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Perceptions of technical skills required for successful management in the hospitality industry—An exploratory study using conjoint analysis

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ABSTRACT

The growth of hospitality programs worldwide has resulted in wide variations in program structures, curricular offerings, and course content, all of which have prompted researchers to examine essential competencies and industry needs to inform programmatic restructuring. This paper explores how important various technical skill sets are perceived to be by students, faculty, and industry professionals today. Building on the extant literature, we identified seven key technical skills: Academic performance (using grade point average as a surrogate), social networking, time management, strategic planning, spreadsheet acumen, written communication, and oral communication. Drawing from a convenience sample, 98 respondents ranked the student characteristics by ranking 18 hypothetical student job candidates, each of which was represented on a card. Developed using an orthogonal array, the hypothetical student/job candidate cards were created by varying the three values of the seven characteristic variables; the ranking responses for the 18 cards were then examined using conjoint analysis. Professionals and faculty disagreed with student respondents with respect to GPA and Spreadsheet Skills, ranking them lower in importance than other characteristics. Faculty should note that even though they do not perceive expert knowledge of spreadsheet skills to be important, professionals do. Additional research is necessary to determine whether faculty should update their perception of the demand for spreadsheet skills on the current market. Faculty also perceived social networking skills to be less important than the other respondent groups did. Finally, while Oral Communication Skills were valued more highly than any other skill set, the rankings yielded a progression of perceptions such that students valued them less highly than professionals did, and professionals valued them less highly than faculty did.

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In the 1940s only nine four-year hospitality programs existed in the United States but since then that number has grown by leaps and bounds, from 45 in 1982 and 164 in 1992 (Rutherford, 1994) to more than 200 today as listed in the *I-CHRIE Guide to College Programs* (International CHRIE, 2010). This expansion has resulted in wide variations in program structures, curricular offerings, and course content, all of which have prompted researchers to examine essential competencies and industry needs to inform programmatic restructuring. Research has focused on identifying skill sets that should be taught to best prepare students for successful entry into the industry, assessing how well programs are aligning their graduation requirements with the standards demanded by future employers, and determining whether it is necessary to undertake a realignment of programs with these standards to ensure that hospitality graduates are educated and trained to satisfy the needs and expectations of the industry.

In his seminal study, Tas (1988) listed a range of competencies that general managers of 75 U.S. hotels deemed important to the success of management trainees. Since then, hospitality researchers have continued to identify fundamental competencies and curricular needs perceived to be important by industry professionals in a variety of hospitality fields (Breiter and Clements, 1996; Christou, 2002; Chung-Herrera et al., 2003; Fjelstul, 2007; Pavesic, 1993; Reynolds, 2000; Umbreit, 1992, 1993; Wilson et al., 2000). Some of these skill sets apply across all areas of the industry and others are more discipline specific. In addition to identifying important competencies, researchers have also compared how students, educators, and industry professionals perceive such competencies in order to determine whether there is broad stakeholder agreement on the skills needed for various roles in the hospitality industry (e.g., Mayo and Thomas-Haysbert, 2005; Raybould and Wilkins, 2005; Sciarni et al., 1995).

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According to Ninemeier (2010), entry-level supervisors "generally use their technical skills more than any other managers" (p. 27). On-the-job technical skills range from letter writing, e-mailing, scheduling, and interacting with guests and employees to budgeting, forecasting, and strategic planning. Such technical skills in one format or another have been identified in numerous studies as important competencies desired by industry. Moreover, there is a wide range of how technical (i.e., hard skills) and soft skills are defined, often with some overlap. Laker and Powell (2011) defined technical skills as those skills that involve working with equipment, data, and software. Additionally, they defined soft skills as intrapersonal skills and how one handles interactions with others. Weber et al. (2013) describe soft skills as those related to human and interpersonal actions whereas hard skills are related to the technical and administrative aspects of operating a business. Extending this, social networking involves the ability to effectively manage websites and social media including Facebook, Twitter, Linked In, etc. While interacting on these sites may very well have an interpersonal component there is also technical function to administering them.

While there have been some recent studies in this area, a large concentration of hospitality program competency research was conducted in the early and mid-1990s. Therefore the purpose of this study was to determine how important various technical skill sets are perceived to be by hospitality students, faculty, and industry professionals today using Conjoint Analysis. The overarching goals is to form a better understanding of industry expectations, which will in turn lead to improvements in curricular design and ultimately better prepare students for entry-level management positions in the hospitality industry. Similarly, examining the similarities and gaps between the perceptions of faculty, industry, and students competencies can lead to improved curricular design. Such an inquiry is supported by Wickramasinghe and Perera (2010), for example, who identified curriculum revisions as the top most identified measure taken by universities to develop skills in students during their time as undergraduate students in their respective degree programs. Moreover, Aistrich et al. (2006) explored gaps in marketing education with a sample of corporate planners, managers, owners, manufacturers etc. In that study, the authors were examining how far removed educators were from real world issues, which impacts the relevancy of what is being taught. As hospitality programs continue to review and revise their core competencies, the information presented in our study could serve similarly as a useful reference.

This study is an extension of our initial study (Ruetzler et al., 2011) that examined interviewing attributes using conjoint analysis. From the initial study, questions about the perceptions of professional dress and job skills were incubated. Two studies followed the initial study, this one and another examining the perceptions of professional dress during the interview process (Ruetzler et al., 2012).

1. Literature review

The premise of the study is to better understand the perceived importance of technical skills for hospitality management students by students, faculty, and industry. The relevant literature can be categorized into two specific areas. First is the research that identifies desirable competencies that hospitality graduates possess as they begin their careers. The majority of this research is from the perspective of industry professionals in areas such as lodging, foodservice, and club management. The second area of literature includes studies that not only identify desired competencies but also compare perceptions of the importance of those competencies on the part of students, faculty, and industry professionals, which was also the objective of this study. Building on these two areas, then, we identified seven key technical skills.

1.1. Grade point average

Although grade point average (GPA) is not a technical skill, for this study we used GPA as an indicator of student performance in a degree program, which may indicate in turn a student's success in acquiring the competencies demanded on the job market. Thus, although using GPA as a selection variable in the hiring process is controversial, it can serve as a performance evaluation tool similar to a job evaluation, which is important when an applicant has a limited work history (Baker and McGregor, 2000; Kuncel et al., 2004; Posner, 1981; Ruetzler et al., 2011).

1.2. Social networking

Social networking encompasses blogs, video and photo sharing sites, message boards, and other online communities (Hanna, 2008; Sieburgh and Berkus, 2007). Propelled by the rocketing success of sites such as Facebook, Twitter, and LinkedIn, this is the hottest technological trend to hit the industry and all hospitality managers will need to master social networking and related marketing skills (Sieburgh and Berkus, 2007). Not only are these skills vital in reaching customers, they can also be used to increase productivity and reduce employee turnover through developing team loyalty among employees (Bentley, 2008; Ketter and Ellis, 2010). Since most research on competencies was conducted in the early 1990s, however, social media skills have not been included in the desired skill sets. Most research on social media focuses on operational applications; therefore, we considered it important to include social media use as a technical competency in this study.

1.3. Time management skills

Personal management skills are associated with being productive and time management is a dimension of such skills (Chung-Herrera et al., 2003). Good time management skills have been described as including effective handling of multiple demands and priorities, managing time to ensure productivity, and spending time on the most important—not necessarily the most urgent—issues (Chung-Herrera et al., 2003). Of the seven leadership competencies identified by Chung-Herrera et al. (2003), time management, a dimension of self-management, was the leading competency desired by senior-level hotel managers. Raybould and Wilkins (2005, 2006) compared hotel managers' and hospitality students' perceptions of 52 skills as reflected in rankings that were clustered under a range of generic skills titles. Under the "self-management" skill group, time management skills were ranked seventh in importance by managers and second in importance by students. This was a narrower gap than was reported for many of the other traits, indicating that the perceptions of students and the industry professionals were in fairly close agreement.

1.4. Strategic planning skills

In hospitality management, strategic planning is critical to staying afloat in a competitive environment, a point that applies throughout an organization to senior managers, middle managers, and frontline employees. As a result, strategic planning skills are considered a necessity in a new hire (Okumus and Wong, 2005, 2007; Okumus et al., 2008). Chung-Herrera et al. (2003) identifed strategic positioning as the competency ranked second in importance by hotel managers in their study; the dimensions by which this factor was assessed included awareness of customer needs, commitment to quality, managing stakeholders, and concern for

the community. Christou (2002) determined that managing guest problems and maintaining positive customer relations were also essential skills identified by hotel managers. Other dimensions of strategic planning include quality management, systems design, process improvement, teamwork, business policy, strategy analysis, and sustainability (Breiter and Clements, 1996; Okumus et al., 2008). Strategic planning is, on average, ranked among the top five preferred skills that graduates should bring to the market (Breiter and Clements, 1996; Christou, 2002; Fjelstul, 2007; Miranda, 1999).

1.5. Spreadsheet skills

Studies show that working knowledge of budgeting and spreadsheet administration is at least a moderately important skill for prospective employees (Breiter and Clements, 1996; Christou, 2002; Mayo and Thomas-Haysbert, 2005; Miranda, 1999; Tas, 1988; Wilson et al., 2000). Spreadsheet skills were first identified as important by Tas (1988) and later reconfirmed as such by Christou (2002). Spreadsheet skills were defined to include preparing financial reports, scheduling, and tracking revenues and expenses. Interestingly, these competences, which were ranked as moderately important in the Tas study, had taken on considerable importance by 2002. This implies that advances in technology have created greater expectations of graduates.

Research has found a range of results when comparing industry, faculty, and student perceptions of spreadsheet skills. For example, Sciarni et al. (1995) reported that in their study faculty and students rated spreadsheet skills more highly than industry professionals did. Yet a sample of managers in Raybould and Wilkins (2005) ranked standard office skills (word processing, spreadsheet building) 20th out of the 52 skills studied while students ranked it 33rd, a statistically significant difference between students' and managers' perceptions of this skill set.

1.6. Communication (oral and written)

Adler and Elmhorst (1996) classified oral and written communication skills as a subset of 'human skills' and noted "successful people recognize the role communication skills have played in their career" (p. 5). Moreover, senior managers see communication skills as critical to the prospects for promotion of lower-level managers (Chung-Herrera et al., 2003). Indeed, every study that was analyzed for this literature review identified communication skills, either oral or written, as essential to success in an organization (Baker and Harris, 2000; Breiter and Clements, 1996; Christou, 2002; Chung-Herrera et al., 2003; Fjelstul, 2007; Kay and Russette, 2000; Mayo and Thomas-Haysbert, 2005; Posner, 1981; Reynolds, 2000; Sciarni et al., 1995; Tas, 1988; Tesone and Ricci, 2006; Wilson et al., 2000). In the studies that compared perceptions of the importance of communication skills, all stakeholders—including students, faculty, and industry—rated these skills among the highest. For example, Baker and Harris (2000) compared the perceptions of three professional groups with those of students and faculty; subjects in all five groups rated communication among the three most important employment skills. Finally, Berko et al. (1993) described communication skills as critical and noted they should be included in any type of skills-training program.

While some of the studies operated with broadly defined communication constructs, such as "communicates effectively both in writing and orally" or "effective listening, verbal, and written communications," Raybould and Wilkins (2005) examined very specific criteria for both oral and written communications. Of the 52 skills examined, the authors included the following examples of oral skills: defending or arguing a case, providing one-on-one coaching, conducting staff briefings, communicating in a businesslike manner, communicating appropriately with other members of a work group, and conducting interviews. Managers and students ranked these skill sets similarly. The most important of these skills were "businesslike communications on the phone," which was ranked 12th by both managers and students, and "communicating with other members of a work group," which was ranked ninth by managers and fourth by students. The other oral skill sets were ranked lower than 26th. The study included skills in writing e-mails, business reports, letters, and internal memos among written communications skills. Again, these skills ranked in the lower half of all the skills but significant gaps between the rankings were not reported, indicating that students and industry professionals perceived them similarly.

2. Research questions

Based on the literature review, we selected seven characteristics to examine in this study: Grade Point Average, Social Networking Skills, Time Management Skills, Strategic Planning Skills, Spreadsheet Skills, Oral Communication Skills, and Written Communication Skills. With these items defined as student characteristic variables, we posed the following research question:

RQ1 How important is each of the seven student characteristics as perceived by industry professionals, faculty, and students?

We know of no rigorous research undertaken to determine whether, or the extent to which, the perceptions of professionals, faculty, and students of the importance of these variables differ from one another. This question matters because if industry professionals, for example, perceive a particular variable to be more important than faculty or students perceive it to be, four-year hospitality programs might wish to re-orient their curricula to reflect this difference. Differences between groups are therefore important for both understanding professional practice and improving the educational process. The purpose of the second research question is to examine these differences:

RQ2 How do industry professionals, faculty, and students rank the seven student characteristics in order of importance?

In addition to determining the degree to which the rankings of student characteristic variables agree between industry professionals, faculty, and students, we wanted to extend our study to explore whether the rankings support the prediction of hiring preferences. Conjoints that are powerful enough to predict hiring preferences will create awareness in the profession and prove useful to faculty whose responsibilities include advising students.

RQ3 To what extent can the rankings of student characteristics by industry professionals, faculty, and students be used to predict hiring preferences?

3. Methodology

To ensure data could be gathered efficiently from all three groups identified for the study, we targeted the 2010 National Restaurant Association (NRA) Show in Chicago to conduct the research. The NRA Show attracts more than 2000 exhibitors and 70,000 participants over a four-day period. In addition to the professional exhibitors that attend to Show, dozens of colleges and universities also have exhibit booths to promote their respective hospitality/culinary programs. While other hospitality programs are not exhibitors, they send several faculty and students to attend the show as participants.

All subjects in the study were over the age of 18 years. The convenience sample included participants representing industry professionals, faculty, and students. The industry professionals represented all facets of the industry including foodservice and lodging

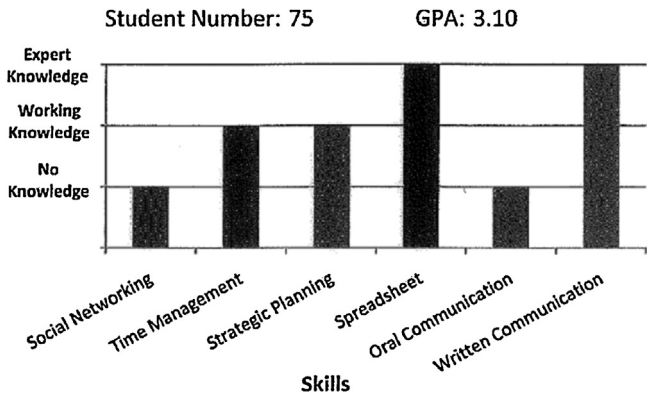

Fig. 1. Example of one of the cards.

operators as well as suppliers. While some of the industry participants may not have direct employee hiring responsibilities, they are professionals who understand the skills needed to be successful in the hospitality business world. The faculty and students who participated represented hospitality programs including two-year colleges and four-year universities.

All subjects were randomly solicited for voluntary participation by the research team primarily via intercept while they were walking through the NRA Show. However since professional exhibitors are primarily at the Show for business, it was easier to gather data from them at their exhibit booths during the slower periods of the Show such as the first hour that the convention hall doors opened or in the late afternoon. The Show is closed to the public so there was no concern about having to weed through perspective participants that did not fall into one of the three target groups.

Respondents ranked the student characteristics by ranking 18 hypothetical student job candidates, each of which was represented on a card (see Fig. 1). There were 119 responses. Four respondents supplied incorrect rankings, meaning that they did not choose the optimum candidate as their first choice. The 18 cards that each respondent ranked also provided a manipulation check (discussed shortly); 17 respondents failed the manipulation check. Thus, as shown in Table 1, there were 98 usable responses. The majority of those who failed the manipulation check were the industry professionals; of the 17 respondents that failed the manipulation check, 13 (76%) were industry representatives. The time required to analytically rank both sets of cards ranged from ten to twenty minutes. Many of the industry representatives agreed to participate in the study not realizing the time commitment required for the study and then hastily completed the rankings. The time commitment may have affected the high percentage of failed manipulation checks for industry representatives. However there were still an acceptable amount of rankings from this group to complete the study.

The values of the student characteristic variables with respect to each of the corresponding skills were "No Knowledge," "Working Knowledge," and "Expert Knowledge." This applied to the following variables: social networking, time management, strategic planning, spreadsheet skills, oral and written communication. To rank GPA we followed Baker and McGregor (2000) by assigning GPAs of 2.50, 3.10, and 3.70.

The hypothetical student/job candidate cards were created by varying the three values of the seven characteristic variables. Fully replicating the range of values of the seven characteristic variables would have necessitated creating (and ranking) 2187 cards ($3 \times 3 \times 3 \times 3 \times 3 \times 3 \times 3$) to represent every available theoretical job applicant and the associated skill sets. Instead, an orthogonal array of 18 cards (Addelman, 1962) was developed for the seven characteristic variables. This allows for far fewer theoretical job applicant cards representing all of the seven characteristics, and facilitates more efficient data collection. The correlations between the characteristics in the array were all zero, allowing the effects of the characteristics to be examined without full replication.

Table 1
Usable responses.

Group	Respondents	Supplied incorrect rankings	Failed manipulation check	Total usable responses
Professionals	51	1	13	37
Faculty	21	1	1	19
Students	47	2	3	42
Total	119	4	17	98

3.1. Respondents' task

Respondents were asked to rank the hypothetical students from "1" (*most desirable job candidate*) to "18" (*least desirable job candidate*). Each card had a two-digit "student number" that the respondent could write next to the appropriate ranking. (The student numbers associated with the respective cards were assigned randomly.) Next, each subject ranked a second set of four hypothetical students. These four cards contained randomly assigned characteristic levels. This second set of rankings was used to determine whether the results from the first 18 rankings could be reliably used to predict hiring preferences. These four cards all differed from the original 18 cards.

3.2. Conjoint analysis approach

The ranking responses for the 18 cards were examined using conjoint analysis (Green and Srinivasan, 1978; Green and Wind, 1975). Conjoint analysis develops measures of utility that represent the importance of the various values of independent variables. The analysis was performed using ordinary least squares regression. The beta coefficients (conjoints) that are derived from the regression model are measures of utility (see the appendix for the model).

The characteristic variables were coded beginning with values representing a ranking of least desirable. A priori, the least desirable value of each of the seven characteristic variables was therefore No Knowledge. Each characteristic was coded using two dummy variables. No Knowledge was coded using zeroes for both variables. Working Knowledge was coded using one for the first variable and zero for the second. Expert Knowledge was coded using zero for the first variable and one for the second. Using two variables for each of the seven characteristics resulted in 14 conjoints. We used the conjoints to measure the utility of any variable relative to the (No Knowledge) base. No Knowledge values are essentially base values for measuring utility.

Conjoint analysis was used to examine the utility of the seven student characteristic variables for each of the three groups in response to the first research question. MANOVA, fourteen univariate ANOVAs (one for each conjoint), and Tukey's Studentized Range Test (where appropriate) were used to address the second research question. Here, as mentioned above, respondents ranked a second set of four hypothetical students. Kendall's Tau statistic was used for each of the three groups to compare the actual results (from the four cards) with the predicted results (based upon the results using the 18 cards). These Kendall Tau statistics were used to answer the third research question.

Table 2
Conjoints and their rankings (RQ1).

Conjoint levels	Professionals		Students		Faculty	
	Conjoint	*p*-Value	Conjoint	*p*-Value	Conjoint	*p*-Value
3.10 grade point average	0.559	0.1648	2.016	0.0000	0.877	0.0898
3.70 grade point average	2.293	0.0000	3.377	0.0000	1.939	0.0002
Social networking skills – working knowledge	1.721	0.0000	2.365	0.0000	1.500	0.0039
Social networking skills – expert knowledge	2.550	0.0000	3.694	0.0000	1.658	0.0014
Time management skills – working knowledge	2.131	0.0000	2.798	0.0000	3.026	0.0000
Time management skills – expert knowledge	3.572	0.0000	3.798	0.0000	4.053	0.0000
Strategic planning skills – working knowledge	1.748	0.0000	1.687	0.0000	1.728	0.0009
Strategic planning skills – expert knowledge	2.509	0.0000	2.694	0.0000	3.088	0.0000
Spreadsheet skills – working knowledge	0.595	0.1392	1.520	0.0000	0.895	0.0836
Spreadsheet skills – expert knowledge	1.108	0.0060	1.183	0.0009	0.605	0.2413
Oral communication skills – working knowledge	2.568	0.0000	2.167	0.0000	4.079	0.0000
Oral communication skills – expert knowledge	4.500	0.0000	3.512	0.0000	5.658	0.0000
Written communication skills – working knowledge	0.977	0.0000	1.702	0.0000	1.281	0.0135
Written communication skills – expert knowledge	1.685	0.0000	1.893	0.0000	2.272	0.0000
R^2	0.34983		0.42054		0.46176	

4. Results

4.1. RQ1: ranking the seven characteristics

Conjoints and their *p*-values are presented in Table 2. Students perceived all characteristics to be important at all levels (all *p*-values < 0.05). They also placed their heaviest emphasis on GPA, Social Networking Skills, Time Management Skills, and Oral Communication Skills. Faculty and industry professionals did not, however, perceive all characteristics to be of equal importance. Neither professionals nor faculty perceived a GPA of 3.10 to be important; thus, to these two groups, a GPA of 3.10 was no better than a GPA of 2.50. Note, however, that a GPA of 3.70 was important to both groups. Also, neither professionals nor faculty perceived having Working Knowledge of Spreadsheet Skills to be important. For both groups, having Working Knowledge of Spreadsheet Skills was perceived as being no more important than having No Knowledge of Spreadsheet Skills. Professionals perceived having Expert Spreadsheet Skills to be important, but faculty did not. Oral Communication Skills were perceived to be the most important skills by both professionals and faculty.

4.2. RQ2: how rankings vary across respondent groups

MANOVA was used to demonstrate that the three groups differed significantly (*p*-value < 0.0001). We then ran univariate ANOVAs to examine differences between groups. In cases in which ANOVAs indicated differences, Tukey's Studentized Range Test, which controls for the experiment-wise error rate, was used to determine which groups differed significantly. The ANOVAs were significant (and thus Tukey's Range Test was appropriate) for all conjoints except Working Knowledge of Strategic Planning Skills (*p*-value 0.8664). These results are presented in Table 3.

Student rankings differed significantly from those of both professionals and faculty regarding GPAs of 3.10 and 3.70. Students ranked GPA higher than members of the other groups did. Indeed, as mentioned earlier, professionals and faculty believe that a GPA of 3.10 is no better than one of 2.50. Students ranked GPA higher than members of the other groups did. This may reflect evolving communication media choices that are now largely driven by the millennial generation to which students belong. Note that professionals ranked Expert Knowledge of Social Networking Skills more highly than faculty did, which suggests that professionals are realizing that social networking depends on an increasingly important set of skills. Perhaps faculty should also acknowledge the importance of social networking.

Having either Working Knowledge or Expert Knowledge of Time Management Skills was perceived to be important by all three groups. However, professionals ranked Working Knowledge of Time Management Skills lower than either faculty or students did, and they ranked Expert Knowledge of Time Management Skills lower than faculty did. The groups' perceptions of the importance of Working Knowledge of Strategic Planning Skills did not differ significantly, but faculty ranked Expert Knowledge of Strategic Planning Skills higher than professionals or students did. As for Spreadsheet Skills, Students ranked Working Knowledge of Spreadsheet Skills higher than faculty or professionals did. This is consistent with the finding with respect to RQ1 that faculty and professionals did not perceive Working Knowledge of Spreadsheet Skills to be important. Faculty also, consistent with RQ1-related findings, did not perceive Expert Knowledge of Spreadsheet Skills to be important, differing significantly from professionals and students on this characteristic. Perhaps faculty should consider emphasizing spreadsheet skills, at least when they are elevated to expert level, in curricular improvement efforts.

Communication Skills—both Oral and Written—were perceived to be important by all three groups. Oral Communication Skills were perceived to be the most important skills in the study, although the three respondent groups' rankings differed significantly from each other. For example, faculty ranked Working Knowledge and Expert Knowledge Oral Communication Skills higher than Professionals did, while Professionals ranked these values of communication traits higher than students did. Once again, the millennial generation strongly favors electronic modes of communication, especially the social media over which they conduct their social networking activities. Professionals and faculty should emphasize how highly they regard the ability to communicate orally. Students seem to understand that this is important, but they seem not to realize how highly it is prized by those in academia and industry on whose judgments their careers depend.

Respondents in all three groups perceived Working Knowledge of Written Communication Skills to be important to some extent, but students ranked it higher than professionals or faculty did. However, faculty ranked Expert Knowledge of Written Communication Skills higher than students or professionals did. This suggests that Expert Knowledge of Written Communication Skills is necessary to student success in hospitality education programs, apparently contrary to their perception that simply having Working Knowledge of Written Communication Skills is sufficient.

4.3. RQ3: predicting hiring preferences

Every student ranked a second group of four hypothetical students who were randomly assigned values for the student

Table 3
MANOVA, univariate ANOVAs, and Tukey results (RQ2).

Conjoint levels	Professional conjoint	Student conjoint	Faculty conjoint	ANOVA *p*-value	Tukey results
3.10 grade point average	0.559	2.016	0.877	<0.0001	* **
3.70 grade point average	2.293	3.377	1.939	<0.0001	* **
Social networking skills – working knowledge	1.721	2.365	1.500	<0.0001	* **
Social networking skills – expert knowledge	2.550	3.694	1.658	<0.0001	†
Time management skills – working knowledge	2.131	2.798	3.026	<0.0001	* ***
Time management skills – expert knowledge	3.572	3.798	4.053	0.0124	***
Strategic planning skills – working knowledge	1.748	1.687	1.728	0.8664	—
Strategic planning skills – expert knowledge	2.509	2.694	3.088	0.0022	** ***
Spreadsheet skills – working knowledge	0.595	1.520	0.895	<0.0001	* **
Spreadsheet skills – expert knowledge	1.108	1.183	0.605	<0.0001	** ***
Oral communication skills – working knowledge	2.568	2.167	4.079	<0.0001	†
Oral communication skills – expert knowledge	4.500	3.512	5.658	<0.0001	†
Written communication skills – working knowledge	0.977	1.702	1.281	0.0009	* **
Written communication skills – expert knowledge	1.685	1.893	2.272	<0.0001	** ***
MANOVA	Wilks' λ	0.679657	*p*-Value	<0.0001	

Tukey results: —, Tukey's test inappropriate because ANOVA not significant; *, students differ significantly from professionals; **, students differ significantly from faculty; ***, professionals differ significantly from faculty; †, all three of *, **, and *** differ significantly.

Table 4
Kendall Tau correlation coefficients (RQ3).

Group	Kendall's Tau	*p*-Value
Professionals	0.33370	0.0001
Faculty	0.35789	0.0015
Students	0.29188	0.0001

characteristic variables that differed from those assigned to the original group of 18 students. Using the conjoints for the appropriate characteristic values, a predicted utility score was developed for each of the four hypothetical students. These predicted scores were ranked from "1" (*Best*) to "4" (*Worst*). These predicted ranks were compared with the actual ranks provided by the respondents. Kendall's Tau Coefficient was used to assess the correlation between the actual and predicted ranks. The results are presented in Table 4. The correlations were significant for all three respondent groups. Thus, the conjoint models of all three can be used to predict hiring preferences.

5. Discussion and implications

While the conjoints of all three groups can reliably predict hiring preferences, the three groups varied in several ways. Students perceived all seven student characteristics to be important at both levels of expertise above No Knowledge. Professionals and faculty disagreed with respect to GPA and Spreadsheet Skills, ranking them lower in importance than other characteristics. In particular, professionals and faculty both perceived a GPA of 3.10 to be no better than a GPA of 2.50. Past research (e.g., Baker and McGregor, 2000) has shown to the contrary that professional groups and faculty members value a GPA of 3.10 more highly than a GPA of 2.50; additional research would be needed to determine whether this change is a function of today's economy or some other systematic factors. Professionals and faculty also perceived Working Knowledge of Spreadsheet Skills to be more important than No Knowledge of Spreadsheet Skills. Faculty should note, however, that even though they do not perceive Expert Knowledge of Spreadsheet Skills to be important, professionals do. Additional research is necessary to determine whether faculty should update their perception of the demand for Spreadsheet Skills on the current market.

Faculty also perceived Social Networking Skills to be less important than the other respondent groups did. Here again research is necessary to determine the roles that social media such as Facebook and Twitter play (or should play) in today's workplace. Clearly, faculty do not understand (or agree with) the perceived importance of social networking or social media among students and professionals. To be sure, even professionals value social networking less than students do; for millennial students, social networking and electronic devices are necessary elements of everyday life (Baker et al., 2012).

Professionals also value Time Management Skills less highly than either students or faculty. Although professionals no doubt acknowledge that such skills can be valuable, perhaps their days are so full with multitasking that they doubt that time management goals can be achieved. The three respondent groups valued Working Knowledge of Strategic Planning Skills equally, but faculty valued Expert Knowledge of such skills more highly than those in the other groups did.

Finally, while Oral Communication Skills were valued more highly than any other skill set, the rankings yielded a progression of perceptions such that students valued them less highly than professionals did, and professionals valued them less highly than faculty did. Written Communication Skills were also perceived to be important, albeit less so than Oral Communication Skills. Surprisingly, professionals ranked Written Communication Skills lower than either of the other groups did. This suggests the need for research to understand why professionals do not value writing skills more highly than they do. We hope that our study represents a useful point of departure for all the additional research we have suggested, and that those who educate tomorrow's hospitality professionals acknowledge the importance of understanding—and of conveying that understanding to both students and professionals—the role that technical skills play in the marketplace for hospitality jobs.

6. Limitations

There are four primary limitations in this study. First, the sample was limited to participants of the National Restaurant Association Show and may not be generalizable in other disciplines outside of hospitality operations. While using conjoint analysis was effective in the study, this methodology only allows for a finite number of variables and levels. Increasing the number of variables and/or levels would increase the number of slides required for ranking. Third, the industry professionals in the study may not have any involvement in the recruitment, interview, or hiring processes for their organizations. Finally, industry professionals had difficulties properly completing the study. As noted earlier, this might be a result of time constraints.

7. Conclusion

Significant differences were found in several of the variables studied. Faculty placed greater importance on strategic planning, expert writing, and time management skills. In the hospitality industry entry level managers are more involved in day to day operations; this could be why industry professionals did not place strategic planning and expert writing on the top of their skills list. As far as time management, industry may be less concerned with this skill as we are seeing more flexibility in work schedules.

Professionals placed greater emphasis on expert knowledge in both social networking and spreadsheet skills than faculty. Certainly social media is now a mainsteam application; it also requires an understanding what types of social media are available and how to manage the applications. Regarding spreadsheet skills, it may be faculty members expect a level of expertise that is less than what industry professionals might expect.

Students need to be aware of what skills they need to posses to be successful in the industry so that they can take ownership of their own learning. GPA was most important to students yet industry professional and faculty saw no difference between a 3.10 and 2.5 GPA but felt a GPA of 3.7 was important. Therefore it is advised that students try reach and maintain this GPA level. The importance of oral communications is something that needs to be addressed with students as well, especially since the millennial generation relies so much on electronic modesof communication such as texting and social media. While students realize oral skills are important, there is a gap in the level of importance students place on this skill when compared to professionals.

In conclusion, this study expands on the existing literature by applying conjoint analysis to examine the preferences of technical skills between professionals, faculty, and students. Past studies indicate that there are significant gaps in what academia is teaching in the curriculum and what industry professionals find important. The purpose of this research was to help academia understand specific gaps that may exist between what is being taught and what is really valued by industry professionals. If academia relies solely on teaching skills that faculty deem important, then it risks not fulfilling its goal to prepare students to be successful in the industry.

Appendix A. Conjoint analysis model

$$Rank = \beta_0 + \beta_1 d_1 + \beta_2 d_2 + \beta_3 d_3 + \beta_4 d_4 + \beta_5 d_5 + \beta_6 d_6 + \beta_7 d_7 + \beta_8 d_8 + \beta_9 d_9 + \beta_{10} d_{10} + \beta_{11} d_{11} + \beta_{12} d_{12} + \beta_{13} d_{13} + \beta_{14} d_{14} + \varepsilon$$

where *Rank* = the dependent variable, as affected by the characteristic levels and their conjoints; $d_1 = 1$ if student has a GPA of 3.10 and 0 otherwise; $d_2 = 1$ if student has GPA of 3.70 and 0 otherwise; $d_3 = 1$ if student has working knowledge of social networking skills and 0 otherwise; $d_4 = 1$ if student has expert knowledge of social networking skills and 0 otherwise; $d_5 = 1$ if student has working knowledge of time management skills and 0 otherwise; $d_6 = 1$ if student has expert knowledge of time management skills and 0 otherwise; $d_7 = 1$ if student has working knowledge of strategic planning skills and 0 otherwise; $d_8 = 1$ if student has expert knowledge of strategic planning skills and 0 otherwise; $d_9 = 1$ if student has working knowledge of spreadsheet skills and 0 otherwise; $d_{10} = 1$ if student has expert knowledge of spreadsheet skills and 0 otherwise; $d_{11} = 1$ if student has working knowledge of oral communications skills and 0 otherwise; $d_{12} = 1$ if student has expert knowledge of oral communication skills and 0 otherwise; $d_{13} = 1$ if student has working knowledge of written communication skills and 0 otherwise; $d_{14} = 1$ if student has expert knowledge of written communication skills and 0 otherwise; ε = unexplained error; β_0 = a parameter that adjusts the remainder of the model to the ranking scheme; β_i = the *i*th parameter (where $i = 1–14$, β_i is the conjoint corresponding to the "*i*th" variable above).

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