

# The Effect of Negotiation Role-Play on Critical Thinking Skills

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**Abstract** — Critical thinking is the focus of higher education institutions across the world. It is a crucial component in course preparation and accreditation agencies. This paper aims at highlighting the importance of critical thinking through a thorough analysis based on actual testing conducted on business major students in the undergraduate and graduate level. This work paper examines the effect of Negotiation Role Play could have on the level of critical thinking skills of students majoring in business studies. The author used a true experimental pre-test and post-test design with a treatment and a control group. The findings revealed that doing the Negotiation Role Play increased the treatment group's critical thinking levels significantly. Hence, the findings can be used to enhance the rigorous standards of colleges and universities to be able to deliver the adequate knowledge using critical thinking required for today's challenging labor market.

**Index Terms** — Critical Thinking, Negotiation Role-Play, Business Major Students, Higher Education, Accreditation, Labor Market.

## 1 INTRODUCTION AND BACKGROUND

A major concern of employers and organizations across the United States is that the students exiting today's colleges and universities do not have the adequate critical thinking skills required to compete in the 21st century marketplace [1],[2],[3]. A definite skill and knowledge gap exists [4],[5] as approximately 33% of newly graduated, entry-level employees lack the analytical ability needed to manage or advance in their jobs [1]. Institutions of higher learning are not adequately helping students to develop their ability to analyze, interpret, explain, evaluate, or draw conclusions about information and competencies that are the core of critical thinking skills [6],[7] and that will enable them to deal with job demands and real-life problems [8].

Critical thinking had its roots with teachings of the ancient Greeks 2500 years ago [9]. A method of questioning known as "Socratic questioning," developed by Socrates, the aim of which was rooting out beliefs that could not be rationally justified. He advocated testing the validity of ideas by asking probing questions, thinking systematically, analyzing reasons and assumptions, and searching for adequate evidence to support claims. Plato, Aristotle and other Greek philosophers who came after Socrates placed great emphasis on training the mind and maintained that only trained minds were capable of comprehensive, methodological, and rational investigation that could extend beyond surface evidence to the deeper truths of life [9].

The Greek tradition of training the mind has contributed to modern-day views of critical thinking. Researchers have put forth many explanations of what critical thinking is and how minds can be trained, based on the theoretical foundations of Socrates. However, current researchers generally accept that

critical thinking is a logical and reflective process that requires a logical mind [10],[11],[12],[13],[14],[6] that can interpret, draw conclusions, argue, explain, evaluate, analyze, judge, and make informed decisions [6],[7],[15]. These same skills introduced by Socrates, are the same critical thinking skills used today in current research and education.

In the past, institutions of higher learning focused primarily on preparing students to be effective communicators, creative thinkers, and problem solvers [16]. However, in the last two decades, critical thinking was identified as one of the most essential learning competencies of people working in the fields of business, medicine, science, social science, and many others [17],[18],[1],[19]. Producing students who are effective communicators, creative thinkers, problem solvers and capable of thinking critically meeting the expanding demands of a complex world has become a priority. To address this need, educators in the United States, Europe and Asia, as well as other regions throughout the globe, have turned their focus to conducting research on critical thinking [20]. They have asked questions of the meaning of critical thinking in general, its importance in the education field, methods to incorporate when teaching critical thinking, assessing critical thinking, and the ability to learn critical thinking skills [20]. The outcome of this inquiry has been that student learning outcomes in higher education in both the United States and Europe have been undergoing reform as educators have been looking for ways to integrate critical thinking activities into their teaching methodologies [21],[22],[23],[24].

This study examined Negotiation Role Play to see if it was an effective methodology for developing critical thinking skills. The terms Negotiation Role Play and NRP are used interchangeably during this study. However, before beginning this study, over 3000 studies on critical thinking across different levels, both nationally and internationally, were reviewed over approximately a one-year period. Only three articles were found that recommended NRP as a method for developing critical thinking skills. Neither of them had been tested to see if their recommendations were valid [25],[26],[27]. In addition, no empirical studies were found that showed that participation in NRP had an effect on the development of critical thinking skills.

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What is more, no studies were found that were true experimental design with a pre-test and a post-test control group which was quantitative in nature and focused on the effect of NRP on critical thinking skills. Thus, testing NRP empirically to see if it was an effective tool for improving critical thinking skills became the goal of this study. The current study will assess if posttest scores will be higher for the treatment group compared to the control group. Secondly, it will assess if the treatment group posttest scores will be higher than the treatment group pretest scores. Critical thinking represents a collection of more than just one skill [28],[29]. There are ten discrete skills that are fundamental to effective critical thinking. They include the following crucial factors: a distinction of facts from claims where facts can be verified to be able to make a value, reliability determination of a source, accuracy of factual statements, recognizing biases, identifying points of strengths in stated arguments, recognize assumptions that are unstated, determination of ambiguous arguments and claims, identifying inconsistencies logically, distinction of relevant and irrelevant information and claims, and lastly identifying justified claims from the ones that are not [28],[30].

## 2 RESEARCH METHODOLOGY

This study on the effect of NRP on the critical thinking skills used a true experimental pre-test, post-test control group design. The instrument used to measure the critical thinking skills of the participants in this study was the Watson - Glaser II Critical Thinking Appraisal (WGCTA II), which is the property of Pearson Publishers. The terms Watson - Glaser II Critical Thinking Appraisal and WGCTA II are used interchangeably in this study. It was selected because of its consecutive pre-test and post-test design. The WGCTA II is 40-item multiple-choice instrument with pre-test and post-test versions which each take 35-40 minutes to complete (median = 22.48 minutes) in a standardization sample (n = 636), [31], [48] and is administered online. The pre-test and post-test versions of the WGCTA II are designated Form (D) and Form (E) respectively. Prior to the administration of the tests, all relevant student information was inputted into the Pearson Server (Talent Lens), which managed, scored and tabulated the results of the study.

The WGCTA II measures the following areas: (1) inference: determining the degree of truth or falseness, (2) recognizing assumptions: recognizing unstated assumptions or pre-suppositions in statements and assertions, (3) deductions: making certain conclusions follow the information provided, (4) interpreting: considering data generalization is warranted and evidence is provided, and (5) argument evaluations: considering particular issues to distinguish between the two types of arguments: weak or irrelevant versus strong or relevant [32].

Eighty-four students participated in the study. Before the testing started, they were randomly assigned to one of the two groups, each of which had 42 participants. One group was designated as the treatment group, and the other was desig-

nated as the control group. Both groups began by completing the WGCTA II Pre-test Form (D), which measured their initial critical thinking levels (Watson & Glaser, 2010). After completing Form D, the control group was excused to another room while the treatment group performed the giant panda exchange NRP. When the NRP was finished, the control group returned and both groups did the Watson-Glaser II Critical Thinking Appraisal (WGCTA II) Post-test Form (E).

Research has shown that role-plays have a number of positive benefits. Most importantly, role-plays are effective across disciplines and age groups. They help participants develop communication skills [33],[34],[35],[36] because by nature role-plays require participants to be active-listeners and use analytical skills to solve problems in collaboration with others [37]. Role-plays increase participants' interest, involvement and understanding of the concepts they are studying; stimulate cognitions both intellectually and socially through interaction with others [38],[39]; and promote active participation of all team members [40],[41].

Role-plays resemble a game or simulation [42]. They are generally categorized as interactive, in which the participants act out a designated, pre-scripted role; and non-interactive, in which the participants take on the roles of specific characters, but their actions are not pre-scripted [43]. Role-plays include four distinct stages. In the first stage, the instructor's explanation of how the role-play activity will be run, the second stage includes the students' preparation for their roles in the activity, thirdly, conducting of the role-play, and lastly the discussion or debriefing after the activity [43].

## 3 NEGOTIATION ROLE-PLAY SIMULATION: THE GIANT PANDA EXCHANGE

A NRP is a type of non-interactive role-play simulation that requires participants to negotiate with each other to find a solution to a problem that is acceptable to both sides. The NRP case used for the current study was adapted from a role-play exercise in Barry, Lewicki, and Saunder's *Negotiation: Readings, Exercises, and Cases* (2015). It involves negotiation between the CEOs of three Canadian zoos who have formed a partnership in an effort to try to secure the loan of giant pandas to their zoos and three high-placed Chinese officials. Giant pandas are in high demand in zoos in many countries around the world. However, because they are an endangered species, the Chinese are very selective about which zoos they will loan them to. The Canadian zoos have attempted to negotiate a long-term loan of the giant pandas before, but they have not been successful. Consequently, they are trying to work around the issues that have been their stumbling blocks in the past (see figure no.1).

The NRP identifies specific roles for each of the participants on the Chinese and Canadian teams. However, the members of each team were responsible for deciding with each other which role they will assume and for planning their strategy for the discussions. To help participants plan for the NRP, they were given a negotiation-planning sheet as an aid (see figure no.2), which required them to address the follow-

ing issues before beginning the NRP. Participants needed to state the issues involved in the negotiation, the goals they wanted to achieve, the resistance points that they expected to hear from the other team, the negotiation strategy they planned to use, the reason for selecting their particular strategy, and lastly the backup plan they propose using in case the negotiations with the other party appeared to be failing.

Figure no.1: Negotiation Role-Play Simulation

This exercise involves role-playing a negotiation between two teams: one team consisting of three representatives of zoos located in Canada, and the other team consisting of three individuals from China. The heads of three Canadian zoos have joined forces to form a partnership in order to try to negotiate for the loan of giant pandas from China. Giant pandas, which are only native to and available from China, are an endangered species—highly sought after by zoos in other countries for visits. Canadian zoos have pursued long-term panda loans for many years, but have failed up to this point, and therefore anticipate the present circumstance. For the exercise, you will be assigned not only to one of the two teams (the Canadian team or the Chinese team), but also to a specific role within the team.

**On the Canadian team, the three roles include:**

1. CEO of the Toronto Zoo
2. CEO of the Calgary Zoo
3. CEO of the Granby Zoo

**On the Chinese team, the three roles include:**

1. Vice President and Secretary General of the Chinese Association of Zoological Gardens
2. Deputy Secretary General of the Chinese Association of Zoological Gardens
3. Provincial Representative of the Communist Party of China

Source: Lewicki, R., Barry, B. & Saunders, D. M. (2015)

Figure no.2: Negotiation Role-Play Planning Sheet

<b>Negotiation Title:</b>	<b>Your Name:</b>
<b>Your Role:</b>	<b>Date:</b>
1. Briefly State the issue of your negotiation:	
2. What is your goal you want to achieve from this negotiation?	
3. Identify the resistance point you might face while negotiating?	
4. What strategy will you use?	
a. Briefly describe your strategy?	
b. Why did you choose this strategy?	
c. Identify a backup plan/best alternative strategy in case you fail in your first negotiation?	

Note: Students are invited to place their response next to or immediately below the question. Source: [44]

This study sought to determine the effect of the negotiation role-play (NRP) on the critical thinking skills of business

students in undergraduate and graduate studies. These students were enrolled in a seminar course at a college in Southern California. The participation in the NRP study was voluntary and represented a very small percentage of their course grade. The study had a valid sample size of 84 participants. The demographic measures included gender, age, educational level and job (see table no.1). There were no participants with missing values.

Table no.1. Demographic Characteristics of the Participants

Demographic variables	n	%
Sex	84	100
Male	43	51.2
Female	41	48.8
Age	84	100
20 or younger	11	13.1
21-30	39	46.4
31-40	18	21.4
41-50	10	11.9
51-60	6	7.1
Highest educational level completed	84	100
High school diploma	18	21.4
Post-secondary diploma	2	2.4
1-2 years of college	25	29.8
Associate's degree	26	31
3-4 years of college	5	6
Bachelor's degree	7	8.3
Master's degree	1	1.2
Current educational level	84	100
Undergraduate	80	95.2
Master's	4	4.8

Source: created by the author using IBM SPSS version 23.

The following table no.2 lists the participants' professions and the number of participants in each category. Participants' profession varied in nature and ranged from management positions to non-management ones.

Table no.2. Job Categories of Participants

Job Categories	N
Management	13
Customer Service	25
Human Re-	19
source/Administration	
Military	8
Other	11
Did not mention	8
Total of participants	84

Source: created by the author using IBM SPSS version 23.

## 4 FINDINGS

The overall aim of this research was to determine whether doing the NRP increased critical thinking abilities of the students in the treatment group. The information obtained from the control and treatment groups was compared, and the results were used to test the study's research questions, which

are as follows:

- **Research Question 1 (RQ1).** Will the post-test critical thinking scores for the treatment group be higher than the post-test critical scores of the control group?
- **Research Question 2 (RQ2).** Will the treatment group's post-test critical thinking scores be higher than their pre-test critical thinking scores?

The data analysis of the two administrations of the WGCTA II was conducted using IBM SPSS statistics version 23. There were four primary assumptions that the data needed to meet before conducting a two-way mixed ANOVA. These were independence of observation, homogeneity of variance, normality, and sphericity. The assumption of independence of observation was met because each participant was separated from the other participants when given the surveys. The assumption of homogeneity of variance was not violated for either the pre-test or post-test critical thinking scores. Levene's statistic was non-significant at .07 ( $p=.791$ ) for the pre-test scores, and was .99 ( $p=.323$ ) for the post-test scores, indicating an equality between groups. Lastly, the assumption of normality was violated for the pre-test critical thinking scores. The Shapiro-Wilk statistic was .94 ( $p<.05$ ) for control group, and it was .91 ( $p<.05$ ) for treatment group. Although the assumption of normality was violated, the ANOVA is reasonably robust to violations of the assumption of normality because the feature of robustness of ANOVA will provide sufficient statistical rationale to continue the analysis without biasing the results, provided the size of the control group and the treatment group is reasonably similar. This is true provided that the control group is composed of 42 participants and treatment group of 42 participants as well [45]. However, the assumption of normality was not violated for the post-test critical thinking scores. The Shapiro-Wilk statistic was .94 ( $p=.200$ ) for the control group and .98 ( $p=.695$ ) for treatment group. The assumption of sphericity was assumed, as there were only two groups in the current study.

#### 4.1. Research Question 1 (RQ1). Will the post-test critical thinking scores for the treatment group be higher than the post-critical scores of the control group?

RQ1 was tested using a two-way ANOVA with one independent variable (IV) being the NRP and with the other being the repeated measure, which was the pre-test, and post-test of the control group and the treatment group. The ANOVA met the assumption of homogeneity of variance with non-significant Levene's tests at pre-test ( $p=.79$ ) and posttest ( $p=.32$ ). There was a significant interaction effect, in which there was a significant difference on the post-tests scores between the control group ( $M=17.09$ ,  $SD=4.06$ ) and the treatment group ( $M=19.78$ ,  $SD=3.36$ ),  $F(1, 82)=138.21$ ,  $p<.001$ , partial  $\eta^2=.63$ , which was a large effect (Cohen, 1988) with an observed power of 1. Figure no.3 demonstrates that the treatment group had a higher level on post-test critical thinking scores than the control group, which is consistent with the

results previously mentioned. There was no main effect for time,  $F(1, 82)=.012$ ,  $p>.05$ . Overall, RQ1 was supported (see table no.3). It is suggested that giving the NRP to the participants increases the critical thinking scores on their post-tests. When compared to those of participants who were not given the NRP, these participants scored higher.

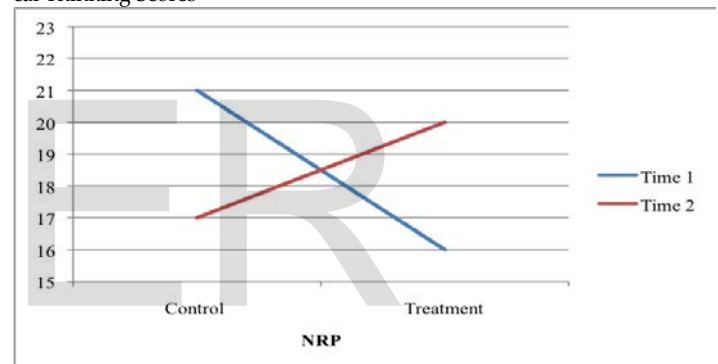
Table no.3. Two-way mixed ANOVA results for RQ1

DV	Pre-test (N = 84)		Post-test (N = 84)		F
	Control Group (M, SD)	Treatment Group (M, SD)	Control Group (M, SD)	Treatment Group (M, SD)	
Critical Thinking Scores	20.98 (3.53)	15.98 (3.62)	17.09 (4.06)	19.78 (3.36)	138.21** *

Note. \* $p<.05$ ; \*\* $p<.01$ ; \*\*\* $p<.001$

Source: created by the author using IBM SPSS version 23.

Figure no.3. Estimated Marginal Means Plot of Pre-test and Post-test Critical Thinking Scores



Source: created by the author using IBM SPSS version 23.

#### 4.2. Research Question 2 (RQ2). Will the treatment group's post-test critical thinking scores be higher than their critical thinking scores?

RQ2 was tested using a follow-up simple effect two-way ANOVA with one repeated measure using the pre-test and the post-test. The results indicated a main effect for time in the treatment group due to the significant difference between the treatment group pre-test ( $M=15.98$ ,  $SD=3.62$ ) and post-test ( $M=19.78$ ,  $SD=3.36$ ),  $F(1, 41)=54.99$ ,  $p<.001$ , partial  $\eta^2=.57$ . The effect was large with an observed power of 1 (Cohen, 1988). The treatment group had a significantly higher level on its post-test critical thinking scores than it did on its pre-test critical thinking scores (Figure no.4). Therefore, RQ2 was supported (see table no.4). It is suggested that administering the NRP to the treatment group increased the level of their critical thinking scores on the post-test when compared to their pre-test critical thinking scores.



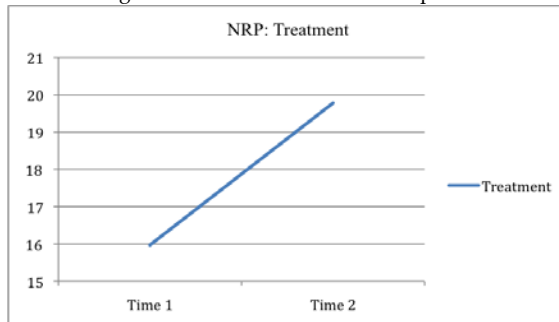
Table no.4. Simple effects of two-way mixed ANOVA results for RQ1

DV	Pre-test (N = 42)	Post-test (N = 42)	F
	Treatment Group (M, SD)	Treatment Group (M, SD)	
Critical Thinking Scores	15.98 (3.62)	19.78 (3.36)	54.99***

Note. \* $p < .05$ ; \*\* $p < .01$ ; \*\*\* $p < .001$

Source: created by the author using IBM SPSS version 23.

Figure no.4. Estimated Marginal Means Plot of Pre-test and Post-test Critical Thinking Scores for the Treatment Group.



Source: created by the author using IBM SPSS version 23.

## 5. LIMITATION

Limitations of the research should also be considered. One challenge of the paper was the limited student population. Future studies should utilize a wider range of university campuses to collect a broader sample across regions. Selecting student groups from different universities would provide a richer and more diverse sample size while also providing more generalized results to higher education at large. Another limitation in this work paper was the limited ability to conduct post hoc statistical analysis with only two groups in the current study. Including a third group in which participants are part of a control group but are given nonessential cognitive tasks to complete would assist with creating a clear understanding of the mechanism for the treatment groups success in critical thinking skills due to the NRP rather than any cognitive task that would stimulate critical thinking skills. Yet, overall, the current research provides a solid foundation for a true experimental design in assessing for increased critical thinking skills facilitated by the NRP.

## 6. CONCLUSIONS

In conclusion, RQ1 and RQ2 were supported by the quantitative data analysis. The NRP intervention contributed significantly improving critical thinking skills of students majoring in business studies. Because this study used a true experimental design and a relatively sufficient sample size, the quantitative data analysis was sufficiently validated. The findings from RQ1 were consistent with the previously suggested non-tested studies on the effect of NRP on critical thinking conducted by Page and Mukherjee [25],[26],[27]. Page and Mukherjee discuss the importance of teaching negotiation skills within the classroom environment and the current study

confirms the success of teaching negotiation skills to increase critical thinking in a short time frame to improve student outcomes.

Regarding RQ1, the results of the posttest treatment group showed improved critical thinking skills when were compared to those of the control group who did not do the NRP simulation. Therefore, using NRP as an instructional tool is recommended as it has been proven to be an effective method for increasing students' critical thinking skills in the current study compared to student in the control group.

The findings of RQ2 were also consistent with the previously suggested non-tested studies of Page and Mukherjee [25],[26],[27] regarding the effect of NRP on critical thinking. The results indicated that RQ2 was also supported and NRP improved critical thinking skills when the results of the treatment group were compared between pretest and posttest. For the control group, there was no significant difference on the pretest compared to the posttest scores, demonstrating that interventions are needed to increase critical thinking. NRP simulations are an important means of developing students' critical thinking skills and are a recommended as an effective method for increasing students' critical thinking skills.

The goal of this study was to measure the effect that negotiation role-play (NRP) has on the development of critical thinking skills. The findings contribute to the current literature by providing instructors, professors, and leaders in higher education with new information and knowledge of the importance of critical thinking skills and NRP in higher education field. It can also be on interest to many other disciplines across the education and higher education field, which includes, but not limited to, K-12, institutes, colleges, universities, and vocational training institutes. The results also provide new knowledge, information, insight and a new technique for developing students' critical thinking in business classes at business schools, colleges, and universities. The NRP techniques can also benefit students by preparing them for future careers, which is highly desirable by employers across the globe.

NRP is also a technique that can be utilized within the government and private sector as common practice to be implemented through employee trainings. Utilizing programs to develop critical thinking skills would improve decision-making skills that can have significant implication on personal careers and larger government agencies. Lastly, these conclusions could also be of interest to leaders in business, medicine or social services sector. For example, within the medical profession, [46] discussing the creation of assessment measures to assess for critical thinking skills for nurses, yet could benefit from utilizing the NRP instead of pencil-paper methods of assessing critical thinking improvement.

It is important to recognize the need to train a wide variety of professionals to think critically about important daily decisions and the impact that NRP technique could play in varying professions. Future steps would include the dissemination of NRP to classroom and educational setting across a wide range of professions to teach and increase critical thinking skills. Certain professions currently utilize general role-

playing strategies, yet would benefit from specific NRP strategies to standardize this procedure [47].

Overall, the research paper comes to demonstrate in a true experimental pretest post-test design, a significant difference between the control group and the treatment group, in which the treatment group received NRP to increase critical thinking skills. The findings contribute to the current literature and research in higher education with the aim of efficiently and effectively developing critical thinking skills through NRP.

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