



## An Application of Judgement Modeling to Examine Inter-Cultural Differences Regarding Perceptions of Business Skill Importance

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### ABSTRACT

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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 were 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 results indicated that INPER, INT, and ETH were associated with similar, substantial effects, while COMM, CULT, and CRIT exhibited smaller and comparable effects. The analysis revealed significant interactions between the country and two cues Interpersonal Effectiveness (INPER) and Ethical Awareness (ETH). Chinese students perceived INPER to be somewhat more important than U.S. students, possibly influenced by cultural dimensions such as the emphasis on interpersonal relationships in Chinese culture. Conversely, U.S. students regarded ETH as more crucial than their Chinese counterparts, aligning with findings that suggest cultural variations, particularly in power distance and collectivism, may influence ethical values. 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 the 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 cultural awareness concerning 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. Culturally intelligent management 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 the 16 hypothetical students, each thought to have a differing combination of levels of six business-related skills. We examine whether participants' ratings for job offer likelihood differ between the levels within any of the six cues, whether there are differences in the size of effects on participants' ratings for job offer likelihood among the six cues, and whether there are significant variations in participants' ratings for job offer likelihood when considering different sources, specifically between the CHK and US. Data were then subjected to statistical analysis to ultimately look for systematic differences in perception between students across the two countries.

Our results indicate that student perceptions of job offer likelihood were strongly impacted by the six cues representing dimensions of business skills/attributes that were incorporated into the decision-making exercise. Furthermore, the relative importance participants placed on the six cues was not equal. The

effect of COMM, CULT, and CRIT on job offer likelihood is similar to each other and lower in impact than INPER, INT, and ETH. So essentially, INPER, INT, and ETH have similar effects with each other. These effects are larger than the effects of COMM, CULT, and CRIT, which also have similar effects with each other. In addition, systematic differences in job offer likelihood ratings exist between the CHK and US participants.

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 the limitations of the study and prospects for future research and conclusions.

## **Literature Review and Hypotheses Development**

### ***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.

The six cues were selected based on a comprehensive review of existing literature focusing on the measurement of perceptions regarding the importance of various business skills. The literature review covered studies involving both students/recent graduates and employers, with a specific emphasis on cultural differences. The discussion in Table 1 provides a succinct overview of the referenced articles, and the relevant studies are categorized

into three groups: those examining student perceptions, those examining employer perceptions, and those examining both.

The student perception studies (De Lange et al., 2006; Wells et al., 2009; Jackson, 2013; Webb and Chaffer, 2016; Smith et al., 2018) presented in Table 1, reference numbers 1-5, contributed insights into the importance of various business skills from the perspective of recent graduates or students. For example, De Lange et al. (2006) found that technical skills were prioritized over generic skills in Australia, while Wells et al. (2009) highlighted the significance of personal and interpersonal capabilities among New Zealand graduates. Jackson's (2013) findings from students attending a Western Australian 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.

On the other hand, the employer perception studies (Coll et al., 2002; Agus et al., 2011; Durrani and Tariq, 2012; Tejan and Sabil, 2019) outlined in Table 1, reference numbers 6-9, offered perspectives on the importance of business skills from the viewpoint of employers. For instance, Coll et al. (2002) surveyed New Zealand employers in the science/technology sector and identified the significance of analytical thinking, written communication, and computer literacy. Agus et al. (2011) investigated employer perceptions of students' preparedness, emphasizing the importance of computer literacy, ethics, and teamwork. The studies by Durrani and Tariq (2012) and Tejan and Sabil (2019) focused on specific skills like numeracy and organization/planning, teamwork, learning theory, and work culture attitude, providing further insights into employer preferences in the UK and Morocco, respectively. The third category encompassed studies examining both student/recent graduate and employer perceptions (Andrews and Higson, 2008; Crossman and Clarke, 2009; Atanasovski and Lazarevska, 2018; Majid et al., 2019), as outlined in Table 1, reference numbers 10-13. These studies provided a holistic perspective by comparing the perceptions of both groups across different cultures. 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) 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, and information technology. Generic skills encompass such areas as problem-solving, communication, time management, and 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 concerning obtaining employment and their long-term careers. However, most important to employers were positive attitude, teamwork, ethics, and problem-solving. Collectively, employers feel the soft skills that graduates possess are below the desired levels.

The above studies examined perceptions of the importance of 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 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 Japanese cultures finding greater variance among raters within the same culture than across cultures.



The selection of the six cues Oral and Written Communication (COMM), Cultural Intelligence (CULT), Critical Thinking (CRIT), Interpersonal Effectiveness (INPER), Internship Experience (INT), and Ethical Awareness (ETH) was informed by the recurring themes and commonly mentioned skills across these diverse studies. The choice was further supported by Fletcher and Thornton (2023), who identified COMM, CRIT, INPER, and ETH as top skills according to US business professionals.

In summary, the six cues were strategically chosen based on the synthesis of insights derived from a broad range of studies, capturing both student and employer perspectives across different cultures and contexts.

### ***Business-Related Skills/Attributes Employed***

As noted above, there is a cadre of commonly used skills across most of the intercultural studies that 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 by students. The input obtained from US business professionals revealed that the COMM, CRIT, INPER, and ETH skills ranked in the top eight of the necessary skills.

### ***Judgment Modeling***

Given this study's focus on 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 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 Hirsch et al. (1964) and Tucker (1964) by 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 that 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 the 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). After 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 not intended to argue that research employing questionnaires, surveys, verbal reports, etc. has no value. The authors argue for the usefulness of these methods, particularly for factfinding and hypothesis-generation applications. 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 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 judgment-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 (26), this exercise represents a one-quarter (16/64) fractional factorial design. While the use of fractional factorial designs results 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 Appendix 1, with a sample situation from the exercise presented in Appendix 2. Appendix 2 provides cue strengths for just one hypothetical student as a way to familiarize the reader with the format of the information provided to participants.

The same format is used for all 16 hypothetical students—the only information changing across all 16 hypothetical students are the levels of cue strengths. To better explain this, a table showing the combination of cue strengths for the 16 hypothetical students has been added as Appendix 3. Note the sixteen hypothetical students were presented in random order to avoid order effects and carryover effects.

### **Manipulation Check**

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. In the manipulation check session, we examine if participants attended to the varying levels of strength (moderate vs high) across the 16 hypothetical students when providing their likelihood ratings. This is another benefit of this judgment modeling approach as cue significance would approach weak levels the more random participants' ratings were (due to disinterest or fatigue). As will be seen, the resulting strong levels of significance associated with each of the six cues, the authors are confident that, collectively, participants diligently attended to the varying relative cue strengths while completing the exercise.

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:** For any cues that do affect 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:

**HO-1:** There are no differences in the size of effects on participants' ratings for job offer likelihood among the six cues.

**Research Question 2:** 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) found 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 2 is:

**HO-2:** 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. The ages of all CHK and US participants were predominately in the 20-23 range.

### **Analysis and Results**

As previously noted, the study's design is often called repeated measures within-subjects design in the social sciences. The within-subject's treatments are the 16 "Moderate" and "High"

cue combinations embedded in the decision-making exercise, and the between-subject's treatment is Country (CHK and US). Subject ID is used to control 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  $FCOMM = MSCOMM/MSCOMM: ID$ . However, each of the denominator MS is 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 consists 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 2 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 HO-1: "Participants' ratings for job offer likelihood do not differ between the levels within any of the six cues." We can see from the first six rows of Table 2 (COMM through ETH) 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 first hypothesis test, HO-1: "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 have similar effects.

Our second hypothesis was HO-2: "There are no differences between the CHK and US ratings for job offer likelihood." The seventh row (COUNTRY) of Table 2 tests this hypothesis and shows that there is indeed a Country effect ( $p < .001$ ). The mean job offer likelihood rating for the US was 2.58 compared to 1.93 for CHK so the 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 the 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. Although none of the other four cues interacted significantly with country, for completeness of presentation, the same information for these cues is collectively presented in Figure 4.

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 2.

## Summary of Findings

The study's findings were sufficient to reject all null hypotheses. The rejection of HO-1 denotes that 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 INPER, INT, and ETH. So essentially, INPER, INT, and ETH have similar effects with each other. These effects are larger than the effects of COMM, CULT, and CRIT, which 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, and 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 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 interpretation, 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 relate to the study by Kleckner and Butz (2021) where they obtained more recent employer input regarding changes having occurred concerning 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, communicating 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 is associated positively with internship outcomes related to internship satisfaction, obtaining occupational knowledge, becoming aware

of the challenges of the occupational field, and organizational socialization.

One explanation for the INPER and ETH interplay may relate to the explanation provided below for Ho-2 findings for differences between the two countries regarding ETH. As will be noted, cultural differences thought to contribute to 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 HO-2 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 by 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. The 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 in the US is associated with valuing personal success and accomplishment, with most rewards of employment, and promotion, driven by individual performance. Conversely, China’s low ranking for individualism 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, oftentimes via gift giving. Much of the above discussion is

corroborated by the literature review conducted by Shafer et al. (2007).

Concerning the Country: ETH interaction, US participants perceive ETH to be more important than CHK participants. This interaction is consistent with Driskill and Rankin (2020) finding that US students exhibit higher levels of ethical reasoning skills than Chinese students.

Driskill interprets the study's findings based on the cultural differences between the two countries.

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. It is argued that China's cultural dimensions of greater power distance, collectivism, and the importance of interpersonal relationships, have a 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-2 for four of the skills does not imply there is 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.

## 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 differences in this ever-increasing global economy.

This study offers significant contributions to existing literature in three main aspects. Firstly, it directly compares student perceptions of business skills' importance between China/Hong Kong (CHK) and the United States (US), providing insights into cross-cultural variations in these perceptions within two major global economies. Secondly, the research employs a rigorous judgment modeling methodology to enhance the accuracy and reliability of data collected from students, addressing concerns raised by previous studies about subjective reporting. This approach establishes a more robust experimental framework for investigating perceptions. Thirdly, the study focuses on a specific set of business skills Oral and Written Communication (COMM), Cultural Intelligence (CULT), Critical Thinking (CRIT), Interpersonal Effectiveness (INPER), Internship

Experience (INT), and Ethical Awareness (ETH) allowing for a streamlined analysis and comparison of student ratings.

Given the exploratory nature of the experimental design used in this study, coupled with the finding that the country's 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-2. 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 the generalizability of findings.

While judgment modeling could provide a more rigorous examination for future research involving cultural perception differences across students and 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 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 has a downside. Increasing the required assessments to 32 may result in participant stress or carryover effects. Reducing the number of cues requires casting a smaller net of investigation.

It is important to note that each of the six skills employed by this study subsumes 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 the inconsistencies of findings across studies.

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**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)  |

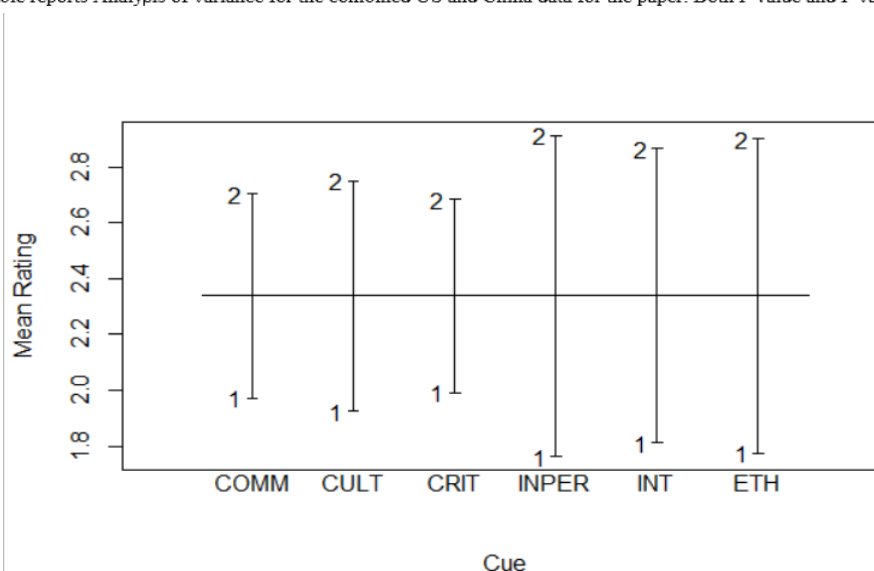
|    |                                                                           |                                   |                                                                                                                                                                                                                                |                                |
|----|---------------------------------------------------------------------------|-----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|
| 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** Analysis of variance for the combined US and China data (Country = CHK or US).

A: B represents the interaction between A and B.

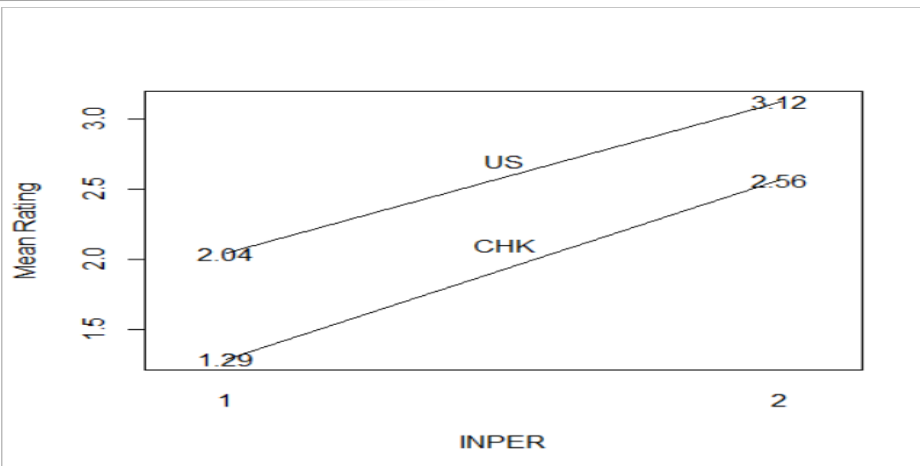
|               | Df   | Sum Sq | Mean Sq | F value | p-value |
|---------------|------|--------|---------|---------|---------|
| COMM          | 1    | 363    | 362.5   | 227.101 | < 0.001 |
| CULT          | 1    | 462    | 462.0   | 289.423 | < 0.001 |
| CRIT          | 1    | 326    | 325.5   | 203.939 | < 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     |         |         |

This table reports Analysis of variance for the combined US and China data for the paper. Both F value and P value are reported.

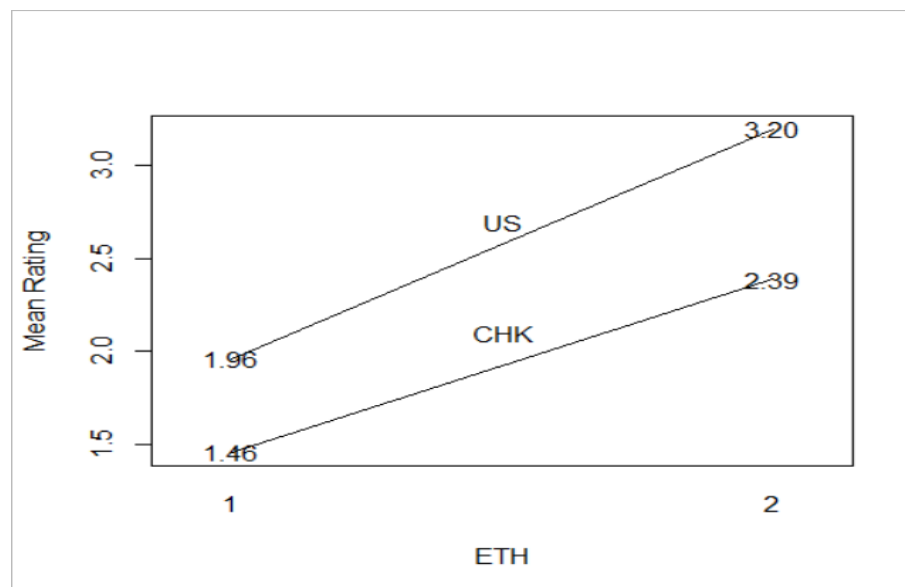


**Fig.1** Main effect plots for the six cues. 1 = Moderate, 2 = High

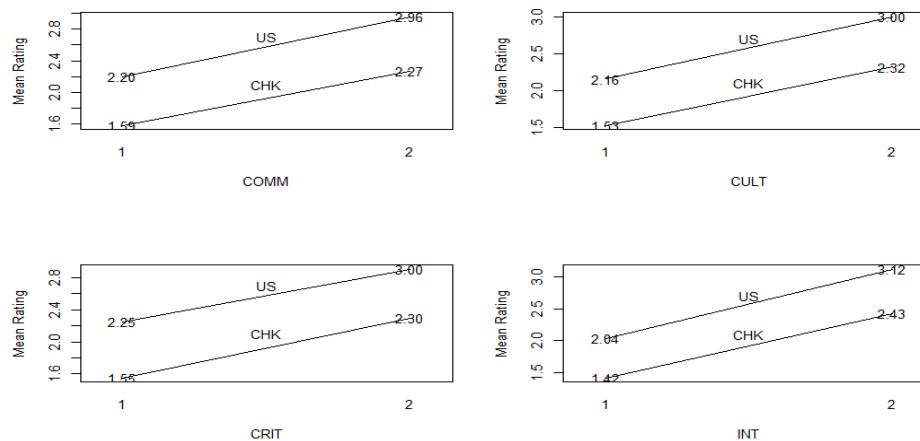




**Fig. 2** Interaction plot for Country: INPER ( $p=.048$ ). 1 = Moderate, 2= High



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



**Fig. 4** Plots of non-significant interactions of country with COMM, CULT, CRIT, and INT. 1 = Moderate, 2= High.

## Appendix

### Appendix 1 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!

### Appendix 2 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      Very  
Unlikely      Likely

### Appendix 3 Cue Strength Combinations for 16 Hypothetical Students (HS 1 - HS 16)

M = Moderate Level; H = High Level

| Cue   | HS 1 | HS 2 | HS 3 | HS 4 | HS 5 | HS 6 | HS 7 | HS 8 | HS 9 | HS 10 | HS 11 | HS 12 | HS 13 | HS 14 | HS 15 | HS 16 |
|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| COMM  | M    | M    | H    | H    | H    | M    | H    | H    | M    | H     | M     | H     | M     | M     | M     | H     |
| CULT  | M    | M    | H    | M    | H    | H    | M    | H    | H    | M     | M     | M     | H     | M     | H     | M     |
| CRIT  | H    | M    | M    | M    | M    | H    | M    | H    | M    | H     | M     | H     | H     | H     | M     | H     |
| INPER | M    | H    | H    | H    | M    | M    | M    | H    | H    | M     | M     | M     | H     | H     | M     | H     |
| INT   | H    | M    | M    | H    | M    | M    | H    | H    | H    | H     | M     | M     | M     | H     | H     | M     |
| ETH   | H    | H    | M    | H    | H    | M    | M    | H    | M    | M     | M     | H     | H     | M     | H     | M     |