

A COMPARISON OF CRITICAL THINKING SKILLS FOR HOSPITALITY  
MANAGEMENT GRADUATES FROM ASSOCIATE AND  
BACCALAUREATE DEGREE PROGRAMS

By

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A Field Study

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**ABSTRACT**

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**A Comparison of Critical Thinking Skills for Hospitality Management Graduates  
from Associate and Baccalaureate Degree Programs.**

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It has been suggested that the university and college hospitality management programs must change their programs to meet the needs of the industry. To that end, the four-year Baccalaureate Degree institutions should produce graduates prepared for upper level management position and the two-year programs should prepare graduates for operations management positions. If the hospitality industry desires graduates with "critical thinking skills," then the institutions have a responsibility to not only incorporate these skills into the curriculum but test the graduates in the end to insure that they do indeed possess these skills.

The purpose of this study was to acquire information concerning the critical thinking skills of hospitality management graduates in both Associate and Baccalaureate Degree programs. The primary focus is on the overall critical thinking skills of graduates from these two levels of education. This study compared the critical thinking skills of hospitality management graduates in both Associate Degree and Baccalaureate Degree Programs. The hypothesis is: “The critical thinking skills of Associate and Baccalaureate Degree graduates in hospitality management as rated by the Watson-Glaser Critical Thinking Appraisal are similar.” This study clearly shows that there is no significant statistical difference between the associate degree and baccalaureate degree graduates in hospitality management programs.

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## **Chapter I**

### **Introduction**

It has been suggested that the university and college hospitality management programs must change their programs to meet the needs of the industry. To that end, the four-year Baccalaureate Degree institutions should produce graduates prepared for upper level management position and the two-year programs should prepare graduates for operations management positions. Moreover, eliminate the cork sniffing and cooking and pay more attention to problem solving (Hartley-Leonard, 1993). This concept suggests many things to the various customers of these programs such as the institutions, departments, faculty, students, recruiters, etc. To some, it suggests that the two-year Associate Degree Program Graduate does not have the requisite leadership and/or management skills to climb the corporate ladder.

Students and parents alike have asked hospitality faculty members involved in recruiting new students, "would it be best to attend the local community college and begin working in two years or go to the XYZ University and spend four years getting a degree before working." A tough question, depending on whom you represent and the student's interest and goals. However, to suggest to any individual that they will be limited in their professional growth based on their educational preparation would be incorrect. This is especially true in an industry where many successful people have only attended the school of hard knocks such as Ray Kroc, Carl Karcher, Dave Thomas, Tom Monaghan, to name a few (Van Warner, 1994).

Colleges and universities must first identify their mission and goals for their individual programs as suggested by Accreditation Boards in order to prepare students for what the industry expects and wants (Accreditation Commission for Programs in Hospitality Administration, ACPHA) (Commission on Accreditation for Hospitality Management, CAHM). Studies have attempted to identify the factors important to employers of recent graduates. One such study identifies "Critical Thinking" among the important factors of job performance indicators (Mariani, 1994). Furthermore, recent academic literature also suggest a greater emphasis for "Critical Thinking" skills to be implemented in the management education curriculum (Reynolds, 1999).

These concepts and ideas call the question to identify true differences in the program outcomes of both the four-year and two-year hospitality degrees. One such way to study this question is to identify the "critical thinking skills" of graduates from both types of programs and institutions. Using a standardized "critical thinking appraisal" exam, this study will attempt to identify if differences do exist.

### Purpose of the Study

In academia, there is stiff competition at both ends of the spectrum. In the front end, institutions compete for more new students especially in times of declining enrollments. In the end, the competition is for companies to recruit graduates who are likewise competing against other graduates from similar institutions for the same jobs. Therefore, it is the reputation of the institution's program that will play a key role in placing graduates with reputable companies. If the program is teaching the skills desired by industry, and the graduates can demonstrate these skills by obtaining, maintaining, and

growing in their respective jobs, the winner(s) will prevail. If the hospitality industry desires graduates with "critical thinking skills," then the institutions have a responsibility to not only incorporate these skills into the curriculum, but, to test the graduates in the end to insure that they do indeed possess these skills.

Furthermore, if both two-year and four-year hospitality graduates are going to compete for the same jobs with the same companies, their skills must be shown to the companies that recruit them. Some companies freely state that they don't recruit graduates from two-year institutions because they don't feel they possess the requisite skills (CHRIE, 1998). However, these same students often use the same textbooks, have similar work experiences, and are educated in similar program courses. Therefore, is the value of a more liberal education creating the difference among two and four-year graduates?

The purpose of this study was to acquire information concerning the critical thinking skills of hospitality management graduates in both Associate and Baccalaureate Degree programs. The primary focus is on the overall critical thinking skills of graduates from the two levels of education. Secondary attention will focus on the critical thinking skills of various demographic groups within the sample; for example, the age and gender of participants. Data for this study was collected through the use of the 80 question, Watson-Glaser Critical Thinking Appraisal test (The Psychological Corp., 1980).

### Research Question

The problem of this study is to determine if differences in "critical thinking skills" exist between hospitality management graduates of four-year degree programs and two-year associate degree programs. Therefore, the purpose of this study is to compare

the critical thinking skills of hospitality management graduates in both Associate Degree and Baccalaureate Degree Programs. The hypothesis is: “The critical thinking skills of Associate and Baccalaureate Degree graduates in hospitality management as rated by the Watson-Glaser Critical Thinking Appraisal are similar.”

### Subjects

Participants were randomly selected from the 2000/2001 graduating classes of hospitality management programs at The University of Wisconsin-Stout, Mid-State Technical College, and Fox Valley Technical College. This study sampled twenty-five participants from Associate Degree, hospitality management program(s) and twenty-five participants from a Baccalaureate Degree Program. There was no attempt by which to identify individual participants. The only demographic information requested was the institution attended, age and gender of participants. Confidentiality was guaranteed to each individual participating in the study.

### The Instrument

The evaluation instrument for this study was the 80 question, Critical Thinking Appraisal (CTA) exam developed by Goodwin Watson and Edward M. Glaser (The Psychological Corp., 1980). This instrument appraises the skill in the five areas of “inference, recognition of assumption, deduction, interpretation, and evaluation of arguments. “ Final analysis of completed appraisal forms were conducted by the Evaluation and Testing Center of Mid-State Technical College (MSTC).

The Psychological Corporation, the publisher of the critical thinking appraisal, did require a minimum “Level C” certification of the person evaluating the completed test

instruments. The MSTC Evaluation and Testing Center exceeds this requirement with a “Level B” Certification. The person doing the evaluation, is a Certified Vocational Evaluator through the Commission on Certification of Work Adjustment and Vocational Evaluation Specialists (CCWAVES). There was no certification requirement for appraisal proctors.

### Data Collection Method

Students of the participating institutions were asked to voluntarily complete the Critical Thinking Appraisal. Professors and instructors were instructed to simply make a general plea to the students of their respective classes to participate in the study. Those participating were not offered any reward for their participation by this researcher. There was no attempt to identify any student who chose to participate or not to participate in this study.

Once the professors and/or instructors of senior level courses at the participating institutions were identified, they were provide with the requisite number of test packages. This package included the test booklet, answer key, human subject consent statement, and a letter from the researcher. The professors were asked to seek volunteers from their senior level class(s) and give them the test booklet to complete the appraisal. They were instructed that students were to complete the appraisal in class but that no time limit was necessary. Once the tests were completed, the professors were asked to collect the appraisal booklets and return them to this researcher for evaluation.

The examination answer keys were distributed through the professors/instructors at the participating institutions who were also asked to proctor the examination.

Completed examination answer keys were returned to this researcher at Mid-State Technical College for final analysis.

## Chapter II

### Review of Literature

Educators, rightfully so, constantly question the content of what they are teaching. Is the material current, relevant, and what the students and industry want from educational institutions? Therefore, constant research must be completed seeking to identify the requisite skills of hospitality management graduates. A review of the related literature will attempt to validate the hospitality industry's need for "critical thinking skills" of the graduates entering the field. This study will compare the "critical thinking skills" of hospitality management graduates in both Associate Degree and Baccalaureate Degree Program.

#### Critical Thinking Defined

Though it is difficult to find a universally accepted definition of critical thinking, there appears to be similar themes as noted in scholarly publications. Some even consider critical thinking as an essential skill, which is required to function in society (Celuch and Slama, 1999). Conceptually, this could show a difference in critical thinking skills among various age groups and those with greater life experiences.

The instrument being used in this study for measuring the critical thinking skills is the Watson-Glaser Critical Thinking Appraisal by Goodwin Watson and Edward M. Glaser (The Psychological Corporation, 1980). Accordingly, they consider critical thinking as a composite of attitudes, knowledge, and skills. They go on to define critical thinking as:

“(1) attitudes of inquiry that involve an ability to recognize the existence of problems and an acceptance of the general need for evidence in support of what is asserted to be true; (2) knowledge of the nature of valid inferences, abstractions, and generalizations in which the weight of accuracy of different kinds of evidence are logically determined; and (3) skills in employing and applying the above attitudes and knowledge (The Psychological Corporation, 1980).”

Similar in theme and meaning, The Foundation for Critical Thinking (1997) explains the topic by stating:

“...critical thinking is associated with the following elements of reasoning: purpose of the thinking, key issue or question being considered, assumptions, point of view, evidence, concepts, and ideas, inferences or interpretations, and implications or consequences (Celuch and Slama, 1999, p. 2).”

Both of the above definitions require the critical thinker to identify a question and to gather information associated with the question. The critical thinker is then to draw on past knowledge and experience in order to evaluate a possible outcome in resolving the question. Possibly the most important aspect of the process is the ability of the critical thinker to foresee possible outcomes and apply the best solution to the question.

Peter Facione (1996) discusses the challenge and difficulty a group of subject experts had in developing a consensus when defining critical thinking. In doing so, he discusses the impacts, similar to those elements stated in the above definitions, have on

the subject in which the critical thinker is undertaking. These, and other elements such as inquisitiveness, open mindedness, analytical, self confidence, systematicity, cognitive maturity, and truth-seeking can also impact the dimensions of critical thought which have to be broken down into affective and cognitive strategies for critical thinking to take place (Facione, 1996, and Paul, Binker, Jensen, and Kreklau, 1990).

This is further evidenced in the definition provided by the American Philosophical Association. They state:

“...the process of purposeful, self-regulatory judgement. This process gives consideration to evidence, contexts, conceptualizations, methods, and criteria (The APA Delphi Report, 1990).”

The underlying theme of these definitions and the discussions that accompany them describe the formula for “problem-solving” and a process for “decision-making.” The five steps in the problem solving formula are, identifying the problem, gather data, consider possible solutions, apply the best solution, and evaluate the consequences. Therefore, explaining the value and importance of critical thinking by managers (Guffey, 1996). After all, is this not the role of a manager? If it were not for the need to solve problems and make decisions, there would be no need for managers.

Similarly, hospitality managers are asked to draw on their education, life experience, and practical experience in the performance of their job. Moreover, many hospitality companies recruiting hospitality graduates require the prospective manager to have had some kind of field experience to draw from. Likewise, all, if not most, hospitality programs have made some kind industry simulation laboratory experience part

of their curriculum. Each of these experiences establishes some base for the student to draw from when they are solving problems and thinking critically in the professional role of a hospitality manager. Demanding these educational experiences for students, academic institutions and hospitality management programs in particular, recognize the need for critical thinking skills in management.

### The Need for Critical Thinking

A common complaint among educators is the generalization that students of today are lazy and lack the desire to investigate answers to questions. Instead, they would rather that the educators give them the answers and let them regurgitate that answer back to them on an exam. Not soon enough, the students realize that they will be paid to resolve problems and come up with the answer on their own with a more severe penalty than losing a few points on an exam (Bowmen, 1987).

However, corporate structure and leadership styles of many industries, the hospitality industry included, do not always foster or encourage critical thinking skills by lower level managers and employees. The autocratic leadership style of the boss making all the decisions does not promote problem solving or critical thinking by lower level workers. Furthermore, some industries, such as quick service restaurants, and other foodservice operations, have become so procedure oriented that they do not allow for creative problem solving or critical thinking by workers. Instead, managers are asked to refer to the procedure manual to solve the problem at hand.

This is but one criticism of the “promotion from within” practice, taking place in many retail and restaurant operations. The concept that a senior hourly employee, who

knows all the procedures, practices, and tasks to be completed in a business will make a good leader and/or manager does not consider the critical thinking skills necessary for the position. This is further evidenced in a study by Kepner-Tregoe where business managers and employees said their companies limited the thinking necessary in problem-solving and decision making. In the study, nearly half of both managers and employees said it was difficult to obtain the information needed to solve problems, make decisions, and draw up plans. The development and utilization of critical thinking skills by the entire workforce is imperative for future success (Allnoch, 1997).

Other research suggests that employers are looking for critical thinking skills when recruiting new college graduates. According to a study by Mathew Mariani, those qualities rated as “almost always important as a job performance indicator” include sincerity, eagerness, decision-making skills, **critical thinking**, initiative, professional attitude, and oral communication and verbal skills (Mariani, 1994). Although these factors are considered by many to be important, are these qualities being measured and taught in our universities?

### Critical Thinking In Hospitality Education

Current literature validates the demand of critical thinking skill by the hospitality industry and supports the ideal that these skills are essential for the most successful hospitality management graduates. In a study to identify what recruiters consider most important, Sneed and Heiman (1995) found that recruiters rated critical thinking as an “important” skill they sought for students. Critical thinking skills were also found to be a major factor in the development of leadership skills for hospitality management students.

It is further suggested that it is no longer sufficient to teach students about different management styles or theories as is traditionally taught in management programs. Instead, it is suggested that student's must be taught how to manage (Hubbard, and Propovich, 1996, p. 39).

Lefever (Cited in Hubbard, and Propovich, 19996), suggests that students must have the experiences that teach them to think critically based on a prescribed criteria. This is accomplished by “determining credible and relevant sources of information, distinguishing facts from value judgements, recognizing bias and prejudice, and determining and acknowledging diverse perspectives.” These are skills necessary before one can apply traditional problem solving models. Those that can do this well, will themselves, move from being successful managers, to becoming successful leaders.

If hospitality management graduates are to develop the critical thinking skills expected of them by the industry, the program faculty are obligated to incorporate this strategy into the curriculum. Many hospitality educators will claim that this is being done through such methods as, internships, foods and restaurant laboratories, case studies, etc. There are several other models and methods for incorporating this strategy throughout higher education (Malekzadeh, 1998; David and Kienzler, 1999; Macpherson, 1999; Walkner and Finney, 2000).

It should be noted that better grades and critical thinking skills are related. Peter Facione (1996) found a correlation between grade-point-average (GPA) and score from critical thinking skills tests. He also found that critical thinking skill can be learned. This information should be the encouragement for implementing critical thinking teaching methods in hospitality management curriculum if they are not already in place.

As stated earlier, critical thinking is a process similar to that of “problem solving” and “decision-making.” This process calls for one to draw on past knowledge and experience. However, with respect to student learning, there are several influences that impact the learning experience that Parlett and Hammilton (1972) (Cited in Reynolds, 1999) called “learning milieu.” The milieu or environment where the learning, work, and experience takes place can significantly impact the learning process. This milieu includes the cultural, institutional, and psychological variables.

Considering the diversity of the hospitality industry, and the world, think of the student from another country who has, to this point, encountered a different value system, a different way of teaching/learning, and has had different work experiences. This student must process so much more than the subject matter content in order to understand the material being taught. The same can be said for the work experience of any student. The corporate culture and the relationship between trainer and trainee can change the outcome of the learning experience.

Therefore, Reynolds suggests that critical thinking curriculum should identify the relation to course content and the learning experience. This will then provide an approach to the critical reflection, which should take place following the learning experience. It is the structuring of the critical reflection that ties together the entire learning experience by considering the impacts of the learning milieu.

In Gustin (2001), several leading hospitality companies also promote the need managers and employee to think critically in order for the individual and the company to remain successful. She continues this by identifying a classroom application of critical thinking phases in a Hospitality Marketing course.

Phase 1 is skill acquisition: were students gather facts and knowledge. Phase 2 is critical/creative thinking: were students rely on their ability to process information by working with others. Finally, in phase 3, the thoughtful application phase: also known as Metacognitive reflection is where students are asked to think beyond the cognitive. By incorporating this three-phase critical thinking application process into the classroom, Gustin concludes that it encourages students to think for themselves and have the confidence to support their decisions.

In yet another hospitality education example, Upchurch (1995) uses a strategy called a, “Microtheme” in order to encourage critical thinking by students. In this case, students are engaged in research, discussion, experiential learning, and expository writing on specific topics. Perhaps the key philosophy to the use of microthemes is that students take responsibility for their own learning. In a telephone conversation with Mr. Upchurch, he said that the students would often comment on how much they enjoyed the exercise because, the discovery and sense of accomplishment. This exercise was a project designed to accommodate a writing-across-the-curriculum requirement. Although Mr. Upchurch considers microthemes to be an exercise to develop critical thinking skills, there was never an attempt to measure whether or not the exercise accomplished this (Upchurch, 2001).

The review of literature clearly shows the need to incorporate critical thinking skills into the hospitality curriculum. This is evidenced from both industry philosophy and educators alike. Perhaps now, educational institutions and hospitality programs will recognize the need to evaluate their graduates in order to determine if they are indeed critical thinkers.

## **Chapter III**

### **Methodology**

#### Introduction

The purpose of this study was to acquire information concerning the critical thinking skills of hospitality management graduates in both Associate and Baccalaureate Degree programs. The primary focus is on the overall critical thinking skills of graduates from the two levels of education. Secondary attention will focus on the critical thinking skills of two demographic groups within the sample; for example, the age and gender of participants. There was no attempt to identify potential influence by other demographic groups for this study. Data for this study was collected through the use of the, 80 question, Watson-Glaser Critical Thinking Appraisal test (The Psychological Corp., 1980).

#### Subjects

A total of fifty students from both Associate and Baccalaureate Degree programs in Hospitality Management were chosen for the sample. There were twenty-five Baccalaureate Degree students representing the hospitality management program from the University of Wisconsin-Stout. Twenty-five Associate Degree students represented the hospitality management programs of Mid-State Technical College and Fox Valley Technical College.

Only those students intending to graduate at the end of the semester in which they were tested were asked to participate in the study. The students were asked to volunteer by their prospective Professor/Instructor and given the exam instrument. All individuals were guaranteed confidentiality. The only information asked of the individual subjects was the institutions they attended, gender, and age. Subjects were then asked to read a statement of human research subject consent (see appendix A). There was no time limit placed on the participants to complete the entire appraisal exercise. But it usually took less than 60 minutes to complete.

### The Instrument

The Purpose of the CTA (critical thinking appraisal) is to assist in the selection of employees for positions requiring analytical thinking and is designed for adults with at least a ninth grade education. The evaluation instrument for this study was the 80 question, Critical Thinking Appraisal, Form A (CTA) exam by Goodwin Watson and Edward M. Glaser (The Psychological Corp., 1980). This instrument appraises critical thinking skills using the five subtest areas of, inference, recognition of assumption, deduction, interpretation, and evaluation of arguments.

In his review of the Watson and Glaser CTA, Kurt Geisinger, Professor of Psychology and Academic Vice President, LeMoyne College, says,

“One of the strengths fo the Watson and Glaser CTA and its manual is the voluminous amount of research that has been performed with the measure. The results of many validation studies are presented...(Geisinger, 1998).”

There is an abundance of validation studies that accompany the CTA in the manual. Although the amount of validation evidence is impressive, the evidence of the results of its use in industry is more limited. Therefore, the publisher advises users to perform local validation studies for their own applications of the instrument.

According to the CTA Manual (The Psychological Corp., 1980), this assessment instrument is used in three ways:

“(1) to measure gains in critical thinking abilities resulting from instructional programs in schools, colleges, and business and industrial settings; (2) to predict success in certain types of occupations or instructional programs in which critical thinking is known to play an important role; (3) to determine, for research purposes, the relationship between critical thinking abilities and other abilities or traits.”

With regard to educational uses, the instrument is intended to measure the degree to which one has learned and mastered critical thinking skills. Therefore, allowing the examiner to estimate the degree to which the instructional objective has been reached by the students. Other uses for the critical thinking appraisal include the selection of potential candidates in hire for positions requiring such analysis and reasoning skills. However, if used in this application, research should be used to identify a benchmark for the successful candidates.

The Watson-Glaser Critical Thinking Appraisal is one of the most noted instruments for measuring critical thinking skills. The primary use is for the measurement of outcome for various educational programs, such as nursing (Chaiprasit, 1999). The

instrument has also been used to evaluate the progress of gifted students (IQ of 130 or above) using chess to improve critical skills (The ESEA Title IV-C Project, 1983). Most significantly is the use of this instrument by the Air Command and Staff College of the United States Air Force. Here, the instrument is used to assess the success of fulfilling its goal of fostering critical thinking (McKown and Roth, 1997).

### Data Collection Method

The subjects were asked to volunteer for the study and then given the eighty-question, Watson-Glaser Critical Thinking Appraisal by the Psychological Corporation, Harcourt Brace Jovanovich, Inc. The answer sheets were collected and given to the Evaluation and Testing Center of Mid-State Technical College for scoring and evaluation.

The subjects from the University of Wisconsin-Stout were given the appraisal instrument during the months of May and June 2000 while the Associate Degree students were evaluated in May of 2001. The time differential was due to the number of evaluation instruments available and the timeliness of reaching the necessary number of graduates in the respective programs. Completed examination answer sheets were returned to this researcher at Mid-State Technical College for final analysis.

### Data Analysis

The completed critical thinking appraisal answer sheets and booklets were returned to this researcher at Mid-State Technical College (MSTC). The answer sheets were then turned in to the MSTC Evaluation and Testing Center for scoring and

evaluation. This information was returned to this researcher for further statistical analysis.

In order to find the statistical differences between the two sample groups, it was determined that an independent samples test would be appropriate. Therefore, a t-test for equality of the means would be used to measure the difference between the sample groups. The t-test was performed with the use of SPSS software program. The results of this statistical analysis, are presented in chapter IV of this manuscript.

## **Chapter IV**

### **Introduction**

This chapter presents the results of twenty-five Associate Degree and twenty-five Baccalaureate Degree Hospitality Management Graduates and their achievement on the Watson-Glaser Critical Thinking Appraisal instrument. The data presented in this chapter are broken down into three sections.

Section I, the primary focus of this study, will portray the comparison of raw score of each group by and the corresponding normative percentile for each level of education. Table 1a and 1b show the level of education, raw score, norm percentile, gender, and age for both sample groups. The data in tables 2a and 2b show the statistical analysis and variance between the two groups using a t-test for equality of means between the samples.

Sections II, will discuss the demographic influences of gender and age based on the raw score of the appraisal. A t-test, for the equality of the means, will be used to determine if gender and age influenced student outcomes on the critical thinking appraisal. Finally, section III will address the conclusion and limitations and need for further research.

## **Section I**

### **Comparison of Raw Scores by Level of Education**

#### Observations of Raw Data

This section will discuss some observations of the raw data as presented in tables 1a and 1b. First, it will be important to identify some of the apparent differences between the two sample groups before statistical calculations are made. The primary objective of this section, and this study, will be to discuss these differences and to determine if there is a significant statistical difference between the two sample groups and their critical thinking skills as measured by the raw score of the critical thinking appraisal. Finally, this section will discuss the percentile designations for the two populations based on the norms for their respective level of education.

Again, tables 1a and 1b show the raw score data by both student populations. As many would expect, more of the four-year sample attained higher scores with three of the twenty-five students receiving scores of 64, 69, and 70 respectively. Conversely, the highest score by a two-year student was 61. However, at the other end of the spectrum, the data show that the four-year sample also received five of the lowest scores, 38 and below, for both populations. The lowest score by a two-year student was 39.

Moreover, for an eighty-question appraisal, 7 (28 percent) of the four-year sample received a score of less than 40 (50 percent) on the test. As for the two-year sample, only one student received less than 50 percent on the critical thinking appraisal. This observation of the raw data does not allow one to conclude that the two-year hospitality program graduates are better critical thinkers than their four-year counterparts. It does, however, lead to further interesting findings and the need for further analysis. While no

conclusions can be made based on these observations of the raw data, it is fair to assume that most would expect the hospitality management graduates of the two-year programs to have more lower raw scores than those from a four-year program.

The hypothesis for this study is: “The critical thinking skills of Associate and Baccalaureate Degree graduates in hospitality management as measured by the Watson-Glaser Critical Thinking Appraisal are similar.” While this researcher’s hypothesis is that there is no difference between the two populations, it was assumed that the two-year sample would have more lower overall scores, and that the four-year students would have a greater number of students with higher scores. It was also assumed that there would be a large grouping somewhere in the middle range of scores, which would statistically show no significant difference.

Therefore, as one observes the data as presented in these two tables, one may assume that the two-year sample would have achieved better overall outcomes on the critical thinking appraisal than the four-year sample. This would be a fair assumption since there were no scores lower than 39 by the two-year sample population. However, since there were no score better than a 61 by the two-year sample, twelve percent or three students from the four-year sample scored higher than any two-year student.

Table 1a  
Raw Data of Four-year  
Baccalaureate Degree Hospitality  
Management Students

Raw Score	%ile Score	Gender	Age
35	1	M	23
36	1	F	22
36	1	F	22
38	1	F	25
38	1	F	23
39	1	M	23
39	1	M	23
40	3	M	22
40	3	M	24
43	3	F	22
43	3	M	22
43	3	F	23
44	5	M	23
46	5	F	22
47	10	F	23
51	20	F	23
55	30	F	22
55	30	M	22
58	45	M	24
59	50	M	22
60	50	F	22
60	50	F	22
64	70	F	22
69	90	F	23
70	90	M	26

Table 1b  
Raw Data of Two-year  
Associate Degree Hospitality  
Management Students

Raw Score	%ile Score	Gender	Age
39	10	F	23
41	15	F	26
41	15	F	23
43	25	M	22
45	30	F	21
45	30	F	30
45	30	M	45
47	35	M	22
47	35	F	47
47	35	M	21
49	40	M	23
49	40	M	37
50	40	F	22
51	45	F	24
51	45	F	33
52	50	M	21
54	60	F	25
54	60	F	22
55	65	F	46
55	65	M	21
55	65	M	27
56	65	F	21
58	70	M	30
58	70	F	23
61	80	F	20

Table 2a  
Group Statistics

Level of Education	N	Mean	Std. Deviation	Std. Error Mean
Raw Score: Two-year A.S. Degree Hosp. Grads	25	49.92	5.894	1.179
Four-year B.S. Degree Hosp. Grads	25	48.32	10.873	2.175

Table 2b  
T-Test of Independent Samples Comparing the Means of Associate Degree Hospitality Graduates and Bachelor Degree Hospitality Graduates

**Independent Samples Test**

		t-test for Equality of Means						
		T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Raw Score	Equal Variances Assumed	.647	48	.521	1.60	2.474	-3.374	6.574
	Equal Variances not assumed	.647	36.984	.522	1.60	2.474	-3.412	6.612

Statistical Analysis

Table 2a shows the statistical analysis of the raw data. When comparing the mean of the two-year students (M=49.92) with that of the four-year students (M=48.32), one could assume that the two-year sample group, again, fared better on this critical thinking appraisal and therefore, be considered better critical thinkers. However, it is important to determine if this difference of the mean scores (1.60) is significant. Therefore, a t-test for the equality of the means was used to determine if this difference is in fact, statistically significant.

In order to prove the hypothesis, “The critical thinking skills of Associate and Baccalaureate Degree graduates in hospitality management as measured by the Watson-Glaser Critical Thinking Appraisal are similar,” the t-test must show the following:

$$t^* \leq t(1-\alpha; n-2) \text{ to conclude hypothesis}$$

With a 95 percent confidence interval of the difference, the decision rule for the t-test is alpha equals .05 (level of significance or risk of a type I error). Thus giving us 1.68 as the value of t at 95 percent confidence level with 48 degrees of freedom. Therefore, since the level of t\* (.647) is less than the (1.68), which is the value of t(.95; 48), one can conclude the hypothesis that the mean scores are equal.

The data for this study indicate no significant difference in the mean critical thinking scores between students completing two-year Associate Degree hospitality management programs and those students completing four-year Baccalaureate Degree programs. It is, therefore, concluded that, “The critical thinking skills of Associate and Baccalaureate Degree graduates in hospitality management as measured by the Watson-Glaser Critical Thinking Appraisal are similar.”

Based on the comparison of means, this would appear to put both two-year and four-year hospitality management program graduates on a level playing field with regard to critical thinking skills. This can be a major factor when entering the job market by hospitality program graduates at both levels of education. However, this does not factor in the norm percentiles provided by the authors of this critical thinking appraisal, which is based on the level of education.

When interpreting the results of the raw score on the critical thinking appraisal, the publishers of the test inform the evaluators that, “. . . little can be inferred from raw

scores alone (The Psychological Corp., 1980, p. 4).” It is, therefore, incumbent on the researcher to relate the raw scores with the appropriate normative groups. In this case, the assessment manual that accompanies the critical thinking appraisal identified norms for raw scores corresponding to percentiles for college students.

Again, for this research, the publishers have provided norms and the corresponding percentile for college students at various levels of education. Here, the college levels being used will be, “Student in Junior and Community College” for the two-year participants and “Upper Division Students in Four-year Colleges” for those participants from the four-year hospitality program (The Psychological Corp., 1980, p. 5). These corresponding norm percentiles are listed with the raw scores on tables 1a and 1b of this section.

It should be noted that the corresponding percentile values represent the midpoint of a percentile band that extends above and below the designated value. Therefore, a student receiving a percentile value of 50 is actually within a range of percentile values from 48 to 52. For this research, consideration will only be given to the actual percentile value given.

As with the evaluation of the raw scores, it is again difficult to determine which sample group demonstrates greater critical thinking skills. To start, look at the percentile values greater than 50, as these would represent those participants in the upper half of their respective norm categories. Again, as a group, the two-year sample had 10 (40 percent) students with a percentile value of fifty or more, where as the four-year sample had 6 (24 percent). However, to continue with the upper percentiles, the four-year sample had 3 (12 percent) with a percentile value greater than seventy, while the two-year

sample also had 3 (12 percent) with a percentile value of in excess of seventy. Moreover, the two-year sample group had no students with a percentile value over 80 and the four-year sample had two students in the 90<sup>th</sup> percentile.

Because of the number of high scores by the four-year sample (2 in the 90<sup>th</sup> percentile) and the fact that the difference of those falling into the 50<sup>th</sup> percentile or higher was only 3, this researcher would consider the critical thinking skills of the two sample populations to be equal. It should be noted that this is only based on the findings for those participants in each sample falling into the upper 50<sup>th</sup> percentile for their respective level of education.

Further evaluation of the percentile values shows a significant difference in the lower (below 35<sup>th</sup> percentile) and lower mid-range (35<sup>th</sup> to 45<sup>th</sup> percentile) of the percentile values for each sample. Considering the lowest end of the percentile values for each sample group's corresponding level of education, the four-year sample had 15 (60 percent) falling into the lower 10<sup>th</sup> percentile. Likewise, the two-year sample only had one participant falling into the same percentile value for their corresponding level of education. Furthermore, the two-year sample group had 8 (32 percent) with percentile values between 35 and 45, while the four-year sample group had 1 (4 percent) falling into the same range.

This portion of the percentile value data show a difference in the critical thinking skill between the two sample groups. Based on this data, it is concluded that the critical thinking skills of the associate degree graduate in hospitality management programs in this study is higher than the hospitality management graduates of baccalaureate degree

programs. This is especially true when analyzing the percentile values in the lower mid-range.

## **Section II**

### **Demographic Influences**

This section will address two potential demographic influences for the outcome of the critical thinking appraisal. Gender will be the first demographic category to be discussed in this section. It should be noted that the publishers cite several studies using the critical thinking appraisal that found no difference in critical thinking abilities based on gender (Burns, 1974; Gurfein, 1977; Simon & Ward, 1974; Cited in The Psychological Corp., 1980, p. 7) However, in the teaching experience of this researcher, enrollment in hospitality management programs appears to be dominated by the female gender. This is further evidenced in the male/female proportions of both sample groups used in this study. For this reason, it was felt that gender, may be an influence of critical thinking outcomes.

Moreover, the typical age for college students is 18 to 22 for a four-year program. Within the Wisconsin Technical College System, from which the two-year sample group was chosen, the average age is 28. With the realization that many older adults are entering technical college programs to retrain and/or pursue a second career, one may consider that these more mature students may have a positive influence on the outcome of a critical thinking appraisal. This was the reason for considering the age demographic in analyzing the outcomes and influence of the critical thinking appraisal.

Since the data in section I show that there is no difference in the mean critical thinking skills of hospitality management students based on their level of education, the gender and age analysis was evaluated for the entire group. Again, a t-test for the equality

of the means was used to determine if gender had an influence on the critical thinking skills of hospitality management graduates.

### Gender

Using the data on tables 1a and 1b, there is no apparent evidence that gender had any influence on the outcome of the critical thinking appraisal scores by either the two-year or four year sample groups. The data show that male and female participants in both sample groups earned scores at both ends of the spectrum. This would be consistent with earlier studies mentioned above that showed no difference between genders.

To determine if gender influenced the outcome of the critical thinking scores of hospitality management graduates, a t-test for the equality of the means was again used. The sample group sizes for the comparison are slightly different where (N=21) for males and (N= 29) for females. In this t-test, tables 3a and 3b, the means of males (M= 49.45) would be compared with the means of females (M= 48.67) with no regard for level of education.

Table 3a  
Group Statistics by Gender

Years of School	N	Mean	Std. Deviation	Std. Error Mean
Raw Score Female	29	49.45	8.862	1.646
Male	21	48.67	5.651	1.888

Table 3b  
T-Test of Independent Samples Comparing the Means by Gender  
**Independent Samples Test**

		t-test for Equality of Means						
		T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Raw Score	Equal Variances Assumed	.311	48	.757	.78	2.514	-4.274	5.837
	Equal Variances not assumed	.312	43.858	.756	.78	2.501	-4.266	5.829

The t-test calculation shows no statistical difference in the mean critical thinking appraisal scores between males and females in both sample groups. At a 95 percent confidence interval of the difference, the decision rule for the t-test is alpha equals .05 (level of significance or risk of a type I error). This gives 1.68 as the value of t at 95 percent confidence level with 48 degrees of freedom. With the level of t\* at .31 being less than the value of t(.95; 48), which 1.68, it can be concluded that the mean scores between the genders is equal.

Again, as mentioned earlier, other studies show no difference in critical thinking appraisal scores based on gender. It is, therefore, not surprising to find that gender had no influence in the critical thinking scores for graduates in hospitality management programs at both two-year and four-year educational institutions. The fact that females dominated the sample groups at both associate and baccalaureate levels of education, again had no influence in this study.

However, when comparing the respective percentile scores of those participants in both sample groups where the results placed the participants in the 50<sup>th</sup> percentile or above, there appears to be a significant difference. Of the 16 participants in both sample groups, 62.5 percent were female and 37.5 percent were male. Furthermore, when comparing the twenty-three raw scores of those earning fifty percent or more on the eighty-question appraisal, 65 percent were female and only 35 percent were male. Therefore, it is concluded that female hospitality management graduates were more likely to be better critical thinkers than their male counterparts.

### Age

There is a pronounced difference in the age range for both sample groups as seen earlier in table 1a and 1b. For the four-year sample group, the age ranged from 22 to 26. The age range for the two-year sample group was 20 to 47. These ranges are typical for graduates of the educational institutions represented by both sample groups.

With regard to age and the outcomes on the critical thinking appraisal, there appears to be no influence in either the raw scores or the percentile values as shown in table 1a and 1b. This is first evidenced in high scores from both sample groups. The highest score earned by the four-year group was a 70 or 90<sup>th</sup> percentile by the eldest participant of the group. However, in the two-year group, the highest score was a 61 or 80<sup>th</sup> percentile, earned by the youngest participant in the group.

Further evidence that age is not an influence in the outcome of the critical thinking appraisal, is the diverse scores by the participants of various ages. For the four-year sample, a twenty-five year old participant, and one of the eldest, earned a 38 and 1<sup>st</sup>

percentile. Therefore, the elder of the sample finished at the top and near the bottom for this sample group. Likewise, for the two-year sample group, there is no indication of age being an influence as the outcomes are quite diverse with regard to age and raw score or percentile value.

Table 4a

**Group Statistics**

Age Class 2		N	Mean	Std. Deviation	Std. Error Mean
Raw Score	1	22	50.32	8.237	1.756
	2	28	48.18	9.072	1.714

Table 4b

T-Test of Independent Samples Comparing the Means by Age

**Independent Samples Test**

		t-test for Equality of Means						
		T	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
							Lower	Upper
Raw Score	Equal Variances Assumed	.862	48	.393	2.14	2.483	-2.853	7.133
	Equal Variances not assumed	.872	46.941	.388	2.14	2.454	-2.798	7.077

In an effort to statistically determine if age influenced the outcome, a t-test for

equality of the mean was again used. Since the traditional or typical four-year college graduate is approximately twenty-two years of age, the two sets of means to be compared would be of those participants less than or equal to 22 years of age and those greater than 22 years of age. Table 4a shows that the size of these groups is (N= 22) for those twenty-two years of age and younger, while (N= 28) for those participants over twenty-two years of age.

Once again, table 4b, the t-test shows no statistical difference between the mean scores of those less-than or equal to twenty-two years of age and those participants greater than twenty-two years of age. Where 1.68 is the value of t at 95 percent confidence level and 48 degrees of freedom, the decision rule is alpha equals .05 (level of significance or risk of a type I error). With the level of t\* being less than 1.68, the value of t(.95; 48), we can conclude that there is no difference.

Therefore, the t-test indicates that age did not influence the critical thinking appraisal scores for graduates of hospitality management programs at either the associate or baccalaureate degree level of education. It should also be noted that with the age cut-off at 25 years and 30 years respectively, the t-test again shows no difference in the means. This was a bit surprising since the review of literature links life experience with improved problem solving skills. It was thought that the older participants in the study might have been better critical thinkers than their younger counterparts.

### Conclusions

The primary purpose of this study was to determine if there is a difference of critical thinking skill between the to levels of degrees in hospitality management graduates. This study clearly shows that there is no significant statistical difference

between the associate degree and baccalaureate degree graduates in hospitality management programs. In fact, the data in this study show that the critical thinking skills of both sample groups were statistically similar or equal.

Analysis of the norm scores for both respective sample groups, the two-year hospitality management graduates demonstrated stronger critical thinking skills than the four-year graduates. This was especially true for those two-year graduates in the lower mid-range of their respective norm group. However, because of the statistical findings and the limitations of this study, this does not mean that the two-year hospitality graduates are better critical thinkers.

With regard to the demographic influence on the critical thinking skills, there is evidence that shows that women had stronger critical thinking skills than males. However, the statistical analysis does not support this difference. Therefore, it is concluded that gender does not influence the critical thinking skills of hospitality management graduates.

There is no evidence that age has any influence on the critical thinking skills of hospitality management graduates. This is a surprising conclusion as one might think that greater life experiences would have improved the critical thinking skills of the participants. This might be different had there been a greater number of older participants in the four-year sample group.

Perhaps the most significant conclusion of this study is the equality of critical thinking skills between both sample groups. For those hospitality companies who might only recruit the graduate from Baccalaureate Degree granting programs, this study shows they might be passing over on some quality management prospects from the Associate

Degree hospitality management programs. This study clearly shows that, with regard to critical thinking skills, these two groups are on a level playing field.

### Limitations and Need for Further Research

The findings of this study are not intended to make generalized conclusions regarding the critical thinking skills of associate degree and baccalaureate degree hospitality management graduates. Clearly, the size of both sample groups prevents such a generalization. In order to test these results, further research should include a greater number of participants.

Furthermore, the fact that the four-year sample group was limited to hospitality management graduates from only one institution, the University of Wisconsin-Stout. Likewise, there were only two schools for the two-year sample and both of those were part of the Wisconsin Technical College System. Moreover, only schools from the state of Wisconsin were used in the study. Therefore, a broader national cross section of hospitality management programs at both levels of education should be considered.

It is clear that these are valid concerns and indicate a need for further research. However, even with these limitations, it should indicate to hospitality companies who may be biased in their recruiting practices that there is a definite pool of quality management candidates at the two-year institutions. It should also put educators on alert that there is a need to test if, in fact, the critical thinking teaching methods being used are really increasing the critical thinking skills of the students.

### References

Allnoch, Allen. (1997, September). "A Crisis in Critical Thinking." IIE Solutions, Vol.29, Issue 9, p12, 2/3p.

- “The Alpha Delphi Report.” (1990). Committee on Pre-College Philosophy. (ERIC Doc. No. ED 315 423).
- American Philosophical Association. “Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessment and Instruction.”
- Binker, Jensen, Kreklau, and Paul. (1990). “Critical Thinking Skills.” Pathways, North Central Regional Education Laboratory.
- Bowmen, Ezra. (1987, February 16). “Can Colleges Teach thinking?.” Time, p61, 3/4p.
- Celuch, Kevin and Slama, Mark. (1999, Jan/Feb). “Teaching Critical Thinking Skills for the 21<sup>st</sup> Century: an Advertising Principles Case Study.” Journal of Education for Business, Vol. 74, Issue 3, p134, 6p.
- CHRIE. (1993). General Session. Annual Conference of Council For Hotel, Restaurant, and Institutions Educators.
- CHRIE. (1998). Market Place Discussion with Industry Representatives.
- David, Carol and Kienzler, Donna. (1999, Summer). “Towards An Emancipatory Pedagogy In Service Courses and User Departments.” Technical Communication Quarterly, vol. 8, issue 3, p269, 15p.
- Facione, Peter A. (1996). “Critical Thinking: What It Is and Why It Counts.” California Academic Press.
- Foundation for Critical Thinking. (1997). “Critical Thinking: Basic Theory and Instructional Structures.” Wye Mills, MD: Author.
- Glaser, Edward M. and Watson, Goodwin. (1980). “Watson-Glaser Critical Thinking Appraisal.” The Psychological Corporation, 1980.
- Geisinger, Kurt F. (1998). “Review of Watson-Glaser Critical Thinking Appraisal.” The 13<sup>th</sup> Mental Measurements Yearbook. The University of Nebraska Press.
- Guffey, Mary Ellen. (1996). “Business Communication: Process and Product.” 2E, Cincinnati: South-Western College Publishing, Chapter 1.
- Gustin, Mary E. (Libby). (2001). “Think for Yourself: Bringing Critical Thinking Skills to the Classroom.” Journal of Hospitality & Tourism Education, Vol. 13, number 1, p.p. 41-47.

- Hamilton and Parlett. (1972). As Quated in Michael Reynolds. "Critical reflection and Management Education: Rehabilitating Less Hierarchical Approaches." *Journal of Education*, 1999, October, vol. 23, Issue 5, p537, 17p, 1 chart.
- Hubbard, Susan S. and Popovich, Paulette. (1996). "Teaching Leadership Skills to Hospitality Students." *Hospitality & Tourism Educator*, vol. 8, no. 4, p.p. 39-40.
- MacPherson, Karen. (1999, September). "The Development of Critical Thinking Skills in Undergraduate Supervisory Management Units: Efficacy of Student Peer Assessment." *Assessment & Evaluation in Higher Education*, vol. 24, Issue 3, p. 273, 12p, 4 charts, 2 graphs.
- Malekzadeh, Ali R. (1998, October). "Diversity, Integration, Globalization and Critical Thinking in the Upper Division." *Journal of Management Education*, vol. 22, issue 5, p590, 14p.
- Marshall, Ray and Tucker, Marc. (1992). "Thinking for a Living: Education and the Wealth of Nations." Basic Books. New York, NY. 1992.
- Mariani, Matthew. (1994, Summer). "What Employers Want from College Grads." *Occupation Outlook Quarterly*, Vol. 38, Issue 2, p42, 1/3p.
- The Psychological Corporation. (1980). "Critical Thinking Appraisal" Harcourt Brace Jovanovich, Inc.
- Reynolds, Michael. (1999, October). "Critical Reflection and Management Education: Rehabilitation Less Hierarchical Approaches." *Journal of Management Education*, Vol. 23, Issue 5, p537, 17p, 1 chart.
- Sneed, James PH.D., R.D. and Heiman, Rob L. (1995, Fall). "What Program and Student Characteristics Do Recruiters Consider Most Important?." *Hospitality & Tourism Educator*, Vol. 7, no. 4, p.p. 47-49.
- Upchurch, Randall S. (1995, Summer). "Enhancing Critical Thinking: Using Microtheme Strategies in the Classroom." *Hospitality & Tourism Educator*, Vol. 7, no. 3, p.p. 5-7.
- Upchurch, Randall S. (2001). Telephone Conversation on Microtheme.
- Van Werner, Rick. (1994, August 29). "When Theory Meets Practice, The Successful Leader is Born." *Nations Restaurant News*, Vol. 28, Issue 34, p21, 2/3p, 1c.

## Appendix A

## **Human Research Subjects Consent Statement**

I understand that by returning the/this questionnaire, I am giving my informed consent as a participating volunteer in this study. I understand the basic nature of this study and agree that any potential risks are exceedingly small. I also understand the potential benefits that might be realized from the successful completion of this study. I am aware that the information is being sought in a specific manner so that no identifiers are needed and so that confidentiality is guaranteed. I realize that I have the right to refuse to participate and that my right to withdraw from participation at any time during the study will be respected with no coercion or prejudice

Note: Questions or concerns about participation in the research or subsequent complaints should be addressed first to the researcher or research advisor and second to Dr. Ted Knous, Chair, UW-Stout Institutional Review Board for the Protection of Human Subjects in Research, 410 BH, UW-Stout, Menomonie, WI, 54751, phone (715) 232-1126.