

THE PENNSYLVANIA STATE UNIVERSITY
SCHREYER HONORS COLLEGE

DEPARTMENT OF PSYCHOLOGY

ASSESSMENT CENTERS: A STUDY OF THE CONNECTION BETWEEN
COLLEGE MAJOR, PERFORMANCE, AND PERSONALITY

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SPRING 2013

A thesis
submitted in partial fulfillment
of the requirements
for a baccalaureate degree in Psychology
with honors in Psychology

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ABSTRACT

In this study, assessment center data were examined to investigate a possible link between personality, college major, and assessment center performance. Participants were college students who took part in a leadership assessment center at a major research institution in the Northeast. Participants were asked to perform in several simulated leadership tasks and were then scored on their effectiveness by 6 trained and experienced assessors. Participants were grouped and coded based on academic major, which was then compared to assessment center performance. Personality traits, specifically neuroticism and conscientiousness, were used to examine the correlates between one's personality and performance. No significant correlations were found between college major, personality, or performance.

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ACKNOWLEDGEMENTS

I'd like to thank Dr. Rick Jacobs, Nicole Ginther, and Dr. Bill Ray for all of their constant help on this project.

Chapter 1

Introduction

Introduction

In an ever-evolving economy, it is becoming more and more critical that employers select individuals that will not only contribute to the success of the organization, but will also thrive within that organization. To that end, it is more important than ever to ensure that organizations are equipped with the tools to properly assess potential hires and build developmental profiles that will help their employees reach the highest end of their potential. To do this, employees must be accurately matched with the job for which they are best suited. One of the best ways to accomplish this is through the use of an assessment center.

A Brief History of Assessment Centers

For the past half-century, corporations, non-profits, and leadership training centers have utilized assessment centers to help analyze and develop the talent within their organizations. The use of assessment centers dates all the way back to the ancient Chinese, who used primitive assessment centers to select applicants for public service jobs. Like many performance measures that Industrial/Organizational Psychology uses today, modern assessment centers gained widespread acceptance as a result of their use in the military. The Germany, British, and Australian militaries all used assessment centers during the 1930s and 1940s as a way to aid in the selection of military officers (Kilmoski & Brickner, 1987.) Long a staple of HR procedures, assessment centers give employers

an environment in which to analyze potential hires, as well as employees whom are already on staff (Kilmoski & Brickner, 1987.) Additionally, assessment centers have received a wide variety of support from academics, consultants, and even federal courts (Hoyle, 1975.) Assessment center's can be used to develop employees within the organization, thereby increasing their value to the company while at the same time building employee skills, their commitment to the organization, their self esteem, and their readiness to assume positions of greater responsibility.. While sending potential employees to an assessment center can be an expensive and time-consuming proposition, ensuring that the most qualified candidate is selected into the most appropriate position within an organization can pay off many times over in the long run. Considering assessment centers have to ability to assess potential hires, develop the internal talent of an organization, or both, it is easy to understand their popularity and quite easy to justify their expense given the return on investment.

Assessment centers are usually conducted in an environment that is designed to simulate the real world setting that the potential hire or the current employee would be working in on a regular basis. Over the course of a few hours or a few days, trained assessors use an approach known as multitrait-multimethod (MTMM.) The goal of this type of assessment is to come at a desired personality trait, competency, or performance variable from multiple different perspectives in order to obtain as accurate a measurement of that trait or personality variable as possible. Some skill areas that assessment centers typically try to measure include variables such as oral communication, observing and recalling facts, written communication, conflict management, decision making, analyzing information, and planning and organizing skills (Stephen, 2010.)

Through careful observation of tasks designed to effectively demonstrate essential job skills, assessors aim to accurately and reliably predict whether or not a potential candidate is likely to succeed at a job and/or on which skill areas an existing employee needs additional developmental work. Once these traits are identified, a development plan can be created that will maximize the employee's potential. These measurements can be specifically tailored to a particular job or organization in order to ensure that the measurements are as job specific and reliable as possible. Assessment center data can lay the groundwork for an organization to both effectively grow its internal talent, as well as ensure that new hires are capable and qualified to handle the workload expected of them by their employer.

Assessment center validity

In addition to their widespread use, assessment centers also have strong empirical support advocating for their usage. When Byham (1977) looked at studies concerning the usage of assessment centers, he found that of the 22 studies he examined, 15 produced positive results and only one study produced a negative response (Klimoski & Strickland, 1977.) What this means is that when assessment centers are used, Byham (1977) found that they effectively predicted future performance in the majority of cases with only one study producing a false positive. Such a compelling result lends credibility to the idea that assessment centers are a valid way for organizations to accurately and effectively measure both internal and external talent. Additionally, Cohen, Moses, and Byham found that, on average, the correlation between assessment center ratings of potential for promotion and actual promotion past the first level of an organization was 0.40 (Klimoski

& Strickland, 1977.) Additionally, the same group found a correlation of 0.63 when assessment center ratings of promotional potential were compared against managerial assessments of the promotional potential of a candidate. Based on these results, it would seem that assessment centers should be an essential part of an organization's pre-hire assessment, as assessment centers can be used to accurately predict future job success of job applicants.

When meta-analyses of assessment centers are conducted, assessment centers are also found to have impressive predictive validity scores. Schmitt, Gooding, Noe, Kirsch (1984) reported that the mean predictive validity scores for assessment centers was 0.41 (Kilmoski & Brickner, 1987.) Hunter and Hunter's meta-analyses found that predictive validity ranged from 0.37-0.43, a finding that is consistent with the previous findings of Schmitt, Gooding, et. al.

Assessment centers also seem to work across a large range of people, places, and occupations. Regardless of the subject's level of education, race, gender, and past experience with assessment centers, assessment centers were useful in predicting managerial success (Kilmoski & Brickner, 1987.) The ability to work across a wide range of groups is essential to any tool that a large organization might use as a part of its recruiting and development operations. In this area, assessment centers seem retain their usefulness, even when a diverse population is used as the test group.

Despite their widespread use and the impressive research supporting their usage, assessment centers are not without their criticism. The primary criticism surrounding assessment centers seems to be their construct validity, or in other words, the ability of an assessment center to properly measure what it sets out to measure (Lance, 2008.) For

example, it is possible that an assessment measure meant to measure performance on a specific task is actually measuring something like general intelligence. However, the general consensus seems to be that assessment centers are valuable tools that organizations can use to augment and supplement their selection and assessment process.

Personality

In addition to purely performance-based measures, assessment centers often also evaluate a participant's personality type or assess elements that make up traditional profiles of personality. This is done to enhance the understanding of a candidate's natural predispositions and problem solving preferences. Our personalities are one of the central characteristics that make each person unique and consequently effect the ways in which we behave, think and problem solve. However, after decades of research, psychologists have been able to narrow down some of the more general aspects of personality in order to create more specific definitions and categorizations of personality. One of the most commonly used categorizations of personality types is called the Big 5 (Zilling, Hemenover & Dienstbier, 2002.) This division of personality types divides participants into groups based on their scores on openness, conscientiousness, extraversion, agreeableness, and neuroticism (also known as emotional stability.)

Personality and Academic Major

In the past, there have been attempts to link these measures of personality to academic major selection. Goldschmid separated college majors into fifty-five separate academic disciplines and attempted to divide major personality traits between science and humanities majors (Goldschmid, 1967.) Goldschmid utilized the California Psychological

Inventory, the Minnesota Multiphasic Personality Inventory, the Myers-Briggs Type Indicator, the Omnibus Personality Inventory, and the Strong Vocational Interest Blank to create personality profiles on his participants. Among a range of findings, Goldschmid found that science majors tended to be more prudent, self-assured, and introverted than their counterparts in the humanities who tended to be more participative, prone to anxiety, and outspoken. It is therefore possible that individuals may be predisposed to seek out a major that rewards individuals for displaying personality types. For instance, individuals whom are naturally predisposed to be more participative and outspoken may be drawn towards the collaborative nature of the humanities, while an individual whom prefers data driven work that does not necessitate an outspoken nature may find himself more at home in the sciences.

It is easy to see how these different personality variables could create two distinct groups of people that would be drawn to different areas of study. The so-called “hard” sciences often demand an individual that is sure of himself and his work and who is willing to take the most practical route to solving a problem. On the other hand, humanities majors often must work in consort with other members to solve problems and must be willing to share their opinions and ideas. The question still remains whether individuals with these traits tend to select a major that matches their personality, or if the selected major acts on the individual to shape these personality traits.

These personality traits may also affect an individual’s ability to self assess. As Goldschmid noted, science majors tended to be relatively free from self-doubt. While this can be an asset, the inability to doubt oneself can also easily be turned into a liability if

the individual is unable to accept outside criticism and grow from it. Self doubt is an essential component to self insight, a crucial measure in many assessment centers.

Conversely, Goldschmid noted that humanities majors were self reflective and prone to doubting themselves. While this ability to self analyze is important, taken to an extreme, it can potentially lower self esteem and hinder performance. Additionally, over analysis can produce criticism that is beyond the reality of an individual's performance and not necessarily in line with external ratings from assessors, which would also negatively impact self-insight.

Based on the previous work on the topic, I believe that personality traits will affect which college major participants choose. I also believe that humanities majors will be more accurate when self-evaluating than science majors.

Chapter 2

Hypotheses

- 1. Liberal arts majors will be more accurate at self assessment than science or engineering majors.**

This assumption is predicated on the belief, and supported by the review of available literature, that liberal arts majors are, on average, more self reflective than other major groups (Goldschmid, 1967.) Additionally, the literature indicates that liberal arts majors are more willing to doubt themselves than other major groups and would thus be more likely to give an accurate assessment of themselves than other majors.

- 2. People who are high in conscientiousness will be the most accurate at self assessment**

High conscientiousness individuals also tend to be individuals who are also highly results orientated and driven to succeed (Barrick & Mount, 1991.) This work orientation produces individuals whom perform well in the work place and will thus rate themselves as having performed well.

- 3. People who are low in emotional stability will underrate their performance**

Emotional stability, otherwise known as neuroticism, causes individuals to have irrational beliefs about themselves (Zilling et. al, 2002.) These irrational beliefs could cause individuals to more harshly criticize themselves and make

them less likely to accurately assess their performance in the assessment center.

4. Engineering and Science majors will overrate their performance.

As Goldschmid noted, science majors tend to be more self-assured and less prone to self-doubt than other major groups (Goldschmid, 1967.) Because of this, science and engineering majors may be less likely to rate their performance as lower, skewing the overall accuracy of their rating when compared against the assessor's ratings.

5. Liberal arts and Business majors will score the highest on collaborative tasks.

Business majors and liberal arts majors often times have to work together in groups to accomplish tasks. Additionally, liberal arts and business majors tend to be more participative than their peers in the hard sciences (Goldschmid, 1967.) This should give business majors and liberal arts majors a competitive advantage when it comes to collaborative tasks.

Chapter 3

Methods

Participants

All participants were drawn from students whom were enrolled in the honors college of a large public university in the Northeastern region of the United States. Students submitted applications to participate and were selected for the assessment center. The participant pool contained 92 males and 91 females. All participants were between 18 and 23 years of age and were undergraduates at the University.

Participants were divided into five different groups according to major. These groups were Science, Liberal Arts, Engineering, Business, and Other. Majors were coded based on which academic college they were included in at the University. In cases in which the participant's major could not be easily grouped into one of the big four major categories, an effort was made to code the major into the closest possible major category based on similarities between the participants major and other majors within the broader defined categories. If there was still no way that the major could be easily assigned into any of the four major categories, the "Other" category was utilized. This designation was used as a last resort in an effort to capture as many participants into the big four majors as possible. The major count resulted in a pool of 33 Science majors, 63 Liberal Arts majors, 34 Engineering majors, 36 Business majors, and 15 participants that were ultimately grouped into the "Other" category. 2 of these individuals were initially dropped from the final data set due to missing major data.

After ruling out participants who had missing or incomplete data, the final data used in the study included 137 participants. The sample was made up of 66 males and 71 females with an average age of 20.4. There were 23 Science majors, 51 Liberal Arts majors, 27 Engineering majors, 26 business majors, and 10 “Other.”

Assessment Center Exercises

Several different scenarios that could be experienced during job performance in an organization were used in assessment center sessions, but the nature of the exercises remained the same across all of the sessions. All participants completed a case study analysis, an oral presentation, a role-play scenario, a written exercise, and a leaderless group discussion.

Case Study

Though the scenario of the specific assessment center varied each time, the case study involved analyzing information related to the organization and forming conclusions in the form of a two-paged executive summary. In one scenario, the participant was the Director of Operations for a movie theater trying to combine the business with a restaurant. The case study gave students essential financial information about each possible restaurant, as well as qualitative information that could be used to inform the participant’s decision on which restaurant to select. Students were tasked with analyzing the possibilities and deciding if any options should be immediately ruled out.

Oral Presentation

The oral presentation involved participants preparing a ten-minute PowerPoint presentation to be shared with his or her superior. The presentation necessitated some analysis of

information as well as a decision on the next steps for the organization. In the movie theater example, the participant presented the restaurant options to the owner of the theater and made a pitch for which restaurant the participant thought most prudent to partner with. The presentation was followed by questions from the assessors, who were observing the participant, about the content that was presented.

Role Play

The role-play scenario involved participants interacting with an assessor who played the role of a disgruntled customer, or an employee who was causing a problem. In the movie theater example, the participant had a ten-minute conversation with the assistant manager of the theater, who seemed to have lost motivation and was consequently underperforming. Assessors were given scripts to guide their side of the conversation and to remain as consistent as possible across participants.

Written Exercises

Each assessment center scenario involved the participants completing two written exercises. The written assignments were generally based on a customer complaint and a hiring decision. In the case of the movie theater scenario, the participants were tasked with addressing an upset customer and with writing a recommendation for a new hire based on the review of two candidates' résumés.

Leaderless Group Discussion (LGD)

The LGD involved participants breaking into two groups of six students each. After a 30-minute preparation period during which participants were individually given the details of the task, the students met for 30 minutes and completed a task as a group. While the assessors did observe the discussion, no leader was assigned and there was no designated moderator of the meeting. Students worked together to come up with a final product based on the scenario. In the movie theater scenario, participants devised a promotion or event to help draw customers to the newly combined theater and restaurant. Participants shared their individual ideas first, and then, as a group, decided on the best option and added on to that idea to come up with the final plan.

Procedure

A week prior to participating, students attended an orientation that described the schedule for the day, the exercises, and the goals of the assessment center. They were then e-mailed surveys including a self-assessment of Bartram's (2005) Great Eight competencies, a personality assessment, and background information about the leadership position that they will be placed in and the scenario that will be used for the assessment center. On the day of the center, students participated in several hours of exercises as described above. After finishing the exercises, the participants completed a post-survey rating on themselves on the competencies assessed during the center. This survey is identical to the self-assessment that the participants completed before arriving at the assessment center.

Participants were observed by teams of assessors that included both business professionals, as well as psychology graduate students. The assessors received training in observing and classifying behaviors prior to monitoring the students. Throughout the assessment

center, assessors observed the participants in teams of two or three and individually took notes on student behaviors. After each exercise, the assessors individually completed ratings before meeting with their assessor team and coming to a consensus on the final ratings. Detailed notes on behaviors were compiled and included in the feedback for the students. At the end of the day, all of the assessors met to integrate information on each participant and to assign final ratings on each of Bartram's (2005) Great Eight competencies. The information gathered in this integration session was then used to develop a feedback report for each student.

Approximately ten days after participating in the assessment center, participants met with a graduate assessor to receive written as well as oral feedback. The feedback included an analysis of their strengths and weaknesses as identified by the assessors during the center. A personalized development plan was created with each student at this session to further their growth as they continue with their education and eventually move into the workforce.

Measures

Participants were scored on 28 separate measures while participating in the assessment center. The measures were scored on a scale from 1 to 7 with 1 being the lowest, 4 being average, and 7 being significantly above average. The variables used in this study were drawn from each participant's self-reported WAVE personality inventory published by Saville Consulting, self-ratings of competencies before the assessment center, self-ratings of the same competencies after the assessment center, and the assessor's scores of performance on the same competencies during the assessment center. Conscientiousness and emotional stability were measured using results from the WAVE personality assessment. Participants' self-ratings were taken from the surveys administered before and immediately after participating in the assessment

center. Students rated themselves on a 7-point scale (1 = highly ineffective, 7 = highly effective) as to how well they believed that they would perform on the competencies measured in each exercise. After completing the exercises, the students rated themselves on the same scale based on how well they believed they had performed on the same competencies. Averages were calculated for participants' pre and post ratings for each competency, and these were compared with assessors' ratings of performance to measure self-insight. The calculation of the difference scores is explained later on.

Chapter 4

Results

Table 1 shows the correlations between emotional stability, conscientiousness, and the difference scores based on the ratings that the participants gave themselves and actual performance as determined by the assessor ratings. Difference scores were determined by calculating the average of the participants' self ratings for the seven competencies and the average of the assessors' ratings for the participants' performance on the seven competencies. The difference between the two averages was then calculated as a score of self-insight, with higher difference scores reflecting more discrepancies and therefore less self-insight. Participants' self-ratings were separated by the self-assessments they completed before participating in the assessment center and the ratings they gave themselves after completing the assessment center. In order to determine the discrepancies between participant and assessor ratings, the absolute values of the differences were used in calculating difference scores. Additionally, these discrepancies were calculated without absolute values to determine the extent to which the participants underestimated or overestimated their performance.

Conscientiousness was not significantly related to self-insight when participants' pre-ratings ($r = .04$) and post-ratings ($r = .05$) were examined. Emotional stability for pre-ratings ($r = .06$) and post-ratings ($r = .12$) also did not produce significant relationships. Lastly, emotional stability was not related to an underestimation of performance based on pre-ratings ($r = .12$) or post-ratings ($r = .01$).

There was, however, a significant negative correlation between conscientiousness and the average difference between participants' pre-ratings and post-ratings ($r = -.17$).

Table 2 shows the differences between liberal arts majors, science majors, leaderless group discussion average, and the difference scores as calculated by an independent sample t-test. There were no significant differences found for any of the major groups.

Table 3 shows the differences between liberal arts majors, engineering majors, leaderless group discussion average, and the difference scores as calculated by an independent sample t-test. There were no significant differences found for any of the major groups.

Table 4 shows the relationship between major and performance on the leaderless group discussions as calculated by a one-way ANOVA. There were no significant differences for any of the major groups.

Chapter 4

Discussion

The results of this study do not provide evidence that major, conscientiousness, or emotional stability have any effect on self-insight. The only significant correlation was a negative correlation between conscientiousness and the average difference between participants' pre-ratings and post-ratings. This seems to indicate that those who scored highly on the measure of conscientiousness were less likely than those scoring lower on the measure to change their ratings of their own performance after the assessment center tasks were completed. While this finding says nothing about actual performance of those who are high in conscientiousness, it does lead to the possibility that these individuals are more aware and honest about their own performance than other personality groups. Additionally, it paints conscientious participants as possibly being less willing to alter their perceptions of themselves regardless of any new external information. Future research could look into the connection between high conscientiousness people and their willingness to change their impressions of not only themselves, but other people as well. If future participants are as fixed in their perceptions as they were in this study, a greater understanding of how these individuals process and integrate new information into their decision making process could be explored.

The major limitation of this study seems to be the result of restriction of range concerning the participants that took part in this study. All of the participants were high achieving individuals that had already been selected into their college based on very high

levels of academic merit. This might help explain why there was no significant association between major and performance as well. These individuals were already exceptional regardless of their major choice and were almost certainly near the top of their chosen majors. All of these sampling issues likely lead to a population that was very similar on all relevant measures resulting in very little variation in self-insight scores. Additionally, the assessment center utilized over one hundred different assessors whose assessments were utilized to calculate the participant's scores. While the assessors were grading the same tasks on the same scales, having different assessors in the same study introduced an element of error variance into the study.

A future study should attempt to sample from a more general population in order to gain a wider distribution of performance scores and inherent self-insight. Additionally, a future study would hopefully utilize the same group of assessors throughout the entire study to ensure that the entire participant pool is being graded by the same individuals.

Appendix A
College Major Codes

1 = Science

2 = Liberal arts

3 = Engineering

4 = Business

5 = Other

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TABLE 1

Table 1

Correlations for LGDAvg, Major, Emotional Stability, Conscientiousness, and Difference Scores^c

	Mean	Standard Deviation	Pre-Post Avg	(Pre-Post) Avg	Pre-Asr Avg	(Pre-Asr) Avg	Asr-Post Avg	(Asr-Post) Avg	Emotional Stability	Conscientiousness	Gender	majcode	LGD Avg
Pre-Post Average	.225	1.592	.979										
(Pre-Post) Average	1.180	1.460	.872**	.979									
Pre-Asr Average	.735	1.632	.057	-.038	.837								
(Pre-Asr) Average	1.455	1.486	-.014	.053	.891**	.840							
Asr-Post Average	-.354	1.613	.053	.109	.508**	.701**	.972						
(Asr-Post) Average	1.095	1.526	-.106	-.018	.862**	.934**	.655**	.972					
Emotional Stability	6.436	1.388	-.088	-.138	.116	.056	.014	.123	.532				
Conscientiousness	6.184	1.120	-.133	-.169*	.096	.040	-.102	.047	-.031	.468			
Gender	1.518	.502	.071	.073	.055	.080	.102	.075	.095	.076			
Majcode	2.650	1.179	.123	.128	-.035	-.038	-.087	-.031	.031	.113	-.039		
LGDAvg	4.906	.972	-.019	.040	-.252**	-.131	.221**	-.097	.183*	.016	-.024	-.015	(-)

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Reliabilities bolded on diagonal

c. Listwise N=137

TABLE 2

Liberal arts v Science

Table 2**Independent Samples Test for Major Differences**

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Pre-Post Average	.491	.486	-1.598	72	.114	-.334	.209	-.751	.083
(Pre-Post) Average	1.042	.311	.531	72	.597	.063	.119	-.174	.299
Pre-Asr Average	1.353	.248	.293	93	.770	.165	.562	-.952	1.282
(Pre-Asr) Average	1.717	.193	.938	93	.351	.495	.528	-.553	1.543
Asr-Post Average	.803	.373	.509	72	.613	.258	.508	-.754	1.271
(Asr-Post) Average	1.112	.295	1.068	72	.289	.534	.499	-.462	1.530
LGDAvg	.292	.590	1.472	93	.144	.267	.181	-.093	.627

TABLE 3

Liberal arts v Engineering

Table 3 Independent Samples Test for Major Differences

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Pre-Post Average	1.610	.208	-.704	76	.483	-.121	.172	-.464	.221
(Pre-Post) Average	.001	.975	1.117	76	.267	.115	.103	-.090	.321
Pre-Asr Average	.902	.345	.216	93	.830	.122	.564	-.999	1.242
(Pre-Asr) Average	1.607	.208	.553	93	.581	.291	.526	-.753	1.335
Asr-Post Average	.140	.709	1.101	76	.274	.532	.483	-.430	1.493
(Asr-Post) Average	.377	.541	.517	76	.606	.243	.470	-.693	1.179
LGDAvg	2.464	.120	2.353	93	.021	.464	.197	.072	.855

TABLE 4

Oneway ANOVA

		ANOVA				
		Sum of Squares	df	Mean Square	F	Sig.
Pre-Post Avg	Between Groups	20.492	4	5.123	2.132	.080
	Within Groups	324.427	135	2.403		
	Total	344.919	139			
(Pre-Post) Avg	Between Groups	22.546	4	5.636	2.839	.027
	Within Groups	268.058	135	1.986		
	Total	290.604	139			
Pre-Asr Avg	Between Groups	13.543	4	3.386	.803	.525
	Within Groups	729.013	173	4.214		
	Total	742.555	177			
(Pre-Asr) Avg	Between Groups	16.505	4	4.126	1.187	.318
	Within Groups	601.284	173	3.476		
	Total	617.789	177			
Asr-Post Avg	Between Groups	7.290	4	1.822	.700	.593
	Within Groups	348.814	134	2.603		
	Total	356.104	138			
(Asr-Post) Avg	Between Groups	5.707	4	1.427	.613	.654
	Within Groups	311.840	134	2.327		
	Total	317.548	138			
LGD Avg	Between Groups	5.802	4	1.451	1.689	.155
	Within Groups	149.452	174	.859		
	Total	155.254	178			

ACADEMIC VITA

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Education

B.S., Psychology, 2013, The Pennsylvania State University, State College, Pa

Honors and Awards

- Schreyer Academic Excellence Scholarship
- Eberly College of Science Scholarship
- Phi Beta Kappa

Professional Experience

Consulting Activities

- EB Jacobs- Wrote, edited, and verified items for Police and Fire promotional exams as well as reviewed legal materials for ongoing litigation
- Bartell & Bartell Ltd.- Provided a wide range of management consulting services, including executive assessment and development, to a wide variety of companies in many fields, such as oil and manufacturing.
- Thomas Communications, Inc- Helped write and proofread technical manuals and other advertising and public relations materials for corporate clients.

Research Interests

I have a broad interest in social psychology and leadership. Specifically, I am interested in the role that our personalities play in determining how we solve problems and interact with others in professional a professional setting.