High.

References

Agus A, Awang AH, Yussof I, Makhbul ZM (2011) The Gap Analysis of Graduate Employees Work Skills in Malaysia. Proceedings of the International Conference on Business and Information, 1-15, Bangkok, Thailand

Andrews J, Higson H (2008) Graduate employability, 'soft skills' versus 'hard' business knowledge: A European study. Higher Education in Europe 33(4):411-422

Ashton RH (1982) Human information processing in accounting/ studies in accounting research #17. American Accounting Association

Atanasovski A, Trpeska M, Lazarevska ZB (2018) Accounting Students' and Employers' Perceptions on Employability Skills in the SEE Country. European Financial & Accounting Journal 3: 55–71

Bandyopadhyay S, Szostek J (2019) Thinking critically about critical thinking: Assessing critical thinking of business students using multiple measures. Journal of Education for Business 94(4):259-270

Brunswik, E (1952) The Conceptual Framework of Psychology. University of Chicago Press, Chicago

Coll RK, Zegwaard K, Hodges D (2002) Science and technology stakeholders' ranking of graduate competencies Part 1: Employer perspective. Asia-Pacific Journal of Cooperative Education 3(2):19-28

Cross, M (2020) Going International from the Inside Out: Making the Most of Multicultural Staff: Your staff can be a great resource in communicating with other cultures. But be sure to avoid these mistakes. Nonprofit World 38(2):24–25

Crossman J, Clarke M. (2010) International experience and graduate employability: stakeholder perceptions on the connection. Higher Education 59(5):599-613

De Lange P, Jackling B, Gut AM (2006) Accounting graduates' perceptions of skills emphasis in undergraduate courses: an investigation from two Victorian universities. Accounting & Finance 46(3):365–386

Driskill T, Rankin, R (2020) Cross-cultural comparison of ethical reasoning of students in China and the United States. Accounting Education 29(3)291-304

Durrani N, Tariq V (2012) The role of numeracy skills in graduate employability. Education and Training 54(5):419-434

Evenson R (1999) Soft skills, hard sell. Techniques: Making Education & Connections 74(3):29-3

Fletcher S, Thornton K (2023) The top 10 soft skills in business today compared to 2012. Business and Communication Quarterly: 1-16

Hofstede G, (1991) Cultures and Organizations. McGraw-Hill

Hofstede G, (2001) Culture's consequences: comparing values, behaviors and institutions across nations. 2nd ed Sage Publications, Thousand Oaks, CA

Hursch C, Hammond K, Hursch J (1964) Some Methodological Considerations in Multiple Cue Probability Studies. Psychological Review 71:42-60

Jackson D (2013) Student perceptions of the importance of employability skill provision in business undergraduate programs. Journal of Education for Business 88(5):271-279

Kashefi-Pour E, Amini S, Uddin M, Duxbury D (2020) Does cultural difference affect investment-cash flow sensitivity? Evidence from OECD countries. British Journal of Management 31(3):636-658

Kleckner M, Butz N (2021) Addressing undergraduate skill gaps in higher education: Revising communication in the major course outcomes. Journal of Education for Business 96(7):411-423

Kirsch R, Leathers P, Snead K (1993) Student versus Recruiter Perceptions of the Importance of Staff Auditor Performance Variables. Accounting Horizons (4):58-69

Kutner MH, Nachtsheim CJ, Neter J, Li W (2005) Applied Linear Statistical Models. McGraw-Hill Irwin, New York, NY

Lampe M (1997) Increasing Effectiveness in Teaching Ethics to Undergraduate Business Students. Teaching Business Ethics 1:3- 19

Libby R (1981) Accounting and Human Information Processing: Theory and Applications. Contemporary Topics in Accounting Series. Prentice-Hall, Englewood Cliffs, New Jersy

Lozada A (2015) Seductive Route to Convergence, Disclosure: IFRS for SMEs. International Magazine Administration & Finance (RIAF) 8(2):83-103

Majid S, Eapen CM, Ei Mon Aung, Oo, KT (2019) The importance of soft skills for employability and career development: students and employers' perspectives. IUP Journal of Soft Skills 13(4):7–39

Montgomery DC (2013) Design and Analysis of Experiments. John Wiley &Sons, Hoboken, NJ

Nicastro M, Jones D (1994) Cooperative learning guide for marketing: teaching tips for marketing instructors. Prentice Hall, Englewood Cliffs, NJ

Robles M (2012) Executive perceptions of the top ten skills needed in today' s workplace. Business Communication Quarterly 75(4):453-465

Rogers S, Miller C, Flinchbaugh C, Giddarie M (2021) All internships are not created equal: Job design, satisfaction, and vocational development in paid and unpaid internships. Human Resource Management Review 31:1-13

Scholz R, Steiner R, Hansmaim R (2004) Role of internship in higher education in environmental sciences. Journal of Research in Science Teaching 41(1):24-46

Shafer W, Fukukawa K, Lee G (2007) Values and the perceived importance of ethics and social responsibility: The U.S. versus China. Journal of Business Ethics 70:265-284

Smith B, Maguire W, Haijuan Han H (2018) Generic skill in accounting: perspectives of Chinese post graduate students. Accounting and Finance 58(2):535-559

Snead K, Harrell A (1994) An Application of Expectancy Theory to Explain Manager's Intention to Use a Decision Support System. Decision Sciences (4):499-513

Snead K, Johnson W, Ndede-Amadi A (2005) Expectancy Theory as the Basis for Activity-Based Costing System Implementation by Managers. Advances in Management Accounting (14):253-275

Tejan OA, Sabil A (2019) Understanding employers' perception of employability skills and career development in Morocco. International Journal of Education & Literacy Studies 7(2):134-138

Terblanche E, De Clercq B (2021) A critical thinking competency framework for accounting students. Accounting Education 30(4):325-354

Tucker L (1964) A Suggested Alternative Formulation in the Developments by Hursch, Hammond, and Hursch and by Hammond, Hursch, and Todd. Psychological Review (November):528-532

Wang Y, Highhouse S, Brooks M (2022) Culture versus other sources of variance in risk and benefit perceptions: A comparison of Japan and the United States. Journal of Behavioral Decision Making 1-19

Webb J, Chaffer C (2016) The expectation performance gap in accounting education: a review of generic skills development in UK accounting degrees. Accounting Education 25(4):349–367

Wells P, Gerbic P, Kranenburg I, Bygrave J (2009) Professional skills and capabilities of accounting graduates: the New Zealand expectation gap. Accounting Education 18(4/5): 403–420