**A Study on How to Avoid a Layoff and How People Recover From a Layoff**

An Interactive Qualifying Project Report

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# Abstract

This project addresses the topic of layoffs. More specifically, it addresses if the factors of commitment training and performance affect investment in an employee. Investment was used because of the link that it displays to layoffs. Also, it addresses alternatives that an employee can take after being laid off. In order to gather data to address these topics, a web-based survey was designed. This survey was distributed to the graduate students at WPI. The results showed that commitment plays the largest, and possibly the only significant, role in determining investment, and that most of the survey responders primarily seek some kind of income after being laid off.

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## Executive Summary

Layoffs, unfortunately, have become very common in today's society. With the current economic downturn, the Bureau of Labor Statistics reports that over fourteen million Americans are currently unemployed. Because of this, both state and local governments have increased the length of unemployment benefits. Layoffs are accompanied with both a financial and emotional stress. In order to relieve this stress, one alternative may be to avoid getting laid off. If a layoff is inevitable, it is important to find a way to get a new job quickly.

The goal of this project was to determine ways to avoid getting laid off, and if an employee does get laid off, this project would give advice as to what the employee could do to get back into to work force. In order to answer provide assistance on these topics, the group had to gain knowledge on the subjects. This was done by reading literature related to both of the subjects. The literature review suggested that investment in an employee was directly related to layoffs. The more an employee had invested in an employee, the less likely the employee is to be laid off. The literature review also revealed characteristics that may affect layoffs. These are commitment, performance and training. The literature review also suggested alternatives when an employee was laid off. These alternatives may consist of going back to school to further education in the same or different field, getting a part time job or completely focusing on getting a full time job.

The literature review shaped two research questions. The first was do commitment, training and performance affect a firm's investment in an employee? The second was what do employees do most after being laid off? Investment was used as the dependent variable in the first research question because of the direct link between investment and layoffs.

In order to answer these research questions, a web-based survey was sent out to the graduate students at WPI. The survey returned 105 responses. The data from these responses was analyzed to answer the research questions. In addition to this survey, two interviews were conducted. One interview was with a large firm and one was with a small firm. These interviews were compared to the results obtained from the survey.

Regressions were the main data analysis technique used to answer the first research question. When the regressions were performed on the survey responses, they showed that the only significant factor that influenced investment was commitment. In order to answer the second research question, a simple quantitative approach was used. This quantitative approach yielded that most employees opted to have some kind of income, in the form of a part time job, after being laid off.

# Contents

## 1.0 Introduction

With unemployment rising and the end nowhere in sight, layoffs are becoming a household discussion. Whether yourself, a sibling, a relative, or friend has had the unfortunate experience of a layoff, most Americans have had an interaction with one. This project focuses on the criteria that affect layoffs. This may be regarding what an employee can do to avoid being laid off. The second area of investigation is what a person does once he/she is laid off when attempting to find a new job.

In order to complete the data analysis, certain assumptions are made. The first is that an employee can influence whether or not they are laid off. The second is that the higher investment the firm makes in an employee, the less likely the employee is to be laid off. Through both quantitative and qualitative analysis, this project attempts to answer two research questions. The first question is regarding what employers' value most when deciding whether to invest in an employee or not. The second question is regarding the alternatives taken by an employee after he/she is laid off. We sent out a web-based survey in order to answer these questions. After various data analysis techniques were performed we determined that commitment is the only significant factor determining whether an employer invests in an employee. This is determined only for our survey samples, which consisted of mostly high tech workers. Also, most people opt to have some kind of income in the form of a part time job after being laid off.

This project is organized into 7 sections. Section 1 is the introduction for the project. Section 2 is the background for the project. Section 3 is the literature review, which addresses studies that have already been done regarding layoffs. These studies consist of, among other things, avoiding a layoff, antecedents to layoffs and employee characteristics. Section 4 is the research methods in which we

discuss how we are going to gather and organize the data. Section 5 addresses the data analysis.

Section 6 discusses the technology link to the project. Finally, section 7 is the conclusion where we

sum up our results.

## 2.0 Background

### 2.1 Why Layoffs?

According to the bureau of labor statistics, 9.7% of the population in the United States is unemployed

(Figure 1). This rate is the highest it has been since June of 1983. This enormous jump in unemployment

leaves a little more than fourteen million Americans unemployed as of January 2010 (Figure 2). Because

of the massive unemployment rate, layoffs are becoming more and more common and should be an

area of study. For the problem statement, see Appendix A.
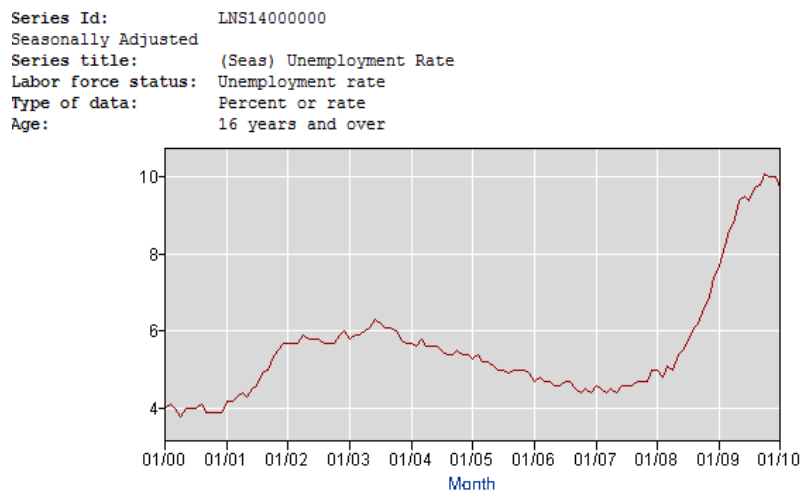


Figure 1 – Unemployment Rate in the United States from January 1999 to January 2010 (U.S.

Department of Labor, 2009).

```
Series Id:           LNU03000000
Not Seasonally Adjusted
Series title:        (Unadj) Unemployment Level
Labor force status:  Unemployed
Type of data:        Number in thousands
Age:                 16 years and over
```
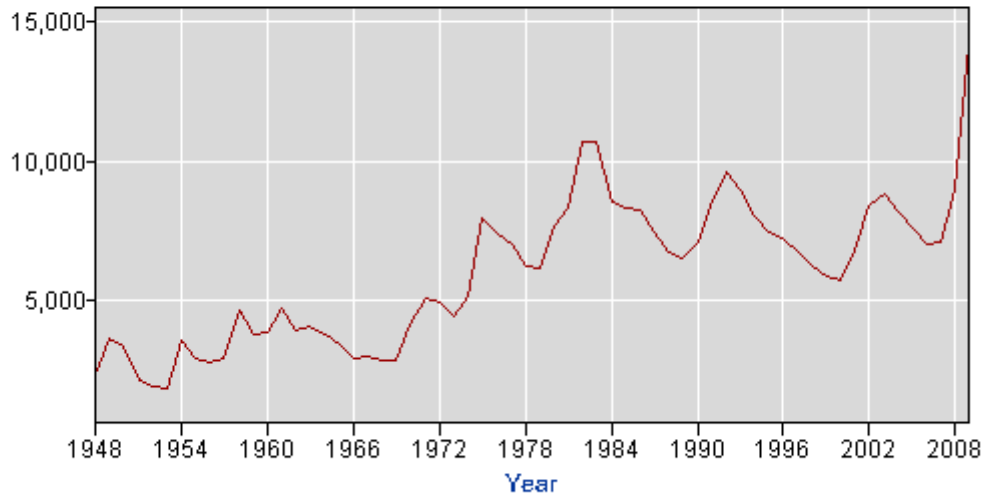
Figure 2: Unemployed (in thousands) per year in the United States from 1948-2009(U.S. Department of

Labor, 2010).

The financial and emotional stress accompanied with a layoff makes it a plausible area of study. Once an

employee is laid off, he/she is eligible for unemployment benefits. As of 2010, he/she must get a new job

in less than 99 weeks or he/she will not be able to support their family because their benefits will expire.

Also, when an employee is collecting unemployment, sacrifices must be made because only half of the

income is coming in each week. In the state of Massachusetts, unemployment benefits are usually half of

the employee's previous weekly paychecks plus an additional $25 per child. Because the Federal

Stimulus Package, the unemployed get an additional $25 per child. Also because of the high

unemployment rate, employees are eligible to collect unemployment for 99 weeks if they are actively

searching for a new job. Searching for a new job entails either, making at least 3 work search contacts

each week, keep a written record of these contacts giving work search record to the Division of

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Unemployment Assistance, if they ask for it. (Community Resources Information, 2010). Along with the financial stress of being laid off, there is a great deal of emotional stress accompanied with a layoff. Perhaps one of the most extreme examples of this emotional stress occurred in France in September of 2009(Chrisafis, 2009). France Telecom has been linked with suicides of both laid off and currently working employees. The working employees were under so much stress because of the fear of getting laid off; they were killing themselves. 20 workers have taken their lives in the 18 months prior to September 2009. In one instance, a technician stabbed himself in front of other staff during a management meeting. He had been told his job was to be cut. There were numerous layoffs in the company and others were so afraid of being laid off that the stress has caused fatal results (Chrisafis, 2009). This may be the most dramatic case of layoff stress. A less extreme example is shown on May 26, 2009 in the Miami Herald. The article reports "According to a poll taken in March by the National Sleep Foundation, one-third of Americans were losing sleep over the state of the economy, particularly layoffs. The random poll of 1,000 adults showed that the number of people reporting sleep problems has increased 13 percent since 2001" (Kay, 2009). The article also explains the effects a loss of sleep can have. It explains that a lack of sleep can affect ability to concentrate and do well in a job interview. It can also lead to car accidents as people fall asleep while driving (Kay, 2009). The financial and emotional stress that comes with a layoff may make it important to avoid being laid off.

## 3.0 Literature Review

### 3.1 Avoiding a Layoff

Numerous publications cover the topic of avoiding a layoff. These publications share both the same and conflicting ideas. Many of these papers focus on certain employees' characteristics. These may be the

education level of the employee, the amount of training or certifications an employee has received, the amount of commitment an employee exhibits, or the employee's performance.

## 3.1.1 Education and "Safe Jobs"

Education may not only mean graduating high school and going to college. There are multiple forms of education. One may be furthering education through schooling, such as college. Another is going to a specialized school to get what may be considered a "safe job". The first type of education, going to school, has been studied in the past. A study by Diebold, Neumark and Polsky in 1997 shows the correlation between years of education and job stability. They find that an employee with a high school degree at most had more difficulty keeping their job than one with a college degree. The study is further broken down by demographic, such as the age of the employee. Importantly, the study is also adjusted for business cycles. The retention rate for college graduates increased with the business cycle adjustment, whereas the high school graduates had a significant drop-off in retention rate (Table 1). The line in the table that reads "Change" is the one that is indicative of the business cycle adjustment. The college graduates increase by 0.15 whereas the high school graduates decrease by 0.22. Table 1 shows the retention rate for college graduates is higher for every age group. The college graduates also have the most tenured employees among young people (Diebold, Neumark, & Polsky, 1997).

| Demographic Group | Age Group | | | | Total | Business-Cycle Adjusted Total |
|---|---|---|---|---|---|---|
| | 16–24 | 25–39 | 40–54 | 55+ | | |
| Education: | | | | | | |
| High school graduate or dropout: | | | | | | |
| 1983–87 | .273 | .575 | .679 | .466 | .518 | .502 |
| 1987–91 | .211 | .529 | .650 | .456 | .484 | .480 |
| Change | −.062* | −.046* | −.029* | −.010 | −.034* | −.022* |
| College graduate: | | | | | | |
| 1983–87 | .494 | .612 | .775 | .597 | .644 | .625 |
| 1987–91 | .545 | .617 | .738 | .572 | .644 | .640 |
| Change | .051* | .005 | −.037* | −.025 | .000 | .015* |

Table 1: Table of 4-Year Retention rate by Education (Diebold et al., 1997)

Because of the time period that the Diebold, Neumark and Polsky study was conducted, the education aspect has changed slightly. The study was conducted from 1983-1991, where an undergraduate degree was more significant than it currently is. The concept that furthering education leads to increased job security still appears true. Instead of undergraduate degrees, prospective employees are attempting to obtain degrees higher than the undergraduate type. In a more recent case, the graph below (Figure 3) shows the relationship between education, unemployment rate and weekly earnings.

**Education pays**

| Unemployment rate in 2008 | | Median weekly earnings in 2008 |
|---|---|---|
| 2.0 | Doctoral degree | $1,555 |
| 1.7 | Professional degree | 1,522 |
| 2.4 | Master's degree | 1,228 |
| 2.8 | Bachelor's degree | 978 |
| 3.7 | Associate degree | 736 |
| 5.1 | Some college, no degree | 645 |
| 5.7 | High school graduate | 591 |
| 9.0 | Less than a high school diploma | 426 |

Source: Bureau of Labor Statistics, Current Population Survey

Figure 3: Education Pays; http://www.greenwichcsd.org/hs/counseling/Education%20Pays.jpg

As displayed by the figure, the amount of earnings increases and the unemployment rate decreases as education increases. This graph is from 2008 and reinforces the previous study.

To further advocate this fact, there is some evidence that PhD programs have been on the rise. Some business schools are reporting jumps in applications as high as 40% (Damast, 2009; Damast, 2009). These increases are attributed to people fleeing the weak job markets in order to find "safe jobs". Undergraduates also just bypass the weak job market entirely and further their education. As displayed by Neumark and Polsky, in a weak economy it is the employees with the most education that have the highest retention rate. In order obtain the best possible retention rate; students are remaining in school in order to gain the highest possible education before entering the job market. In one instance, the University of Pennsylvania's Wharton School has seen rapid increases in its PhD applications. Robert Inman, the school's vice-dean and director of doctoral programs suggests 'It's not that we're getting all the quant jocks from Wall Street who suddenly lost their million-dollar jobs and say, 'Well, what the heck, let's go get a PhD,' what's causing the increase is the really smart kids who would have been tempted to go to Wall Street and maybe stay there, but now the jobs are not available." (Damast, 2009).

This suggests that students are continuing to go to school in order to find different jobs because the jobs that they may have received upon graduation have been lost because of the economic downturn.

In addition to college students remaining in school to earn PhDs, employees are enrolling in community colleges in order to earn a higher education. They are attempting to get so-called "safe jobs". These jobs are defined as ones that the employees are required to have unique skills to perform and are not as likely to be laid off because not everyone can do that job. They are attempting to leave jobs such in which they are considered disposable, such as factory work (Keen, 2009). The factory employees mainly fall into the high school graduates or dropouts (Diebold et al., 1997). They are attempting to belong to next category, the college graduates, who have been shown to have an increased retention rate (Diebold et al., 1997). Community colleges have programs that teach old school "safe" trades such as a plumbing or welding (Keen, 2009). They are also attempting to get jobs in green, wind or solar technology because these are the jobs that will be hiring when the economy picks up again (Keen, 2009). People are also going back to school to get jobs in the medical field because that field appears to be a safe field as well (Keen, 2009). These fields involve licensing or certificates in order to practice. These licenses are obtained when attempting to find a new career path. They are not the ones we will be examining in this study. The next section focuses on licensing, mainly paid for by the employer, in order to advance one's knowledge of their current field.

### 3.1.2 Training and Licensing

Job certificates and licenses can have both a positive and negative impact on job security. The positive impacts of certificates can be seen in the technology field. Before the current economic crisis, technology jobs were on the rise and certifications were a key to higher wages (Kaneshige, 2008). In

today's economy, employers spend less on training, but employees want it as insurance in order to avoid a layoff. This is because when an employer spends more money on an employee they may be less likely to get laid off (Galunic & Anderson, 2000). When faced with two comparable candidates, a hiring manager can be swayed by a certification. There is evidence the certifications play a key role in not only hiring, but also keeping a job. This can be important because if an employee has a certification, he/she may be less likely to be laid off. Certifications and licenses may have a positive impact on layoffs, but there is evidence that not everyone likes the idea of licensing.

Some view licensing in a negative fashion. The United States first implemented licensing laws in order to stop the scams and quacks that were going on (Hogan, 1983). Licensing, however, can also be viewed as advanced regulation by the government. They also have a substantial impact on the economy as they have impacted approximately one third to one fifth of the work force. (Hogan, 1983) This study also suggests that the cost of licensing outweighs the benefits. Evidence suggests that the employees who are licensed are not sufficiently more competent than those who are not (Hogan, 1983). Hogan argues that licensing tests question facts that are not necessarily applicable to the practice. Licensing may be seen as just another form of government regulation; however, it is also important that employees get the correct licenses or certifications, because they are needed in order to practice their trade.

Similar to licensing and certifications, job training may be taken into consideration. Job training is usually paid for by the employer in order to advance the employee's knowledge of the field. It has been shown that increased training leads to decreases turnover (Grant, Kane, Potthoff, & Ryden, 1996). In this study, the effect of training on turnover was measured in the nursing profession. In this study, it was found that increased training led to decreased turnover. The impact of training on strictly involuntary turnover was not measured. This is more pertinent to our study and will require further examination. Training can also lead to fluidity or the ability of employees to move in between firms (Glance, Hogg, & Huberman, 1997).

Employers may be reluctant to invest in employees, because they feel that their money may be wasted because of the fluidity that comes with training. These studies suggest that training can not only improve an agent's standing within a firm, but also improve an agent's ability to move within firms. One of the concerns of the Glance study is that it is based on a computer model and does not have a human factor built in. The study relies on simplifying assumptions and speculations.

Education, training, licensing, and certifications may be key factors when attempting to avoid a layoff. For the purpose of this study, training, certifications and licenses will all be combined into one term. For the rest of this paper, when the word "training" is used, all three of these things are implied. Aside from training and education, an employees' performance may also have an effect on layoffs.

### 3.1.3 Job Performance

A term associated with layoff is turnover. Turnovers are not exactly the same as layoffs. Turnover can be broken down into 2 categories: voluntary and involuntary. Voluntary turnover is when an employee leaves the firm voluntarily. Involuntary turnover is when an employee is forced to leave the firm. A layoff is an involuntary turnover and will be the only type of turnover investigated in this study.

The relationship between performance and turnover is not as obvious as one might think. The common sense opinion appears to be the greater job performance, the less likely the probability of a turnover. This however, is not fully supported by research (Jackofsky, 1984).

The relationship between job performance and turnover has been examined repeatedly. Its mixed results appear to be due to the type of turnover: voluntary or involuntary. Studies of the relationship between job performance and turnover have had completely different results. On one hand, there is a negative relationship between job performance and turnover (Dreher, 1982). This means that with a lower job performance there is a higher involuntary turnover. This seems like the common sense examination; the employees that perform better are the ones that keep their jobs. On the other hand, examination has shown a positive relationship between turnover and performance. This relationship is considered voluntary turnover and will not be investigated by this study. Finally, there are studies that show job performance has no affect on turnover (Leviatan 1978). In another study, it is suggested that the relationship between turnover and job performance can be displayed by Figure 4.



**Predicted Relationship Between Job Performance and Turnover**
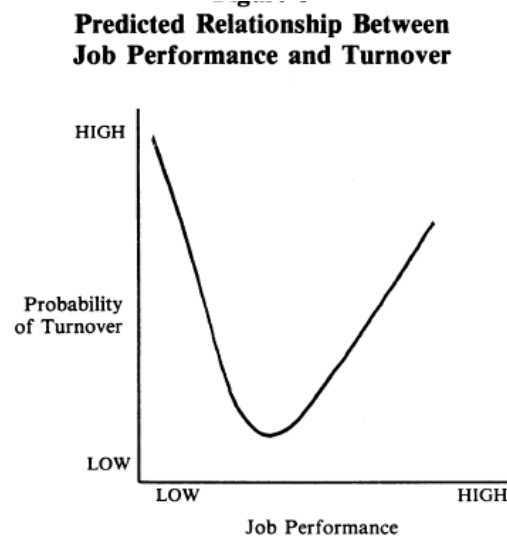
Figure 4: The relationship between job performance and turnover (Jackofsky, 1984)

The increased job performance section of the graph may not be pertinent to this study, because it related to voluntary turnover. Voluntary turnovers may not be of concern in times of economic crisis. More pertinent relationships between involuntary turnover and job performance have been investigated

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(Leviatan, 1978), (Dreher, 1982). The results of these investigations are explained above. Job performance may have an impact on involuntary turnover, but there are other things an employee can do in order to avoid involuntary turnover. One of which involves commitment.

### 3.1.4 Commitment

Commitment can be broken down into three categories: job commitment, career commitment and organizational commitment. Job commitment is defined as "physiological absorption in work activities." Career commitment is the commitment to one's job and organization. Organizational commitment is an emotional attachment to an organization (Somers & Birnbaum, 1998).

Organizational Commitment can be an important tool in examining layoffs. It appears to be the most significant type of commitment in relation to remaining employed (Galunic & Anderson, 2000). Organizational Commitment is measures using a survey known as the OCQ, or organizational commitment questionnaire (Meyer & Allen, 1997). Organizational commitment can lead to positive externalities. One of these externalities includes the firm's willingness to invest in the employee. In 2000, Galunic and Anderson find that the more commitment an employee shows to the firm, the more the firm will invest in the employee. The investments consist of investments in skills that the employee can use in the same or another similar firm. A survey was used consisting of a nine-item scale. If the employer invests in the employee, the employee has less of a chance to be laid off because the firm has money invested in the employee. These investments may be training conferences, out of town seminars or sending an employee to school.

Job performance, education/licensing and commitment can all lead to keeping a job in tough times. Sometimes, however, a layoff is inevitable. For instance, an entire branch of a firm may be laid off. When this occurs, it may be important to examine what an employee can do after a layoff in order to get back in the workforce. With the more than fourteen million Americans unemployed as of January 2010, getting back into the work force may be an area of concern.

## 3.2 Getting Back Into the Work Force after a Layoff

Getting back into the work force after being laid off is not an easy thing to cope with. After being laid off, one may become very hard on oneself, and not know what or where to turn.

It is not uncommon to hear about layoffs and people losing their jobs. This information is all over local and national news both on television and in the newspapers. This could add a sort drive for all the people that have been laid off. Knowing that one is not the only one unemployed could spark motivation to get back into the workforce. For the majority of those who have experienced a layoff, the obvious challenge is to find employment elsewhere.

Once one gets word that they are going to be let go, there are ways to eliminate the stress and heartbreak one may experience. There are ways one can cope and survive with this situation. We introduce attitude, going back to school, networking, and some alternatives on ways to get back into the work force after a layoff below. This section does not include the use of academic papers because of the lack of papers written on the subject. The literature used for this section consists of mainly "self-help" articles.

### 3.2.1 Attitude

People have many different reactions to being laid off. The attitude of someone who has been laid off is very important for when that person is looking for a new job. There are differing opinions of how people should approach the situation. Some state that one needs to understand that their job now is that of a jobseeker (Washington Post 2009). However they differ in the way they suggest that one should initially approach the situation. In the end the differing methods each have their own merits.

One suggestion is that people should keep focused on work and immediately start their job search, so as to not become lax in their pursuit, Lynn Joseph suggests:

> "To cope, first recognize that you have a new job now: that of a job seeker. Approach each day as if you had to get up and go to work. Get organized and follow a schedule, but also build in some time to play and relax with friends and family" (How to prepare for and cope with a layoff.2009; Imbalzano, 2009).

The previously stated choice has the merits of keeping a person in their working lifestyle, keeping to a schedule, so that it is easier to return to work. It also keeps the person focused on their mission to find a job, while not consuming all of their time in the job search. By doing this, they may relax and not become overwhelmed by the task at hand, and may ultimately succeed.

An alternative method suggests that people take a short break after being laid off, to better "prepare mentally and organize for research" (Binkley, 2009). Binkley states that some recommend that people who have been laid off should take the time to update their wardrobe, as it could be beneficial to their job search to be more presentable. Additionally in Binkley's article, it is suggested a new wardrobe tends to lead to better self-esteem, which in-turn allows the new confidence, could allow the person to feel

more open about discussing their unemployed situation, allowing for better networking. During the recommended time off, some people take the opportunity to volunteer, so they can still work and feel like they are accomplishing things. Volunteering may also have the added benefit of keeping their work skills sharp during the period. They may also join new associations or pick up new interests that will develop new and attractive working skills (White, 2009). New association and interests may also lead to meeting new people, which will aid in the networking aspect of the job search.

Some who have been laid off may feel a sense of fear, because they are unsure how to proceed (Luo, 2009). This feeling will hinder them in their search until they are able to overcome it, to take control of the situation as much as possible and do what they can to move forward. They may do this using the suggestion listed in the Washington Post's article "How to Prepare for and Cope with a Layoff", Binkley's option of taking a short break to cope with what has happened. Binkley implies that whatever they choose to do, they must go for it without reservation; fear would only hamper their efforts to succeed, and ultimately justify itself.


## 3.2.2 Going back to school


Because of the amount of the difficulty finding a job, some laid off workers are finding that going back to school is the best option. Figure 5 is an accumulated chart that shows the amount of employees that have been laid off since August of 2008, from many different companies.  Some big name companies that are included in this chart are Hewlett-Packard, Yahoo, Toshiba, IBM, and Google. One may notice that the biggest number in layoff occurred during January and February of 2009, and has been substantially lower ever since. Now the question is what are these three hundred and forty thousand, eight hundred and sixty-four people doing now? One may say that a good percentage of these people

returned to school to advance current capabilities or experience totally new avenues in getting back into the job market.
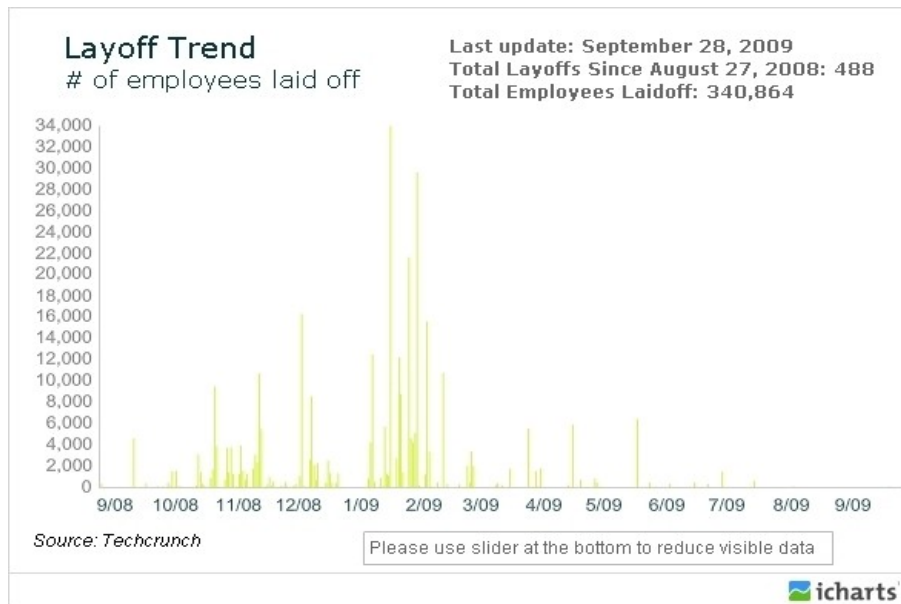


Figure 5: Tech Crunch Layoff Tracker; (*TechCrunch layoff tracker.* September 28, 2009)

One way to handle this difficult situation is to return to school and be better prepared to handle the previous position or possibly start a new career. Obtaining an advanced degree may also lead to other less obvious opportunities. More education can increase one's attractiveness to an employer for employment.

Furthering education may not only lead to increased wages, but also can provide an appealing resume. An appealing resume will distinguish one employee from another. If one employee has taken the time to return to school, and the other has not, assuming work experiences are similar, it is the employee that went to school that will most likely get the job.

### 3.2.3 Networking

Another way one can possibly overcome being unemployed is networking. Networking can be very important in order to one's name back out to the work force arena. This may take some time but is a way to initiate the job search with those who can be most helpful. After losing a job, it is critical to not lose focus or get emotional. It can be easy to lose sight of what it will take to obtain options to find a job. One area of focus in getting another position is networking. We define networking as to cultivate people who can be helpful to one professionally especially in finding new employment (Dictionary.com,).

One popular search method for networking is using the local Chamber of Commerce. It will be able to assist in finding organizations in a region or state that may have openings. Regional weekly business newspapers or magazines will also help to identify where and when businesses have meetings. Once the information regarding the meetings is obtained, visiting as many groups as possible will aid in job finding. It is suggested that some occurrences in meeting offer clues that may suggest how helpful the group is in obtaining a job. For instance, the attitude of the group; if the people sound supportive to one another, this is a good find. The leadership of the group is also another key factor. For example, leaders appearing competent and knowledgeable are all important aspects of finding the right position. Also, holding volunteer positions in organizations is a way to meet people that could help find full time employment. This may be a great way to stay visible to those who will hire in the future (Kowitt, 2009).

There are other network contacts that do not appear obvious at first. For instance, parents, siblings, spouses, neighbors, sport teammates are all potential contacts for work. Networking is all about being genuine and authentic along with building trust, relationships and identifying how one can help an

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organization.

It may be important how a potential networking contact is approached. It is suggested that every

conversation is important (*Networking tips: How to work a room.* June 5, 2009). The perception that the

contact gets from the conversation may prove to be crucial in obtaining a job. For instance, it is a good

idea to ask open-ended questions like who, what, where, and when. These types of questions open up

discussions and show listeners that there is interest. It may also be important that the discussion start

with a good introduction. It may be a good idea to prepare a self-introduction that is clear, interesting,

and well delivered. The main goal of the introduction is to make the job seeker seem clear and honest

(*Networking tips: How to work a room.* June 5, 2009). One unfortunate possibility of the discussion is

rejection. Even if the contact is non receptive, it is important to maintain a friendly and outgoing attitude

and continue on with the goal at hand (Pendergrass, 2009).

Networking can be a fun event and a way to enrich one's life. This can be crucial to one's success.

Exchanging ideas and information is a positive experience. Be generous in sharing talents, experiences

and ideas and always be respectful of others. Networking is not the only alternative to being laid off;

there is anecdotal evidence suggesting otherwise.

**3.2.4 Alternatives**

There is a brighter side to being laid off, at least for some. After someone is laid off there are many

different options to consider outside of returning to the same field or continuing education in their field.

This is an important choice for individuals as the choice provides them with the freedom to correct

mistakes, if any, they have made in their choice of career, or to provide a change of pace for the individual, breaking them out of the monotony of their work life (Jones, 2008). Some take the time to explore options in the past that they may have over looked due to the career they had at that point.

Safe-jobs are one option for people, but some take it to more of an extreme. Due to the fact that the person has been laid off, they may be afraid of a repeat occurrence at a new job, and therefore they seek out jobs in areas where they cannot be laid off. In the case of a safe-job people have a low risk of being laid off, but in certain cases people try to get a job where it is impossible to get laid off, usually trading in another form of security in the process of solidifying job security.  For example, some seek to join the armed forces (Star, 2009), which provide excellent job security, albeit in trade for an abnormally hazardous work environment. This choice has three benefits; first and foremost, it provides stable employment, secondarily, upon leaving a person usually qualifies for financial assistance for a continuing education, lastly employers tend to approve hiring those who have been enlisted in the armed forces, because hiring of veterans may come with certain financial breaks for the firm (Epstein, 2009). These benefits combined provide people with a stable job in hard times, as well as more potential in the future when times are better. They could then return to school and use a newly acquired degree to search for employment; additionally they have an increased chance at getting hired due to the government's financial breaks towards business who hire veterans.

Another option people pursue is that of self-employment (Jones, 2008). Self-employment may be more difficult than previous jobs, but it has its benefits. One benefit of self-employment is the removal of the possibility of being laid off, though the new risk of a failed venture presents itself. This allows for a more relaxed approach for keeping one's job, in exchange for the strains of running a business: finances, clients, etc. There are downsides however; one is that in times where there are many layoffs at one time, there is usually a decrease in spending by the general public, and therefore it could be difficult to start

some new businesses. Another downside is that the business may not succeed. It certainly takes more effort to do this, but it could be a viable alternative for those who can make it work.

Some choose to move out of the corporate environment all together, as they find it unfulfilling, they take the opportunity of being laid off to switch over to the non-profit sector (Bertagnoli, 2008). They enjoy the satisfaction they get from helping other people, or helping a noble cause. They even bring with them the skills and connections that the made in the corporate world to better aid them in their new workplace. This choice really gives those who seek it a real sense of accomplishment, a sense that they can and have made a difference.

There are people who choose to take the opportunity of a layoff, and use the chance to change what they are doing, but in some cases people do it out of necessity. Being unable to find work in their field in their area, they have to search other fields in the area for employment, even so much as taking a pay cut just to find employment (Imbalzano, 2009). They are almost willing to take anything they can get, within reason, just to get a paycheck. Whether forced into other areas, or willingly doing it, it can be a very beneficial action, allowing one to change the monotony of their lives.

It is clear that layoffs are a large issue in the world today. First and foremost people should do all that they can to avoid the layoff, as this will help them avoid the issue, such as being as committed to their job as they can and performing to the best of their abilities. However, should the unfortunate occur, they need to realize that they should keep a positive attitude while on the job hunt, networking should be a priority, and they should consider other options, including continuing education.

The literature review has suggested a lot of information about layoffs. Layoffs are a major problem today. There are over 14,000,000 people laid off in the United States today. Some of these layoffs have resulted in serious emotional consequences, including death. The literature review also suggests ways to avoid

being laid off. The first is to obtain a higher level of education or advanced training, the second is to increase organizational commitment and the third is increased job performance. All of these factors may lead to an employer's increased investment in the employee (which will likely reduce the chance of the employee being laid off) (Galunic & Anderson, 2000).

Sometimes, despite the education, commitment and performance of an employee, layoffs are inevitable. After a layoff, there are alternatives to both manage the stress of a layoff and find a new job. Some of these alternatives include going back to school for education in the same or a different field, getting a part time job, or networking and searching for a full time job. These methods may manage the stress of the layoff and help someone find a new job. The review of the literature suggests questions for further research.

# 4.0 Methods

## 4.1 Objectives

The literature review leaves some things unclear. First, there was a study performed that demonstrated the link between commitment and investment in an employee. This study took place in 2000, before the current economic crisis. We are interested to see if this link still appears true with the current state of the economy. We are also going to measure other factors, along with commitment. The literature review suggested a link between performance and turnover and between training and turnover. This idea was taken a step further to determine if there is a link between training and performance and investment. The education link has been a common area of study and will be used as a control in our experiment. Based on the questions unanswered by the literature review, the following research question was

determined: Do organizational commitment, job performance and training increase a firm's investment in an employee? We suggest that if these three factors are increased: training, commitment and performance, then the firm will invest more in an employee. Therefore, the employee is less likely to be laid off (Galunic & Anderson, 2000). Another question that came about from the literature review was: What is the most common alternative people take after being laid off: going back to school, taking a part time job while searching for another job in the same field, or going into a completely new field? In order to answer these research questions, we need to gather data.

## 4.2 Data Gathering

There are a number of options for gathering data. For the purposes of this project, some means work better than others. These methods may be used in conjunction with each other in order to provide the best results. The first is survey research. This involves sending predetermined questions out to a predetermined group of people. This can be used to accurately analyze the thoughts or characteristics of a group of people. The survey would be answered by employees in a firm. An alternative to a survey could be an interview. This is a one-on-one question and answer session. This will provide data for a specific circumstance, such as the industry or size of the firm that the interviewee is a part of. An interview subject could be an employer. Content analysis can be another way of gathering data. This refers to drawing inferences from past records or documents (WPI, 2006). This is subject to the bias of the initial researcher. A case study is another means of gathering data. This involves an in depth study of a particular organization (WPI, 2006). The results cannot be generalized, but can only apply to a single case. The last means of gathering data is a focus group. This involves gathering a group of several people who are interviewed together. This is more of an interaction between the interviewees rather than an

interaction between interviewer and interviewee. It is used to determine how people interact and gather

differing opinions (WPI, 2006). After these data gathering techniques are examined, we must determine

the type of data needed to answer our research questions.

Our research questions require both qualitative and quantitative data. Quantitative data is a numerical

approach whereas qualitative data cannot be expressed with numbers. The first research question could

use either quantitative or qualitative data. The second research question will require quantitative data

because it refers to the most common. Quantitative data could be used with employees and qualitative

could be used with employers. Referring to the other methods mentioned above, the content analysis

may not be applicable here because the topic is very current and the content analysis may be not being

representative of the current economic crisis. A case study may not be the best method because it only

applies to a single group of people, when a broader generalization is the goal of this project. Focus

groups may not be the best direction to go in because it will be tough to get the amount and the right

type of people needed for a discussion in the time frame, and also there would not be enough data to

draw an accurate conclusion. We determined that a survey might be the best way to gather large

amount of quantitative data in the appropriate time frame. We will issue surveys because of the amount

of data that can be collected. A survey is also useful because of the non-biased element. The surveys will

not be administered in person, so the researchers will have less of an effect on the answers of the

questions. A potential downfall of a survey, however, is the return rate. When a lot of surveys are sent

out people either do not have the time or just are not compelled to fill out a survey (Doyle, 2006). The

survey is the best method for gathering quantitative data for our project. In order to gather the

qualitative data that needs to be collected, in interview will be used. The upside to an interview is there

is direct conversation and if a question is unclear or the answer to the question is not clear, then it can

be addressed on the spot. The downside to an interview is that a subject may not want to be completely

honest about some questions or may refuse to answer some questions. Despite this downside, we determined that the interview is the best way to obtain qualitative data in order to answer the research questions. For our project, we determined that an interview would be the best way to gather qualitative data and a survey would be the best way to gather quantitative data. Since we decided a survey is going to be used the next thing that will be discussed is how the survey is designed and constructed.

## 4.3 Survey Design

In order to conduct a survey that can maximize the amount the surveyor can learn from the answers to the questions and come with great ease to the surveyed, there must be a considerable amount of thought going into each question. The survey also must be short because people will be more likely to complete it. A long survey just takes too much time that some people may not have (Fink, 1995). The first few questions of the survey should be regarding demographics. These questions are easy to answer and do not require much thought. This also is useful for comparison and control purposes. Demographic questions get the ball rolling for the survey and provide easy comparison tools. The first question in the survey asks whether the employee is employed. If the employee answers yes, then they are requested to complete the entire survey.  If they are requested to complete the entire survey, then the next set of questions are introductory demographic questions are used to measure the control variables. If the answer is no to that question, then they are directed to post-layoff questions. The survey contains five introductory and demographic questions to gather basic information about the subject. These demographic questions create three control variables. These variables are firm size, tenure and level of education.  The firm size control variable was chosen because a larger firm may have more capital to invest in an employee than a small firm would. They may also make employees more specialized and

invest more in them to give them these specializations. The tenure control was chosen because a firm's decision to invest in an employee may be influenced by how long the employee has been in the firm. The level of education control was inserted because if an employee has an increased level of education more money may not be needed to invest in the employee.  The survey should also use close-ended questions in order to compare data. Open-ended questions are too hard to compare. For our purposes, a statistical analysis of the surveys will be needed. The surveys will need to be on the same scale so data can be added up and compared (Fink, 1995).

In order to gather data for the first research question, we conducted a survey to measure commitment, performance, training, and the firm's investment in an employee. Organizational commitment can be measured using a questionnaire known as the OCQ (Meyer & Allen, 1997). The original questionnaire consisted of 18 questions, but for the purposes of this study, not all of them will be used because the survey would be too long. Our survey used 6 of questions from the survey. These questions can be seen in Appendix C. This questionnaire is scored using a scale ranging from 1-7, 1 being strongly disagree and 7 being strongly agree. These questions address how the employee feels about the firm where are currently employed. There are also questions that are reversed in order to ensure that the subjects are reading every question. Because we are using questions from this survey, it makes sense to keep the scale consistent throughout the rest of the survey and measure the rest of the variables using this scale. For instance, a question that measures performance is "I would consider myself above average when it comes to job performance." Similarly, a question measuring training would be "I have advanced specialized degrees and/or professional certifications pertaining to my field." The firm's investment questions would consider the amount of training or conferences attended by the employee, paid for by the employer.   There are 6 questions that measure commitment, 2 that measure training, 4 that measure performance, and 4 that measure investment.  The full set of survey questions can be seen in

Appendix C. In parenthesis next to each question is what we designed it to measure. For instance, if there is a "(commitment 1)" next to the question, then it is the first commitment question. This numbering system applies for all of the questions.

The post layoff section contains one question in which the subject is requested to rank the answers by priority. There are 4 statements that correspond to the methods for getting a new job in the research question.

Before the survey was sent out, the WPI Institutional Review Board approved the questions. It was determined that the questions were not threatening or endangering to the survey subjects. The IRB approval form can be seen in Appendix B. Now that the survey has been completed, the next step is to determine whom the survey will be sent out to.

### 4.3.1 Target Groups

To gather data for this project, we administered a survey to a selected group of individuals. We administered it to the graduate students at WPI. This group was selected because the members of this group are all educated and some of them may have an employer paying for graduate school. This group will make it easy to measure the firm's investment and education parts of our research question. Another reason for targeting this group is they are most likely working in high tech jobs. High-tech jobs are assumed because of their association with WPI. This will control for the type of firm. The graduate students were also targeted because of the easy access. They can be reached by an email alias. One downfall of this selection is that the control variable for education will not have a lot of variance since all

of the graduate students have a Bachelor's Degree. The next thing that needs to be answered is the amount of students that need to be surveyed in order for our results to be statistically significant.

## 4.3.2 Sample Size

The sample size of the survey may be an important factor when it comes to analyzing the results. "It must be 'big enough' that an effect of such magnitude as to be of scientific significance will also be statistically significant. It is just as important, however, that the study not be 'too big,' where an effect of little scientific importance is nevertheless statistically detectable (Lenth, 2001)." The latter part refers to huge samples that will not be attainable in this project because of the time constraints. The ideal size is determined using the estimated standard deviation of the population and the size of the highest possible accepted error. This can be expressed in the formula: $n = (SD)^2 / (SE)^2$, where SE is the accepted error and SD is the standard deviation (Doyle, 2006). These variables, however, are determined after the survey is sent out. A rule of thumb for surveys is 30 responses are needed to draw a conclusion for one independent variable, because of the Central Limit Theorem.  Also, an additional ten surveys need to be sent out for each additional independent variable. Our research question contains two additional independent variables. This makes a total of fifty surveys needed to draw statistically valid conclusion. This number is if the response rate is 100%. In typical cases, if the survey is emailed or a phone call is made, the average response rate is about 10% (Doyle, 2006). In order to send out a large number of surveys in a sort amount of time, we determined that they would be sent by email. Email surveys will allow the surveys to be sent to a large number of people quickly. The downside to this method is that they are not handed out face-to-face and make the response rate lower. In order to get the survey to

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the number necessary to draw a conclusion about the research questions of interest in an appropriate amount of time, we will use a survey administration tool.

### 4.3.3 Survey Administration

In order to gather the amount of data needed, a survey administration tool can be used. There are various survey administration tools on the web. Some of these include Qualtrics, Zoomerang and Survey Monkey. Another is built into the myWPI site. In order to determine what is the most effective for this project, there are two major considerations. This first is cost. Some online programs have a fee associated with the distribution. Perhaps the most important factor is time. The survey has to be completed in the time allotted to complete the project. These must be taken into consideration when determining the most effective program to distribute the survey. Based on these criteria, we, along with Erin DeSilva, who is the Instructional Technology Specialist, determined that Qualtrics was the best option. It is free, user friendly, has a good appearance, and allows for the use of a survey flow. This means based on a subject's answer to a question, they can be redirected to another set of questions. Another useful quality of Qualtrics is the data can be downloaded to data interpreting programs and easily analyzed. Once everything relating to the survey was determined, our other data gathering technique, the interview, was examined.

### 4.4 Interview

The intention of this project was to contain two types of interviews. The first is an exploratory interview. This means, the interview will ask questions before the survey is administered in order see if there was

anything the literature review did not address that can be important to answering the research

questions. Questions during this interview will be very broad as to not influence the interviewee's

opinion. The exploratory interview will help formulate the survey questions. One main downfall of an

interview is that it is only one person's opinion, but in the exploratory sense this downfall is not a major

concern because it can only add to the survey, it the not the basis of our research. Despite this being our

intention for the project, we were unable to achieve it. This is both because of the time constraints and

partly because of the need for IRB approval. We determined that the most effective way to both get the

survey and interview questions approved in a timely manner was to submit both of them at the same

time. This would allow for the maximum response time of both the survey and the interview.  This made

the exploratory interview infeasible. Because of this, the purpose for which we used the interview was

changed.


Another possible use for the interview is to interview employers after the survey has been sent out. The

employer's opinion of an employee is possibly the most significant one because that is the person that

decides whether or not to retain and/or invest in the employee. Employers can also be helpful when

addressing the first research question regarding what qualities and employer values most when deciding

to invest in training or education for an employee. One other important criterion in the interviews could

be the type of employers interviewed. This could help address the control variables, such as business size

or type of firm. For instance, do big businesses value education more than a small business would?

Questions such as these could provide additional data to gain an understanding of the research

questions. The answers to these questions could be used as anecdotal evidence and either reinforce or

contradict the results of the survey.

Using these ideas, a set of interview questions was constructed. The questions on the interview follow the same structure as the survey questions. They begin with the demographic questions regarding the control variables and proceed to ask questions that help answer the pre-layoff and post-layoff research questions. These questions are not measured on a Likert Scale and allow the subject to expand on his/her answers. Some sample questions are ""What are key factors in determining bonuses and/or raises". This question will attempt to gage, which, if any, of the independent variables this employer values most. Another question is "In your experience, what steps do laid-off individuals take to find another job if their initial attempts to find similar employment fail?" This question addresses the post-layoff research question. The full set of interview questions can be seen in the Appendix C. These interview questions will be compared with the data from a survey. The answers from the interview questions may contradict or reinforce the data gathered from the survey. This will be addressed in the discussion section.

Once we gathered the data, various statistical analyses were conducted. These analyses are explained in the next section.

## 4.5 Data Analysis Techniques

Once the surveys and interviews were conducted, we analyzed the data and draw conclusions based on this analysis. There are various methods for interpreting data. The first research question will require various statistical techniques to be examined because of the hypothesis associated with the research question. The hypothesis suggests a correlation between independent and dependent variables and therefore can be examined using a variety of analysis techniques. The techniques consist of the Chi-

Square Test, t test, regression and ANOVA. The second research question merely involves adding up

survey results, therefore, data analysis techniques will not be of great focus.

## 4.5.1 Chi-Square Test

The first method is a chi-square test. The chi-square test deals with the relationship between the

observed and expected values of the results (Sharp, 1979). For the purposes of this project the chi-

square test may not be applicable.  This is because there is no expected value for the dependent

variable. For the first research question, the dependent variable is the amount of investment in an

employee. Because there is no expected value, the chi-square may not be the best method for

interpreting the data.

## 4.5.2 T-Test

A T-test is a statistical test that asses if two means are statically different from each other (Trochim, 2006). In our

case, the t test was used in order to determine if the mean for a data set was statically different from a constant.

For instance, a t test would be performed using the mean answers from a group of questions and a constant to see

if they are statistically different.

## 4.5.3 ANOVA

The next method for analyzing data is an analysis of variance or ANOVA. This is a technique for analyzing

the total variation in the response in terms of how much of that variation can be attributed to

knowledge of the predictors and how much is unexplainable by the model (Lamotte, 1976). The ANOVA

method is typically not used for surveys with a Likert scale. This is because the Likert Scale uses

continuous variables. The ANOVA works using categorical variables. In order for an ANOVA to be used,

the survey would have had the subjects rank themselves into categories, such as high or low, rather than

using the Likert Scale. The ANOVA is not a plausible method because of the format of the survey.


## 4.5.4 Regression

The final data analysis technique we considered was a regression. Regressions are used mainly to predict

future occurrences based on past similar data. It uses a goodness of fit line to approximate the data as

closely as possible, and from there allow for educated guesses based on that line. (Copas, 1983). In our

case, we will be using a multiple-variable regression. This will be used to determine if the independent

variables in our research question: training, performance, and commitment display a correlation to our

dependent variable, investment in an employee. The multiple regression, quantifies a statistical

relationship between the variables in our research question. The two main values to look at when the

regression is performed are the adjusted $R^2$ value, which describes the goodness of fit, and the p value.

The p-value "quantifies how consistent the observed value of the test statistic is with the distribution

model" (Petrucelli, Nandram, & Chen, 1999, 291). In other words, the p-value the probability that the

results gathered are a statistical coincidence. The lower the p-value, the more valid the results become.

Another thing to look at when performing a regression are the coefficients of the independent variables.

These determine how much one variable influences the overall regression. For instance, if one

coefficient has a negative sign, then this means the independent variable inversely affects the

relationship with the dependent variable. We determined that a regression would be used in order to

analyze the data obtained from the surveys because it examines a relationship between a dependent and a group of independent variables. Also, because it can be used with large amounts of data.

When the data was gathered, a regression was used in order to answer the first research question. In order to answer the second research question, a quantitative analysis of the descriptive statistics was used. The results of the data analysis techniques can be seen in the next section.

## 5.0 Data Analysis

Once all of the data were gathered, we conducted some of the data analysis techniques mentioned above. The survey returned more responses than we initially anticipated. There were 105 survey responses. WPI has about 1000 graduate students (WPI, 2007). The return rate of the survey was about 10%. The pre-layoff section contained 79 responses and the post-layoff section contained 26 responses. We also conducted 2 interviews.

### 5.1 Pre-Layoff

In order to analyze the pre-layoff section, we calculated two different things: the descriptive statistics of the data and the regression analysis.

### 5.1.1 Descriptive Analysis

Prior to the data analysis, each of the survey questions was grouped into a category. These categories were the independent variables in our research question: commitment, training, and investment. We

also had three control categories: education, tenure and firm size. The pre-layoff section contains 16 questions. Six of the questions measure commitment, four measure investment, two measure training, and four measure performance.

Before we started analyzing the data, we looked at the descriptive statistics in order to see if anything stood out. The first thing we looked at was the number of responses for each question. This is important because if there are not enough responses, then the rest of the data analysis is useless.  Our data contains 105 total observations. Of these 105 observations, 79 of them are currently employed and 26 are not. All of the observations have obtained at least a Bachelor's Degree. For the observations that are currently employed, 39 have been working at their current firm in between 1 and 5 years. 46% of these responders work in firms that employ more than 1000 employees. In short, most  survey responders have at least a Bachelor's degree, have worked in their current firm in between 1 and 5 years and this firm contains more than 1000 employees. The number of survey responses is considered enough to proceed with the rest of the data analysis.


The next thing that was examined was the box plots. These were examined in order to make sure that there were not a lot of potential outliers or obscurities in the answers. For example, if there is a reverse question and the survey subject did not answer this question the same way that he/she had answered the rest of the questions. This could indicate either the subject is not reading the survey or the question was misleading. The box plots only displayed five potential outliers.  These outliers are values that are below the A+ and A- of the box plots. Two of which occurred in commitment questions, and three in performance questions. The most obscure box plot occurred with a question measuring performance. This question asked whether the subjects met all the goals set forth by their employer. For this question, the first, second, and third quartiles were all 6. In this question, the lowest answer was a 4. The box plot showed a potential outlier with an answer of 4 and an answer of 7. These box plots can be seen in

Appendix F. The values of 4 and 7 may not be outliers because the values make sense. These values just

may have been people being more honest about their performance than others. This question will still

be used for further analysis.

After the box plots were examined, the mean answers of the questions were examined. A table of all of

the mean answers, broken down by variable, can be seen in Appendix F. The mean answers for the

commitment questions were between 3.6 and 5.7. The mean answers for training questions were

between 4.3 and 4.8. The means answers for the investment questions were 4.4 and 5.1. The mean

answers for performance were between 4.7 and 5.9. These mean answers are higher than the means of

the rest of the questions. The increased values could be because people generally tend to rate their own

performance above average. This was confirmed using a t test. When a t test was run on all of the

performance questions, the mean proved to be greater than 4. This means that people generally

evaluate their own performance above average. This accounts for the high mean. Once the descriptive

statistics were analyzed, we decided to use the techniques mentioned above to answer our research

questions.


**5.1.2 Research Question Analysis**

After we examined the descriptive statistics, we performed some initial regressions. The first regression

performed was one in which each question was a variable. For instance, each question that measured

commitment was its own variable; each training question was its own variable, etc. This regression

contained 11 independent variables. These 11 independent variables were regressed against each

question that measured investment in an employee individually. In other words, 4 regressions were

performed. Each regression had 11 independent variables regressed against 1 different dependent

variable. All of the $R^2$ values ranged from .236 to .483 and the p-values were very low (< 0.01). The full

regression results can be seen in the Appendix D. In each regression, only one variable proved to be

significant. There were 3 training variables and one performance variable that proved to be significant.

These values, however, may not be reliable because there are too many independent variables. There

are 11 independent variables for 79 samples. As a general rule of thumb, there should be 30 samples

and an additional 10 for each independent variable in order to draw a statistical conclusion. In this

regression, the sample size does not meet the criteria needed to draw a conclusion. The amount of

independent variables needs to be reduced in order to draw conclusions.

In the next regression, all of the questions that measured each variable were combined into one

independent variable. In this regression, all of the Likert scale answers for questions that measured

commitment were averaged. This turns all of the answers for commitment into one predictor for the

regression. Using this method, the 6 questions for commitment were averaged, 2 questions for training

were averaged, 4 questions for performance were averaged, and 4 for investment were averaged. The

expected output for this regression will be of the form:

$$Investment = \alpha + \beta_1 Commitment + \beta_2 Training + \beta_3 Performance + \varepsilon \quad (1)$$

In this equation α is the y-intercept, and $\varepsilon$ is the error term. When the regression was performed,

Microsoft Excel also calculated an $R^2$ value and a p-value.

This regression showed an $R^2$ of .370 and a p-value of less than .001. The coefficients of the variables are

the following: $\beta_1 = .598$, $\beta_2 = .131$, and $\beta_3 = .460$. The coefficient values for $\beta_1$ and $\beta_3$ proved to be

significant (p-values below .05). The positive values of these two coefficients imply these independent

variables, commitment and performance; have a positive effect on the dependent variable.  This is

evident of our predictions. The regression shows that commitment and performance have a positive

effect on investment in an employee. The potential problem with this method is that simply the average

values were used to combine all of the questions into one variable. There may be a more accurate way of

grouping.

After the regressions were performed using the averages method, we determined that there was a more

accurate way to perform the regression. When the variables were combined using the averages, all of

the questions were assumed to measure the same variable. We determined a way to show that this

grouping was most likely accurate. The way that we determined that we would do this was to perform a

confirmatory factor analysis. This factor analysis was used to determine if the survey questions that were

supposed to measure one variable all loaded on the same factor (Dillon & Goldstein, 1984).   The

program PASW v.18 was used to perform this factor analysis. The factor analysis showed some

interesting results. These results can be seen in the Appendix E1. In the commitment variable, 5 of the 6

questions loaded on one factor. It can be concluded that this factor is the measure of commitment. The

commitment factor accounted for 48% of the total variance in the data. The questions that measured

training both loaded on one factor and accounted for 69% of the total variance. This can be concluded as

the correct factor for training. In the performance section, one of the questions demonstrated a higher

loading on one of the factors than the rest of the questions. This question was regarding whether an

employee was always on time for work. When the factor analysis was performed on PASW, a factor score

was also computed. This factor score grouped all of the questions for each variable into one predictor.

Using this method, all of the variables except performance were combined into one factor. Performance

was divided into two factors, based on the factor analysis.

In order to account for the control variables, new dummy variables were also created.  We separated these results as follows:  education level into the categories Bachelor's and below, and Master's and above, tenure into less than 5 years, and 5 years or more, and firm size into less than 500 employees, and 500 or more employees.  This was because of the amount of data gathered in each category. The higher categories: Master's Degree or more, tenure more than 5 years, firm size more than 500 employees, was assigned a 1. The lower values were assigned a 0.  Regressions were then run on the new factor score of the variables. These regressions can take on one out of the following forms, depending on how many controls are used:

$$Investment = \alpha + \beta_1 Commitment + \beta_2 Training + \beta_3 Performance1 + Performance\,2x_4 + \epsilon \qquad (2)$$

$$Investment = \alpha + \beta_1 Commitment + \beta_2 Training + \beta_3 Performance1 + \beta_4 Performance2 + \beta_5 Control + \epsilon$$

$$(3)$$

$$Investment = \alpha + \beta_1 Commitment + \beta_2 Training + \beta_3 Performance1 + \beta_4 Performance2 + \beta_5 Control1 +$$
$$\beta_6 Control2 + \beta_7 Control3 + \epsilon \qquad\qquad\qquad (4)$$

First, commitment, training, and the performance variables regressed on the investment variable; this yielded an $R^2$ value of .209 and a p value of .002, meaning the results are statistically significant. The coefficients for this regression can be seen in the table below (Table 4.1).

| Coefficient | Value | P-Value |
|-------------|-------|---------|
| $\beta_1$ (Commitment) | .368 | .001 |
| $\beta_2$ (Training) | .162 | .138 |
| $\beta_3$ (Performance1) | .106 | .328 |
| $\beta_4$ (Performance2) | .025 | .809 |

Table 4.1 – Coefficient Values for the 1st Factor Score Regression (Equation 2)

As displayed by table 4.1, the only coefficient that is significant is the commitment coefficient. In order to gain a better understanding of the data, one control variable was inserted.

In order to see if the control variables had an effect on the regression, the next regression that was run used the firm size dummy variable as an additional independent variable. This regression resulted in $R^2$ values of .229 and a p-value of .002. The coefficients were for this regression can be seen in Table 4.2

| Coefficient | Value | P-Value |
|-------------|-------|---------|
| $\beta_1$ (Commitment) | .352 | .001 |
| $\beta_2$ (Training) | .155 | .155 |
| $\beta_3$ (Performance1) | .071 | .524 |
| $\beta_4$ (Performance2) | .007 | .944 |
| $\beta_5$ (Firm Size) | .296 | .174 |

Table 4.2 – Coefficient Values for the Factor Score Regression with the Firm Size Dummy Variable (Equation 3)

As displayed by Table 4.2, the only coefficient value that is significant again is the commitment coefficient. Next, a regression was performed using the dummy variable for tenure as an additional independent variable instead of the firm size dummy variable. This regression yielded an $R^2$ value of .210 and a p-value of .004. The coefficient values for this regression can be seen in Table 4.3.

| Coefficient | Value | P-Value |
|---|---|---|
| $\beta_1$ (Commitment) | .368 | .001 |
| $\beta_2$ (Training) | .163 | .138 |
| $\beta_3$ (Performance1) | .112 | .311 |
| $\beta_4$ (Performance2) | .025 | .812 |
| $\beta_5$ (Tenure) | -.085 | .726 |

Table 4.3 – Coefficient Values for the Factor Score Regression with the Tenure Dummy Variable (Equation 3)

Table 4.3 shows that again the commitment coefficient is the only one that displays significance. Another regression was performed using the last dummy variable, education, in the same way the first two were used. This regression had an $R^2$ value of .218 and a p-value of .003. The coefficients values can be seen in Table 4.4.

| Coefficient | Value | P-Value |
|---|---|---|
| $\beta_1$ (Commitment) | .366 | .001 |
| $\beta_2$ (Training) | .135 | .235 |
| $\beta_3$ (Performance1) | .093 | .395 |
| $\beta_4$ (Performance2) | .014 | .894 |
| $\beta_5$ (Education) | .211 | .361 |

Table 4.4 – Coefficient Values for the Factor Score Regression with the Education Dummy Variable (Equation 3)

Table 4.4 also shows that the only significant coefficient is the one for commitment. Lastly, a regression was done using all three dummy variables at the same time. This regression resulted in an $R^2$ value of .239 and a p-value of .006. The coefficient values are as follows can be seen in Table 4.5

| Coefficient | Value | Significance |
|---|---|---|
| $\beta_1$ (Commitment) | .350 | .001 |
| $\beta_2$ (Training) | .130 | .251 |
| $\beta_3$ (Performance1) | .066 | .560 |
| $\beta_4$ (Performance2) | -.003 | .976 |
| $\beta_5$ (Firm Size) | .292 | .184 |
| $\beta_6$ (Tenure) | -.105 | .660 |
| $\beta_7$ (Education) | .198 | .393 |

Table 4.5 – Coefficient Values for the Factor Score Regression with all 3 Dummy Variables (Equation 4)

In this regression, only the coefficient value for commitment displays significance. The full regression tables for all of the factor score regressions can be seen in Appendix E2.

In all of the regressions performed using the factor scores, commitment was the only significant variable. This differs from the regression performed using the averages. This could be because the performance variable was split into two different factor scores. The significance of the coefficients differs from the answers obtained in one of our interviews. In one of the interview with the President of a small firm the interviewee rated performance as the most important factor when deciding between two employees and also the most important factor when determining raises and / or bonuses. Investment in an employee was determined by how quickly the money can be made back. No specific factor was emphasized. The other interview, with a large firm, also stressed performance as an important factor. For the full-transcribed answers see Appendix C.2.

These results could have occurred for a number of reasons. The first reason could have been a fault in the survey design. The two different factor scores for performance indicate the questions measure load on two different factors. These could have been because the questions were poorly worded and the survey responder misunderstood the question. . The lack of statistical significance for the performance coefficient can also be explained by the lack of variance in the answers.   The t-distributions for the performance questions showed the mean value to be greater than 4. This reinforces the fact that people rate their own performance highly. The t tests for the training section also had a t distribution of greater than 6. This indicates a lack of variance in the training of the survey subjects. This could account for the lack of significance of the performance and training variables.

When the dummy variables were inserted, the significance or the signs of the coefficients did not change. Commitment was the only significant variable in all of the regressions. This is contrary to our initial prediction. The regressions in order to answer the first research question determined that

commitment is the only significant factor when determining investment in an employee. Once the first

research question was answered, the second research question was analyzed.


**5.2 Post-Layoff**


Analysis of the data for the post-layoff section was done by examining the descriptive analysis of the

data. This section addressed what people would do or have done after immediately being laid off. If the

subject was employed, then they were asked to rank alternatives on a scale from 1-4. This was answered

77 times rather than 79 times because of a problem with one of the surveys and because one person did

not fill out these questions. The answer with the highest rating was the need to find money quickly. This

was ranked a 4 37 times for the 77 subjects. The mean value for this alternative was also the highest. The

alternative with the next highest frequency of the maximum rating was keeping time available for

searching for a full-time job. The alternative with the minimum frequency was changing career paths.

The full descriptive statistics can be seen in the Appendix F.


When the subjects were currently not working, they were asked to indicate all of the alternatives they

have already pursued. These alternatives consisted of: going back to school to further education in the

same field, going back to school for education in a different field, taking a part time job and searching for

a full-time job in the same field, and not working at all, just searching for a new full-time job. There were

26 subjects who were unemployed. The result that occurred the most was not working at all, just

searching for a full-time job. 16 out of the 26 subjects have tried this alternative. The second most was

taking a part time job and searching for a full-time job in the same field. The result that occurred the

least was going back to school to further education in the same field. Since the survey responders are

graduate students at WPI, it can be concluded that they are going to school to explore a different field. Once these statistics were gathered the results had to be interpreted. The top two alternatives for both the groups were the same. The most common in one group was the second most common in the other group and vice versa. Both groups value both searching for a full-time job and maintaining a constant income. The analysis of the second research question yielded the result that most employees value some kind of income while continuing to search for a full-time job.

## 6.0 Technology

Technology plays a role in this project in a few different ways. One way in which technology was a part of the project is that a majority of the survey takers either worked in or were studying in a technological field. Another link to technology is its use in the project, from the use of Qualtrics.com to design a survey and the use of email to distribute that link, to the use of technology in the analysis of the data with PASWstat.  These technological links were crucial to producing the conclusions of this project.

## 7.0 Conclusion

This project investigated both the two topics. The first is how to avoid being laid off. The second is the alternatives taken by employees after a layoff.  By conducting both surveys and interviews, some conclusions were drawn about both of these aspects of layoffs. The surveys were administered to the graduate students at WPI. The interviews were conducted with the President of a small firm and a recruiting manager of a large firm. The pre-layoff research question was answered by performing various

regressions. These regressions were performed to determine if the commitment, training and

performance of an employee had an effect on the investment made by the firm in the employee. The

firm's investment in an employee was used as the dependent variable because the literature review

suggested that more investment made by the firm in the employee, the less likely the employee is to be

laid off. The post-layoff research question was answered by performing a quantitative analysis of the

surveys by mostly using descriptive statistics.  Once conclusions were drawn from the surveys, the

results were compared and contrasted with the answers from the interviews performed.

The pre-layoff section concluded that, based on employees' beliefs, commitment had the only significant

affect on investment in an employee. This was contrary to the interviews conducted. The interviews

stressed performance was definitely the most important factor. This difference is probably due to

employees thinking that their performance is above average. This makes the performance measure not

useful. The interview answers were probably closer to reality because it is not employees evaluation

their own performance. The regressions were also performed using control variables: firm size, tenure

and education. These control variables did not change the significance of the independent variables and

the control variables themselves were also insignificant. It is concluded, with our measures of

commitment, training and performance, that commitment is the only factor that is significant when

determining investment in an employee. This is also only valid for our specific sample, graduate students

at WPI.

The post-layoff section concluded that most people would like to have some form of income

immediately after being laid off. Also, most of them would prefer to keep searching for a job in the same

field rather than attempting to change fields. This survey was distributed to people that were both

employed and unemployed. The priorities were not exactly the same between these two groups.

Although the top two choices for both groups included finding some kind of income quickly and searching for a job in the same field, the order of these choices was reversed. The subjects that were currently unemployed ranked searching for a full-time job in the current field first, while the currently employed ranked finding a part time job first. These two choices can be considered the top two, but the order depended on whether the survey subject is employed or not.

Despite the conclusions drawn from this project, there were limitations. The first of these limitations was the time that the project had to be completed in. With only 21 weeks to complete the project, more statistical analysis and literature review could have been done if the project time frame was extended. Another limitation of this project is what is known as the common method bias. This occurred because all of the quantitative data was gathered using only one method, the survey. Another limitation of this project was the survey sample. This sample was not random so conclusions cannot be drawn about a more diverse population. The survey was only distributed to graduate students at WPI. These students are mostly employed in high-tech firms and they have at least a Bachelor's degree, these characteristics are not representative of the whole population.

This project also creates opportunities for further research. One possible area for further research is to distribute the survey to another segment of the population. This could both allow for more general conclusions to be drawn and determine if the factors that were insignificant with our sample gained significance with another population. If these factors proved to be insignificant with this population, then another area for future research arises. This would be redesigning the performance and training portions of the survey. When these questions are redone, then the survey can be sent out again to a more diverse population. Then an analysis can be done to determine if these factors are now significant.

Another area for research is to determine if there are more factors that affect layoffs, other than the ones mentioned in this project. These factors may have something to do with the economy or the type of industry that a person is employed in.

Despite the limitations of this project, we learned a lot during the process of completing it. The first thing we learned was the process of meetings, agendas and minutes. This project had weekly meetings in which we were required to write an agenda before the meeting and keep minutes during the meeting. This concept will be used in future jobs, as it is a standard procedure in the corporate world. Another thing we learned was the concept of reading critically and comparing and contrasting articles. When writing the literature review section, we were forced to read actively and critique the articles and journals we read because they would be the basis for our research.

We also learned a lot about using technological resources in order to make the project easier. The first resource that was used was RefWorks. This is available through WPI and makes bibliographies and citations rather effortless. Also, our entire survey was done online. The survey design website Qualtrics.com made survey design easy. It allowed for the appearance of the survey to be customized and the questions to be organized in a particular survey flow. The survey results could also be easily inserted into data analysis programs. The WPI email lists also made it possible to distribute a large amount of surveys very quickly. All of the data analysis was also done using technological tools. The descriptive statistics and initial regressions were performed using Microsoft Excel. Once this initial analysis was conducted, we realized we needed a more advanced program to finish the data analysis. This was done using the program PASW. PASW was used to compute the factors for the variables and perform regressions using these factors. The use of technological resources made this project more efficient.

We also learned a lot about the process of data gathering. We learned how to design surveys to allow for

the maximum response rate and gather the most information possible. We also learned how to design

interviews in order to gather information without making the subject feel uncomfortable. Data gathering

was an essential part of this project and was maximized using techniques both learned from the

meetings and from reading outside sources.


This project also taught us a lot about working with a team. Teamwork is vital for a group project like this

to be successful. Because of the magnitude of the research that needed to be conducted, it was

important to delegate who should do what part of the project. The team must cooperate to get the

research done in a timely manner. Each member of the team must also be willing to do his or her fair

share of work in order to get the project done. Perhaps the most important part of teamwork is

communication. Communication is vital in order to get the job done. During the week, our team

communicated in order to ask each other questions and to determine what we were all doing. We also

read each other's work and communicated our responses. This project taught us a lot about the

teamwork and procedures needed to operate in a successful work environment.

# References

Bertagnoli, L. (2008, November 24). After layoff, a move to non-profit world; start-up agency grows into

    W. side resource. *Crain's Chicago Business,* 29.

Binkley, C. (2009). Laid off? check your Look…and your attitude. *Wall Street Journal - Eastern Edition,*

    *254*(43), D6.

Chrisafis, A. (2009, 9/9/09). Wave of staff suicides at france telecom. *The Guardian,* Retrieved from

    http://www.guardian.co.uk/world/2009/sep/09/france-telecom-staff-suicides-phone

Community Resources Information, I. (2010). *Unemployment insurance.* Retrieved February 23, 2010,

    from

    http://www.massresources.org/pages.cfm?contentID=38&pageID=17&subpages=yes&dynamicID=

    605

Copas, J. B. (1983). Regression, prediction and shrinkage. *Journal of the Royal Statistical Society. Series B*

    *(Methodological), 45*(3), 311-354. Retrieved from http://www.jstor.org/stable/2345402

Damast, A. (2009). Business PhD applications on the rise. *BusinessWeek Online,* 17-17. Retrieved from

    http://search.ebscohost.com/login.aspx?direct=true&db=buh&AN=39770729&site=ehost-live

Dictionary.com. *Networking.* Retrieved September 30, 2009, from

    http://dictionary.reference.com/browse/networking

Diebold, F. X., Neumark, D., & Polsky, D. (1997). Job stability in the united states. *Journal of Labor*

    *Economics, 15*(2), 206-233. Retrieved from http://www.jstor.org/stable/2535388

Dillon, W. R., & Goldstein, M. (1984). 3.8. confirmatory factor analysis. *Multivariate analysis* (pp. 99-100-106). New York: John Wiley & Sons, Inc.

Doyle, J. K. (2006). *Chapter 10: Introduction to survey methodology and design.* Retrieved October 13, 2009, from http://www.wpi.edu/Academics/GPP/Students/ch10c.html#a

Dreher, G. F. (1982). The role of performance in the turnover process. *Academy of Management Journal, 25*, 137-147.

Epstein, L. (2009). *Surviving a layoff : A week-by-week guide to getting your life back together*. Avon, Mass.: Adams Business; David & Charles.

Fink, A. (1995). *How to ask survey questions*. London: Sage Publications.

Galunic, D. C., & Anderson, E. (2000). From security to mobility: Generalized investments in human capital and agent commitment. *Organization Science, 11*(1), 1-20. Retrieved from http://www.jstor.org/stable/2640402

Glance, N. S., Hogg, T., & Huberman, B. A. (1997). Training and turnover in the evolution of organizations. *Organization Science, 8*(1), 84-96. Retrieved from http://www.jstor.org/stable/2635230

Grant, L. A., Kane, R. A., Potthoff, S. J., & Ryden, M. (1996). Staff training and turnover in alzheimer special care units: Comparisons with non-special care units: More dementia-specific training resources should be made available to all staff to improve training effectiveness and reduce turnover. *Geriatric Nursing, 17*(6), 278-282. 10.1016/S0197-4572(96)80241-2

Hogan, D. B. (1983). The effectiveness of licensing: History, evidence, and recommendations. *Law and Human Behavior, 7*(2/3, Professional Regulation), 117-138. Retrieved from http://www.jstor.org/stable/1393535

How to prepare for and cope with a layoff. (2009, March 29). *The Washington Post,* pp. K01.

Imbalzano, M. P. (2009). Post-judgment motions to modify support in a poor economy. *New Jersey Law Review,*

Jackofsky, E. F. (1984). Turnover and job performance: An integrated process model. *The Academy of Management Review, 9*(1), 74-83. Retrieved from http://www.jstor.org/stable/258234

Jones, D. (2008, November 10). Life after layoff has been sweet; 16 years later: Job loss proved to be a fresh start. *USA Today,* pp. 1B.

Kaneshige, T. (2008, November 24). Hot tech certifications in a cool job market; not all credentials will boost your career, so in tough times you have to choose wisely. *InfoWorld.Com,* pp. NA. Retrieved from http://find.galegroup.com/gps/infomark.do?&contentSet=IAC-Documents&type=retrieve&tabID=T003&prodId=IPS&docId=A189674770&source=gale&srcprod=ITOF&userGroupName=mlin_c_worpoly&version=1.0

Kay, J. (2009, 5/26/2009). Layoffs, job stress take toll on slumber. *Miami Herald,*

Keen, J. (2009, April 8). After layoffs, many workers go back to school for a fresh start; landing a 'safe' job becomes a priority. *USA Today,* pp. 1A.

Kowitt, B. (2009). 5 tips for keeping your job.

Lamotte, L. R. (1976). Invariant quadratic estimators in the random, one-way ANOVA model. *Biometrics, 32*(4), 793-804. Retrieved from http://www.jstor.org/stable/2529265

Lenth, R. V. (2001). *Some practical guidelines for effective sample-size determination.* Retrieved 10/13, 2009, from http://www.stat.uiowa.edu/techrep/tr303.pdf

Leviatan, U. (1978). Organizational effects of managerial turnover in kibbutz

    production branches. *Human Resources, 31*, 1001-1018.

Luo, M. (2009, August 4). Years after layoffs, many still struggle to match old salaries. *The New York*

    *Times,* pp. 1.

Meyer, J., & Allen, N. (1997). *Commitment in the workplace*. Thousand Oaks, CA: Sage Publications.

*Networking tips: How to work a room.* (June 5, 2009). Retrieved September 29, 2009, from

    https://career.berkeley.edu/Article/021011b.stm

Pendergrass, V. (2009). *10 ways to network better.* Retrieved September 30, 2009, from

    http://dev.theloop21.com/blogs/10-ways-network-better

Petrucelli, J. D., Nandram, B., & Chen, M. (1999). In Heath A. (Ed.), *Applied statistics for engineers and*

    *scientists*. New Jersey: Prentice Hall.

Sharp, V. (1979). *Statistics for the social sciences* Little Brown & Co.

Somers, M. J., & Birnbaum, D. (1998). Work-related commitment and job performance: It's also the

    nature of the performance that counts. *Journal of Organizational Behavior, 19*(6), 621-634.

    Retrieved from http://www.jstor.org/stable/3100166

Star, N. J. W. (2009, March 28). After the layoff, three lives in limbo; what happens when you get fired?

    here's three people's stories. *The Toronto Star,* pp. L01.

*TechCrunch layoff tracker.* (September 28, 2009). Retrieved September 29, 2009, from

Trochim, W. M. K. (2006). *The T-test.* Retrieved February 10, 2010, from

    http://www.socialresearchmethods.net/kb/stat_t.php

U.S. Department of Labor. (2009). Mass layoff statistics latest numbers. *Mass Layoff Statistics Latest Numbers,* Retrieved from http://www.bls.gov/mls/

U.S. Department of Labor. (2010). *Labor force statistics from the current population survey.* Retrieved February 20, 2010, from http://data.bls.gov/PDQ/servlet/SurveyOutputServlet?data_tool=latest_numbers&series_id=LNU03000000&years_option=all_years&periods_option=specific_periods&periods=Annual+Data

White, S. L. (2009, August 17). After layoff, she dips her paddle into volunteering. *St.Petersburg Times (Florida),* pp. 10.

WPI. (2006). *Part V: Common IQP methodologies.* Retrieved 10/10, 2009, from http://www.wpi.edu/academics/GPP/Students/ch9.html

WPI. (2007). *Graduate admissions.* Retrieved March 3, 2010, from http://grad.wpi.edu/Current/index.html

# Appendices

## Appendix A: Problem Statement

With the current economic status, the word layoff has become a household term. Most Americans would like to know what to do to avoid being laid off. If the unthinkable happens and they are laid off, they would also like to know what to do in order to get another job.

## Appendix B : IRB Exception Form



**WORCESTER POLYTECHNIC INSTITUTE**
Institutional Review Board
Application for Exemption from IRB Review for
Survey or Interview Research Involving Minimal or No Risk

WPI IRB use only
IRB #
Date:

*se of this application is recommended for most student project research involving minimal risk. Proposed search meets the definition of "minimal risk" when the risks to research subjects are not greater than those dinarily encountered in daily life. This application is specifically intended for projects in which students are pected to conduct interviews, surveys or focus groups. If student projects are sponsored by US federal encies, students and advisors should contact the IRB for assistance in filing a full application with the New agland IRB.*

**roject Faculty Advisor(s):**

me: Fabienne Miller          Tel No: 508-831-6128          E-Mail Address: fabienne@wpi.edu

partment: Management

me:          Tel No:          E-Mail Address:

partment:

**tudent Investigator(s):**

me: Nick Long          Tel No: 508-509-1087          E-Mail Address: nck_lng@wpi.edu

me: Ryan Landry          Tel No: 774-364-0593          E-Mail Address: landryr@wpi.edu

me: Josh Davis          Tel No: 401-499-6013          E-Mail Address: jwdavis@wpi.edu

me:          Tel No:          E-Mail Address:

**roject Title:** The Effects on Employees Both Before and After a Layoff

**roject Location and Time Frame:** On-Campus A, B and C terms 2009

**xpected Research Subjects:** (e.g. museum visitors under the age of 12)

anagement and human resources employees

**OTE: This application must be accompanied by written research methods and a reasonably complete set survey or interview questions.**

| | No | Yes |
|---|---|---|
| Is the proposed research sponsored or supported by a US federal agency or by US government funding? | ✓ | |
| Is the proposed research funded by a corporation or foundation? If so, please identify sources. | ✓ | |
| Does the proposed research involve vulnerable research subjects? (e.g. children, prisoners, students, persons with mental or physical disabilities, pregnant women) | ✓ | |

4.  Is the research confined to obtaining verbal or written information from subjects and/or publicly available documentary information?   No ☐  Yes ☑

5.  Could the disclosure of a human subject's identity and responses place the subject at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation?   No ☑  Yes ☐

6.  Will the researchers collect information that can be used to identify the subjects?   No ☑  Yes ☐

7.  If the researchers do know the subjects' identity, will individual responses be kept confidential? (e.g. only summaries of all data will be published)   No ☐  Yes ☑

8.  Will researchers be interviewing people chosen because of their expertise or experience? (See 4, below.)   No ☐  Yes ☑

By signing below, all participants in this research project are agreeing to follow the following instructions:

1.  You agree to inform subjects orally or in writing that:
    - Participation in the research is voluntary.
    - Participants may end their participation at any time.
    - Participants need not answer every question in an interview or survey.

2.  If your research is **anonymous**, you also inform subjects that you are not collecting names or any identifying information from them.

3.  If your research is **confidential**, you inform subjects that no identifying information will be disclosed with individual responses.

4.  If your research subjects are chosen and interviewed for their expertise or experience, you seek and obtain each subject's permission to identify him or her in your report, and obtain each subject's permission to disclose his or her views and statements in your report. The subject must be offered the opportunity to pre-approve the publication of any quoted material. If a subject does not wish to appear in your report, you respect his or her wishes for confidentiality.

Signature of Faculty Advisor _Fabienne Miller_ Date _11/2/09_

Print Full Name and Title _Fabienne Miller, Assistant Professor_

*Please return a signed hard or electronic copy of this application to the WPI IRB c/o Office of Sponsored Programs or irb@wpi.edu.*
*If you have any questions, please call (508) 831-6716.*

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**Appendix C: Survey Questions**

<div align="center">**<u>Survey Questions</u>**</div>

This survey is being conducted in order to answer questions regarding you and the firm at which you currently work. These questions will be used for research and your identity will be kept confidential. Your firm will in no way see your answers to these questions. Please follow the directions in the given sections. Your response is greatly appreciated.

**Introductory/Demographic Questions**

2. Are you currently employed?

3. What industry are you employed in?

4. How many employees does your firm have?

    1. fewer than 100

    2. 100-500

    3. 500-1000

    4. Greater than 1000

5. How long have you been employed in your current firm?

    1. Less than 1 year

    2. Between 1 and 5 years

    3. Between 5 and 10 years

    4. More than 10 years

6. What is the highest level of education that you have obtained?

    1. High-School degree

2. Associate degree

3. Bachelor's degree

4. Master's degree

5. Doctorate degree

**Pre-Layoff**

Please rate the following questions on a scale of 1-7, 7 being strongly agree, 1 being strongly disagree.

7. I would accept almost any type of job assignment in order to keep working for this firm. ( commitment 1)

8. I really care about the fate of my firm. (commitment 2)

9. For me, this is the best of all possible organizations for which to work. (commitment 3)

10. I am willing to put in a great deal of effort beyond normally expected in order to help this organization be successful.  (commitment 4)

11. I feel very little loyalty to this organization. (commitment 5 (Reverse) )

12. My firm only cares about making a profit and places little importance on the treatment of their employees.(Commitment 6 (Reverse) )

13. My firm has a reputation for sponsoring training for employees. (investment 1)

14. My firm sponsors events that help me improve my knowledge in my field. (investment 2)

15. My firm gives raises and / or bonuses based on my job performance.  (investment 3)

16. My firm frequently pays for my training or sends me to conferences. (investment 4)

17. I have been to a sufficient number of advanced training sessions in order to be considered an expert at what I do. (training 1)

18. I have advanced specialized degrees and/or professional certifications pertaining to my field. (training 2)

19. I am always on time for work. (performance 1)

20. I meet the goals set forth by my employer. (performance 2)

21. I would consider myself above average when it comes to job performance. (performance 3)

22. I have received several commendations, recognitions, and /or bonuses because of my performance. (performance 4)

**Post Layoff**

23. If you were a laid-off individual, who has been unable to find employment in your previous field after a fair amount of time, i.e., the end unemployment benefits, how do you think you would proceed?

    For the following four statements, please order them by priority.

    1. I need to have some kind of income quickly, i.e., a part-time job.
    2. I need to keep time available for searching for a full-time job in my current field.
    3. I view this as an opportunity for changing career paths and/or fields.
    4. This is an opportunity for furthering my education in the current field.

Question for subjects who answer "No" to question #1

23. What steps have you taken in order to get back into the workforce? (more than one option can be selected)

    a. going back to school to further education in the same field.
    b. going back to school for education in a different field.
    c. taking a part time job and searching for a full-time job in the same field.
    d. not working at all, just searching for a new full-time job.

Thank you for responding to this survey. Your response was greatly appreciated and your answers are crucial to our research.

**Appendix C: Interview Questions and Answers**

<u>**Interview Questions**</u>

Hello Mr / Mrs. _____. We are a group of students from WPI doing a project that focuses on layoffs. Through this interview, we hope to gather what you value in an employee and what you take into consideration when deciding whether or not to lay off an employee.  All information we gather in this interview will be kept anonymous.

**Introductory/Demographic Questions**

1.  How many employees does your firm employ?

2.  What is your position in the firm?

3.  What type of industry is your firm in?

4.  When attempting to hire an employee, what qualities/characteristics/skills does your firm look for?

5.  How is the amount of money to be invested in an employee determined?

    a.  Training?

6.  How do you rate an employee's performance?

7.  What are key factors in determining bonuses and/or raises

**Pre Layoff**

8.  When the decision comes to lay an employee off, what factors are measured in order to differentiate between the value of two employees in the same field?

9.  Do certain employee's characteristics matter more to you when deciding to lay an employee off?

    Commitment?

    Education?

    Performance?

    How much you have invested in the employee?

       Is there a link between investment and turnover?

Any other?

**Post Layoff**

10. What external consequences does the firm take into account when considering a layoff

    a. Community?

11. When someone has been laid-off, does your company offer them any advice on how to get another job?

12. Does your company consider bringing back a person who has been previously laid off as a rehire?

13. In your experience, what steps do laid-off individuals take to find another job if their initial attempts to find similar employment fail?

14. Do you have any recommendations to help somebody who is unemployed to find work in a different field?

15. Does the attitude of an applicant affect their chances of employment?

16. Do you prefer hiring somebody that is currently working over somebody who is currently unemployed?

Thank you very much for giving us this time and aiding our research.  If you wish we would be happy to provide you with a copy of the final version of this research paper upon its completion. (Contact info)

## Appendix C.1 Interview Answers 1

### Interview Questions

Hello Mr / Mrs. _____. We are a group of students from WPI doing a project that focuses on layoffs. Through this interview, we hope to gather what you value in an employee and what you take into consideration when deciding whether or not to lay off an employee.  All information we gather in this interview will be kept anonymous.

**Introductory/Demographic Questions**

1. How many employees does your firm employ?

**50 Employees**

2. What is your position in the firm?

**Owner**

3. What type of industry is your firm in?

**Retail, lumber and building material supplier**

4. When attempting to hire an employee, what qualities/characteristics/skills does your firm look for?

**Dependability, credibility, experience (sometimes depending on the position)**

5. How is the amount of money to be invested in an employee determined?

> **Benefit/ value at which the employee can get money back.**

> a. Training? – **most training is done in house. They try to find people that do not need training.**

6. How do you rate an employee's performance?

**When an employee is hired, tell an employee what is expected of them, and rate them on how they met the expectations. (i.e. credit manager – do not allow customers to go over their credit limit)**

7. What are key factors in determining bonuses and/or raises

**They are always based on performance.**


**Pre Layoff**

8. When the decision comes to lay an employee off, what factors are measured in order to differentiate between the value of two employees in the same field?

**Performance**

9. Do certain employee's characteristics matter more to you when deciding to lay an employee off?

> Commitment? – **Yes it matters**

> Education? – **Does not really matter because it is not a specialized field**

> Performance? – **definitely matters**

> How much you have invested in the employee? **Not as much as performance or commitment**

Is there a link between investment and turnover? **There is probably a link**

Any other? - **Honesty**

**Post Layoff**

10. What external consequences does the firm take into account when considering a layoff

    b. Community? **Business is solely driven by the economy**

11. When someone has been laid-off, does your company offer them any advice on how to get another job?

    **No advice**

12. Does your company consider bringing back a person who has been previously laid off as a rehire?

    **Yes because if they are loyal to the firm, then the firm will be loyal to them**

13. In your experience, what steps do laid-off individuals take to find another job if their initial attempts to find similar employment fail?

**They look for the same job in a growing field. (i.e. a credit manager in the building field loses a job, then the person will look for a job as a credit manager in the manufacturing field because that field may be on the rise)**

14. Do you have any recommendations to help somebody who is unemployed to find work in a different field?

    **Apply to as many jobs as possible and show up for the interviews. Experience matters more than education.**

15. Does the attitude of an applicant affect their chances of employment?

**Yes miserable attitudes yields less of a chance of hire.**

16. Do you prefer hiring somebody that is currently working over somebody who is currently unemployed?

**Working because if they are still employed then they are doing their job in a way in which their employer decides to keep them employed. If they are unemployed, then they did something to get laid off.**

Thank you very much for giving us this time and aiding our research.  If you wish we would be happy to provide you with a copy of the final version of this research paper upon its completion. (Contact info)

## Appendix C.2:  Interview Answers 2

**Introductory/Demographic Questions**

1. How many employees does your firm employ?

**4100 Countrywide**

2. What is your position in the firm?

**Recruiting Manager**

3. What type of industry is your firm in?

**Property and casualty; Insurance Company; rent/auto/home owner; personalize business; commercial lines**

4. When attempting to hire an employee, what qualities/characteristics/skills does your firm look for?

**Majority looking for seasoned experienced individuals talent 15yrs; entry level talent, depending on position 4yr degree/ high school/energy/passion/volunteer activities**

5. How is the amount of money to be invested in an employee determined?

   **Entry level – on the job training/required to become licensed   individuals coming to work with someone else side-by-side sometimes send out to a vendor for education**

6. How do you rate an employee's performance?

   **Rate 1-5 category, 5 highest, but reverse in 2010 - given goals as new employee**

7. What are key factors in determining bonuses and/or raises?

 **What goals were set out and performance driven; take on extra work**

   **Pre Layoff**

8. When the decision comes to lay an employee off, what factors are measured in order to differentiate between the value of two employees in the same field?

**No Comment**

**Performance**

9. Do certain employee's characteristics matter more to you when deciding to lay an employee off?

**No Comment**

**Post Layoff**

10. What external consequences does the firm take into account when considering a layoff?

**No Comment**

11. When someone has been laid-off, does your company offer them any advice on how to get another job?

**Yes, outplacement service LHH; international interview techniques help an individual write a resume; different package per person**

12. Does your company consider bringing back a person who has been previously laid off as a rehire?

**Yes, if they left with good performance.**

13. In your experience, what steps do laid-off individuals take to find another job if their initial attempts to find similar employment fail?

    **Use monster, career builder to get their resumes out / networking**

14. Do you have any recommendations to help somebody who is unemployed to find work in a different field?

    **Appraisers write estimates, get education to become a licensed appraiser; some need to go back to school to pass a license test**

15. Does the attitude of an applicant affect their chances of employment?

**Yes, show energy/passion, body language; responses should be in full sentences/answers; behavior, create a connection with exact detail techniques to create an outcome**

16. Do you prefer hiring somebody that is currently working over somebody who is currently unemployed?

**Not necessarily, lot of talented people have lost their job because of number needed for a company; keep strong performance; let go the weak**

## Appendix D: Regressions

## Appendix D.1: Each Question for the Predictors regressed against the Investment 1

| Summary | | | | | | | |
|---|---|---|---|---|---|---|---|
| $R^2$ | R | Adj. $R^2$ | S.E. of Estimate | | | | |
| 0.410 | 0.640 | 0.303 | 1.434 | | | | |
| | | | | | | | |
| **ANOVA** | | | | | | | |
| Source | Sum Sq. | D.F. | Mean Sq. | F | Prob. | | |
| Regression | 94.346 | 12 | 7.862 | 3.824 | 0.000 | | |
| Residual | 135.697 | 66 | 2.056 | | | | |
| Total | 230.043 | 78 | | | | | |
| | | | | | | | |
| **Regression Coefficients** | | | | | | | |
| Source | Coefficient | Std Error | Std Beta | -95% C.I. | +95% C.I. | T | Prob. |
| Intercept | -0.500 | 1.264 | | -3.022 | 2.023 | -0.396 | 0.694 |
| Commitment1 | 0.189 | 0.505 | 0.044 | -0.819 | 1.196 | 0.374 | 0.710 |
| Commitment2 | 0.057 | 0.232 | 0.040 | -0.406 | 0.519 | 0.244 | 0.808 |
| Commitment3 | 0.082 | 0.157 | 0.081 | -0.231 | 0.396 | 0.522 | 0.603 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Commitment4 | 0.725 | 0.456 | 0.258 | -0.185 | 1.636 | 1.590 | 0.117 |
| Commitment5 – Reverse | -0.034 | 0.155 | -0.027 | -0.344 | 0.275 | -0.222 | 0.825 |
| Commitment6 – Reverse | 0.184 | 0.171 | 0.145 | -0.158 | 0.526 | 1.073 | 0.287 |
| Training1 | 0.346 | 0.162 | 0.256 | 0.022 | 0.670 | 2.135 | 0.036 |
| Training2 | -0.203 | 0.131 | -0.181 | -0.465 | 0.058 | -1.553 | 0.125 |
| Performance1 | 0.031 | 0.431 | 0.008 | -0.829 | 0.891 | 0.071 | 0.943 |
| Performance2 | 1.525 | 0.899 | 0.227 | -0.270 | 3.319 | 1.697 | 0.094 |
| Performance3 | -0.574 | 0.636 | -0.100 | -1.844 | 0.696 | -0.902 | 0.370 |
| Performance4 | 0.008 | 0.103 | 0.010 | -0.198 | 0.214 | 0.080 | 0.936 |

**Appendix D.2: Each Question for the Predictors regressed against Investment 2.**

| Summary | | | | | | | |
|---|---|---|---|---|---|---|---|
| $R^2$ | R | Adj. $R^2$ | S.E. of Estimate | | | | |
| 0.562 | 0.750 | 0.483 | 1.088 | | | | |
| | | | | | | | |
| **ANOVA** | | | | | | | |
| Source | Sum Sq. | D.F. | Mean Sq. | F | Prob. | | |
| Regression | 100.454 | 12 | 8.371 | 7.070 | 0.000 | | |
| Residual | 78.146 | 66 | 1.184 | | | | |
| Total | 178.599 | 78 | | | | | |
| | | | | | | | |
| **Regression Coefficients** | | | | | | | |

| Source | Coefficient | Std Error | Std Beta | -95% C.I. | +95% C.I. | T | Prob. |
|---|---|---|---|---|---|---|---|
| Intercept | -1.369 | 0.959 | | -3.284 | 0.545 | -1.428 | 0.158 |
| Commitment1 | -0.236 | 0.383 | -0.063 | -1.001 | 0.528 | -0.617 | 0.539 |
| Commitment2 | 0.100 | 0.176 | 0.081 | -0.251 | 0.451 | 0.569 | 0.571 |
| Commitment3 | 0.141 | 0.119 | 0.159 | -0.097 | 0.379 | 1.185 | 0.240 |
| Commitment4 | 0.380 | 0.346 | 0.154 | -0.311 | 1.071 | 1.098 | 0.276 |
| Commitment5 – Reverse | -0.127 | 0.118 | -0.111 | -0.362 | 0.108 | -1.080 | 0.284 |
| Commitment6 – Reverse | 0.245 | 0.130 | 0.220 | -0.015 | 0.505 | 1.881 | 0.064 |
| Training1 | 0.316 | 0.123 | 0.265 | 0.070 | 0.561 | 2.567 | 0.013 |
| Training2 | 0.117 | 0.099 | 0.119 | -0.081 | 0.316 | 1.181 | 0.242 |
| Performance1 | 0.179 | 0.327 | 0.054 | -0.474 | 0.831 | 0.546 | 0.587 |
| Performance2 | 0.529 | 0.682 | 0.089 | -0.833 | 1.891 | 0.775 | 0.441 |
| Performance3 | -0.145 | 0.483 | -0.029 | -1.109 | 0.819 | -0.300 | 0.765 |
| Performance4 | -0.001 | 0.078 | -0.001 | -0.157 | 0.155 | -0.013 | 0.989 |

**Appendix D.3: Each Question for the Predictors regressed against Investment 3**

| Summary | | | | | | | |
|---|---|---|---|---|---|---|---|
| $R^2$ | R | Adj. $R^2$ | S.E. of Estimate | | | | |
| 0.353 | 0.594 | 0.236 | 1.207 | | | | |
| | | | | | | | |
| **ANOVA** | | | | | | | |

| Source | Sum Sq. | D.F. | Mean Sq. | F | Prob. | | |
|---|---|---|---|---|---|---|---|
| Regression | 52.471 | 12 | 4.373 | 3.004 | 0.002 | | |
| Residual | 96.077 | 66 | 1.456 | | | | |
| Total | 148.548 | 78 | | | | | |
| | | | | | | | |
| **Regression Coefficients** | | | | | | | |
| Source | Coefficient | Std Error | Std Beta | -95% C.I. | +95% C.I. | T | Prob. |
| Intercept | 0.414 | 1.063 | | -1.709 | 2.537 | 0.389 | 0.698 |
| Commitment1 | 0.347 | 0.425 | 0.101 | -0.501 | 1.195 | 0.818 | 0.416 |
| Commitment2 | 0.255 | 0.195 | 0.227 | -0.134 | 0.644 | 1.310 | 0.195 |
| Commitment3 | -0.219 | 0.132 | -0.270 | -0.483 | 0.045 | -1.657 | 0.102 |
| Commitment4 | 0.325 | 0.384 | 0.144 | -0.441 | 1.091 | 0.846 | 0.400 |
| Commitment5 – Reverse | -0.163 | 0.130 | -0.156 | -0.423 | 0.098 | -1.247 | 0.217 |
| Commitment6 – Reverse | 0.211 | 0.144 | 0.208 | -0.077 | 0.499 | 1.464 | 0.148 |
| Training1 | -0.113 | 0.136 | -0.103 | -0.385 | 0.160 | -0.825 | 0.412 |
| Training2 | -0.122 | 0.110 | -0.135 | -0.342 | 0.098 | -1.103 | 0.274 |
| Performance1 | 0.151 | 0.362 | 0.050 | -0.573 | 0.875 | 0.417 | 0.678 |
| Performance2 | -0.013 | 0.756 | -0.002 | -1.523 | 1.497 | -0.018 | 0.986 |
| Performance3 | 0.429 | 0.535 | 0.093 | -0.640 | 1.497 | 0.801 | 0.426 |
| Performance4 | 0.325 | 0.087 | 0.474 | 0.151 | 0.498 | 3.740 | 0.000 |

## Appendix D.4: Each Question for the Predictors regressed against Investment 4

| Summary | | | | | | |
|---|---|---|---|---|---|---|
| $R^2$ | R | Adj. $R^2$ | S.E. of Estimate | | | |
| 0.481 | 0.693 | 0.386 | 0.948 | | | |
| | | | | | | |
| **ANOVA** | | | | | | |
| Source | Sum Sq. | D.F. | Mean Sq. | F | Prob. | |
| Regression | 54.866 | 12 | 4.572 | 5.090 | 0.000 | |
| Residual | 59.280 | 66 | 0.898 | | | |
| Total | 114.146 | 78 | | | | |
| | | | | | | |
| **Regression Coefficients** | | | | | | |
| Source | Coefficient | Std Error | Std Beta | -95% C.I. | +95% C.I. | T | Prob. |
| Intercept | -0.235 | 0.835 | | -1.903 | 1.432 | -0.282 | 0.779 |
| Commitment1 | 0.172 | 0.334 | 0.057 | -0.493 | 0.838 | 0.517 | 0.607 |
| Commitment2 | 0.168 | 0.153 | 0.170 | -0.137 | 0.474 | 1.098 | 0.276 |
| Commitment3 | 0.021 | 0.104 | 0.030 | -0.186 | 0.228 | 0.205 | 0.838 |
| Commitment4 | 0.396 | 0.301 | 0.200 | -0.206 | 0.998 | 1.313 | 0.194 |
| Commitment5 – Reverse | -0.092 | 0.102 | -0.101 | -0.297 | 0.112 | -0.901 | 0.371 |
| Commitment6 – Reverse | 0.190 | 0.113 | 0.214 | -0.036 | 0.417 | 1.680 | 0.098 |
| Training1 | 0.196 | 0.107 | 0.205 | -0.018 | 0.410 | 1.828 | 0.072 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Training2 | -0.102 | 0.087 | -0.129 | -0.275 | 0.071 | -1.178 | 0.243 |
| Performance1 | 0.117 | 0.285 | 0.044 | -0.451 | 0.685 | 0.411 | 0.682 |
| Performance2 | 0.885 | 0.594 | 0.187 | -0.301 | 2.071 | 1.490 | 0.141 |
| Performance3 | -0.146 | 0.420 | -0.036 | -0.986 | 0.693 | -0.348 | 0.729 |
| Performance4 | 0.053 | 0.068 | 0.088 | -0.083 | 0.189 | 0.779 | 0.439 |

**Appendix D.5: The average of each Predictor regressed against the average of the Dependent questions.**

| Summary | | | | | | | |
|---|---|---|---|---|---|---|---|
| $R^2$ | R | Adj. $R^2$ | S.E. of Estimate | | | | |
| 0.370 | 0.608 | 0.345 | 0.979 | | | | |
| | | | | | | | |
| **ANOVA** | | | | | | | |
| Source | Sum Sq. | D.F. | Mean Sq. | F | Prob. | | |
| Regression | 42.258 | 3 | 14.086 | 14.696 | 0.000 | | |
| Residual | 71.887 | 75 | 0.958 | | | | |
| Total | 114.146 | 78 | | | | | |
| | | | | | | | |
| **Regression Coefficients** | | | | | | | |
| Source | Coefficient | Std Error | Std Beta | -95% C.I. | +95% C.I. | T | Prob. |
| Intercept | 0.503 | 0.528 | | -0.550 | 1.556 | 0.952 | 0.344 |
| CommitAvg | 0.598 | 0.157 | 0.397 | 0.285 | 0.911 | 3.809 | 0.000 |
| Train Avg | 0.131 | 0.106 | 0.129 | -0.079 | 0.342 | 1.243 | 0.218 |
| PerformAvg | 0.460 | 0.220 | 0.229 | 0.021 | 0.899 | 2.089 | 0.040 |

**Appendix E: PASW Output**

**Appendix E1: Factor Analysis**

**Appendix E1.1 – Commitment Factor Analysis**

**Communalities**

|  | Initial | Extraction |
|---|---|---|
| Commitment 1 | 1.000 | .200 |
| Commitment 2 | 1.000 | .704 |
| Commitment 3 | 1.000 | .722 |
| Commitment 4 | 1.000 | .329 |
| Commitment 5 – Reverse | 1.000 | .416 |
| Commitment6 – Reverse | 1.000 | .515 |

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
|  | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2.885 | 48.084 | 48.084 | 2.885 | 48.084 | 48.084 |
| 2 | .944 | 15.728 | 63.812 |  |  |  |
| 3 | .811 | 13.511 | 77.324 |  |  |  |

| | 4 | .642 | 10.702 | 88.026 | | | |
| --- | --- | --- | --- | --- | --- | --- | --- |
| | 5 | .396 | 6.598 | 94.624 | | | |
| | 6 | .323 | 5.376 | 100.000 | | | |

**Component Matrix**[a]

| | Component |
| --- | --- |
| | 1 |
| Commitment 1 | .447 |
| Commitment 2 | .839 |
| Commitment 3 | .850 |
| Commitment 4 | .574 |
| Commitment 5 - Reverse | .645 |
| Commitment 6 - Reverse | .718 |

## Appendix E1.2 Training Factor Analysis

**Communalities**

| | Initial | Extraction |
| --- | --- | --- |
| Training | 1.000 | .691 |
| Training | 1.000 | .691 |

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 1.383 | 69.148 | 69.148 | 1.383 | 69.148 | 69.148 |
| 2 | .617 | 30.852 | 100.000 | | | |

**Component Matrix**[a]

| | Component |
|---|---|
| | 1 |
| Training | .832 |
| Training | .832 |

# Appendix E1.3 Performance Factor Analysis

**Communalities**

| | Initial | Extraction |
|---|---|---|
| Performance 1 | 1.000 | .801 |
| Performance 2 | 1.000 | .589 |
| Performance 3 | 1.000 | .722 |
| Performance 4 | 1.000 | .427 |

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
| | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative e % |
| 1 | 1.510 | 37.752 | 37.752 | 1.510 | 37.752 | 37.752 |
| 2 | 1.029 | 25.725 | 63.477 | 1.029 | 25.725 | 63.477 |
| 3 | .816 | 20.391 | 83.868 | | | |
| 4 | .645 | 16.132 | 100.000 | | | |

**Component Matrix[a]**

| | Component | |
|---|---|---|
| | 1 | 2 |
| Performance 1 | .388 | .807 |
| Performance 2 | .759 | -.116 |
| Performance 3 | .636 | -.564 |
| Performance 4 | .616 | .217 |

## Appendix E1.4 Investment Factor Analysis

**Communalities**

|  | Initial | Extraction |
|---|---|---|
| Investment1 | 1.000 | .847 |
| Investment 2 | 1.000 | .628 |
| Investment 3 | 1.000 | .307 |
| Investment 4 | 1.000 | .655 |

**Total Variance Explained**

| Component | Initial Eigenvalues | | | Extraction Sums of Squared Loadings | | |
|---|---|---|---|---|---|---|
|  | Total | % of Variance | Cumulative % | Total | % of Variance | Cumulative % |
| 1 | 2.437 | 60.932 | 60.932 | 2.437 | 60.932 | 60.932 |
| 2 | .804 | 20.102 | 81.034 |  |  |  |
| 3 | .541 | 13.513 | 94.547 |  |  |  |
| 4 | .218 | 5.453 | 100.000 |  |  |  |

**Component Matrix[a]**

|  | Component |
|---|---|
|  | 1 |
| Investment1 | .921 |
| Investment 2 | .792 |
| Investment 3 | .554 |
| Investment 4 | .809 |

## Appendix E.2 PASW Regressions

## Appendix E2.1 Factor Scores of the Three Independent Variables regressed against the Factor Score for Investment

**Variables Entered/Removed[b]**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | REGR factor score 2 for analysis 3, REGR factor score 1 for analysis 3, REGR factor score 1 for analysis 1, REGR factor score 1 for analysis 2[a] | . | Enter |

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .457[a] | .209 | .166 | .91323625 |

a. Predictors: (Constant), REGR factor score   2 for analysis 3, REGR factor score   1 for

analysis 3, REGR factor score   1 for analysis 1, REGR factor score   1 for analysis 2

**ANOVA[b]**

| Model | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|

| 1 | Regression | 16.284 | 4 | 4.071 | 4.881 | .002[a] |
|---|---|---|---|---|---|---|
|  | Residual | 61.716 | 74 | .834 |  |  |
|  | Total | 78.000 | 78 |  |  |  |

a. Predictors: (Constant), REGR factor score   2 for analysis 3, REGR factor score   1 for analysis 3, REGR factor score   1 for analysis 1, REGR factor score   1 for analysis 2

b. Dependent Variable: REGR factor score   1 for analysis 4

**Coefficients[a]**

| Model |  | Unstandardized Coefficients | | Standardized Coefficients | | |
|---|---|---|---|---|---|---|
|  |  | B | Std. Error | Beta | T | Sig. |
| 1 | (Constant) | 2.135E-17 | .103 |  | .000 | 1.000 |
|  | REGR factor score   1 for analysis 1 | .368 | .105 | .368 | 3.505 | .001 |
|  | REGR factor score   1 for analysis 2 | .162 | .108 | .162 | 1.499 | .138 |
|  | REGR factor score   1 for analysis 3 | .106 | .108 | .106 | .984 | .328 |
|  | REGR factor score   2 for analysis 3 | .025 | .104 | .025 | .242 | .809 |

a. Dependent Variable: REGR factor score   1 for analysis 4

**E2.2 Factor Scores of the Three Independent Variables regressed against the Factor Score for Investment with the dummy Variable for Firm Size**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .478[a] | .229 | .176 | .90785000 |

a. Predictors: (Constant), REGR factor score   2 for analysis 3, REGR
factor score   1 for analysis 3, REGR factor score   1 for analysis 1, REGR
factor score   1 for analysis 2, Q3

**ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 17.834 | 5 | 3.567 | 4.328 | .002[a] |
| | Residual | 60.166 | 73 | .824 | | |
| | Total | 78.000 | 78 | | | |

a. Predictors: (Constant), REGR factor score   2 for analysis 3, REGR factor score   1 for analysis 3, REGR
factor score   1 for analysis 1, REGR factor score   1 for analysis 2, Q3

b. Dependent Variable: REGR factor score   1 for analysis 4

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.153 | .152 | | -1.013 | .314 |
| | Q3 | .296 | .216 | .149 | 1.371 | .174 |
| | REGR factor score   1 for analysis 1 | .352 | .105 | .352 | 3.356 | .001 |

| | | | | | | |
|---|---|---|---|---|---|---|
| REGR factor score   1 for analysis 2 | .155 | .108 | .155 | 1.437 | .155 |
| REGR factor score   1 for analysis 3 | .071 | .110 | .071 | .640 | .524 |
| REGR factor score   2 for analysis 3 | .007 | .104 | .007 | .070 | .944 |

a. Dependent Variable: REGR factor score   1 for analysis 4

## Appendix E2.3 Factor Scores of the Three Independent Variables regressed against the Factor Score for Investment with the dummy variable for tenure

**Variables Entered/Removed**[b]

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | REGR factor score   2 for analysis 3, REGR factor score   1 for analysis 3, REGR factor score   1 for analysis 1, Q4, REGR factor score   1 for analysis 2[a] | . | Enter |

a. All requested variables entered.

b. Dependent Variable: REGR factor score   1 for analysis 4

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .458[a] | .210 | .156 | .91869032 |

a. Predictors: (Constant), REGR factor score 2 for analysis 3, REGR factor score 1 for analysis 3, REGR factor score 1 for analysis 1, Q4, REGR factor score 1 for analysis 2

**ANOVA[b]**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 16.389 | 5 | 3.278 | 3.884 | .004[a] |
| | Residual | 61.611 | 73 | .844 | | |
| | Total | 78.000 | 78 | | | |

a. Predictors: (Constant), REGR factor score 2 for analysis 3, REGR factor score 1 for analysis 3, REGR factor score 1 for analysis 1, Q4, REGR factor score 1 for analysis 2

b. Dependent Variable: REGR factor score 1 for analysis 4

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | .021 | .120 | | .179 | .858 |

| | | | | | |
|---|---|---|---|---|---|
| Q4 | -.085 | .241 | -.037 | -.352 | .726 |
| REGR factor score   1 for analysis 1 | .368 | .106 | .368 | 3.480 | .001 |
| REGR factor score   1 for analysis 2 | .163 | .109 | .163 | 1.499 | .138 |
| REGR factor score   1 for analysis 3 | .112 | .110 | .112 | 1.020 | .311 |
| REGR factor score   2 for analysis 3 | .025 | .105 | .025 | .239 | .812 |

a. Dependent Variable: REGR factor score   1 for analysis 4

**Appendix E2.4 Factor Scores of the Three Independent Variables regressed against the Factor Score for Investment with the dummy variable for education**

**Variables Entered/Removed[b]**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | REGR factor score   2 for analysis 3, REGR factor score   1 for analysis 3, REGR factor score   1 for analysis 1, Q5, REGR factor score   1 for analysis 2[a] | . | Enter |

a. All requested variables entered.

b. Dependent Variable: REGR factor score   1 for analysis 4

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .467[a] | .218 | .164 | .91419440 |

a. Predictors: (Constant), REGR factor score   2 for analysis 3, REGR factor score   1 for analysis 3, REGR factor score   1 for analysis 1, Q5, REGR factor score   1 for analysis 2

**ANOVA[b]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 16.990 | 5 | 3.398 | 4.066 | .003[a] |
| | Residual | 61.010 | 73 | .836 | | |
| | Total | 78.000 | 78 | | | |

a. Predictors: (Constant), REGR factor score   2 for analysis 3, REGR factor score   1 for analysis 3, REGR factor score   1 for analysis 1, Q5, REGR factor score   1 for analysis 2

b. Dependent Variable: REGR factor score   1 for analysis 4

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.075 | .131 | | -.571 | .570 |
| | Q5 | .211 | .230 | .102 | .919 | .361 |
| | REGR factor score  1 for analysis 1 | .366 | .105 | .366 | 3.484 | .001 |
| | REGR factor score  1 for analysis 2 | .135 | .113 | .135 | 1.196 | .235 |
| | REGR factor score  1 for analysis 3 | .093 | .109 | .093 | .855 | .395 |
| | REGR factor score  2 for analysis 3 | .014 | .105 | .014 | .134 | .894 |

a. Dependent Variable: REGR factor score   1 for analysis 4

**Appendix E2.5 Factor Scores of the Three Independent Variables regressed against the Factor Score for Investment with all three dummy variables**

**Variables Entered/Removed[b]**

| Model | Variables Entered | Variables Removed | Method |
|-------|-------------------|-------------------|--------|
| 1 | REGR factor score 2 for analysis 3, REGR factor score 1 for analysis 3, REGR factor score 1 for analysis 1, Q4, Q5, Q3, REGR factor score 1 for analysis 2[a] | . | Enter |

a. All requested variables entered.

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|---|----------|-------------------|----------------------------|
| 1 | .488[a] | .239 | .163 | .91461683 |

a. Predictors: (Constant), REGR factor score 2 for analysis 3, REGR factor score 1 for analysis 3, REGR factor score 1 for analysis 1, Q4, Q5, Q3, REGR factor score 1 for analysis 2

**ANOVA[b]**

| Model | | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 18.607 | 7 | 2.658 | 3.178 | .006[a] |
| | Residual | 59.393 | 71 | .837 | | |
| | Total | 78.000 | 78 | | | |

a. Predictors: (Constant), REGR factor score   2 for analysis 3, REGR factor score   1 for analysis 3, REGR factor score   1 for analysis 1, Q4, Q5, Q3, REGR factor score   1 for analysis 2

b. Dependent Variable: REGR factor score 1 for analysis 4

**Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.195 | .179 | | -1.090 | .279 |
| | Q3 | .292 | .218 | .147 | 1.340 | .184 |
| | Q4 | -.106 | .240 | -.047 | -.442 | .660 |
| | Q5 | .198 | .230 | .095 | .860 | .393 |
| | REGR factor score   1 for analysis 1 | .350 | .106 | .350 | 3.312 | .001 |
| | REGR factor score   1 for analysis 2 | .130 | .113 | .130 | 1.157 | .251 |
| | REGR factor score   1 for analysis 3 | .066 | .113 | .066 | .586 | .560 |
| | REGR factor score   2 for analysis 3 | -.003 | .106 | -.003 | -.030 | .976 |

a. Dependent Variable: REGR factor score   1 for analysis 4

## Appendix F: Descriptives and Box plots

### Appendix F.1 Commitment Questions

| Statistic | Commitment 1 | Commitment 2 | Commitment 3 | Commitment 4 | Commitment 5 - Reverse | Commitment 6 - Reverse |
|---|---|---|---|---|---|---|
| No. of observations | 79 | 79 | 79 | 79 | 79 | 79 |
| Sum of weights | 79 | 79 | 79 | 79 | 79 | 79 |
| Minimum | 1.000 | 1.000 | 1.000 | 2.000 | 1.000 | 1.000 |
| Maximum | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 | 7.000 |
| Freq. of minimum | 6 | 1 | 7 | 1 | 3 | 3 |
| Freq. of maximum | 4 | 18 | 9 | 16 | 17 | 18 |
| Range | 6.000 | 6.000 | 6.000 | 5.000 | 6.000 | 6.000 |
| 1st Quartile | 2.000 | 5.000 | 3.000 | 5.000 | 4.000 | 4.000 |
| Median | 3.000 | 6.000 | 5.000 | 6.000 | 6.000 | 6.000 |
| 3rd Quartile | 5.000 | 6.000 | 6.000 | 6.000 | 6.000 | 6.000 |
| Sum | 290.000 | 442.000 | 342.000 | 451.000 | 394.000 | 414.000 |
| Mean | 3.671 | 5.595 | 4.329 | 5.709 | 4.987 | 5.241 |
| Variance (n) | 2.601 | 1.735 | 3.132 | 1.017 | 3.202 | 2.714 |
| Variance (n-1) | 2.634 | 1.757 | 3.172 | 1.030 | 3.243 | 2.749 |
| Standard deviation (n) | 1.613 | 1.317 | 1.770 | 1.008 | 1.790 | 1.648 |
| Standard deviation (n-1) | 1.623 | 1.325 | 1.781 | 1.015 | 1.801 | 1.658 |
| Variation coefficient | 0.439 | 0.235 | 0.409 | 0.177 | 0.359 | 0.314 |
| Skewness (Pearson) | 0.216 | -1.320 | -0.341 | -1.024 | -0.683 | -0.948 |
| Skewness (Fisher) | 0.221 | -1.346 | -0.347 | -1.044 | -0.697 | -0.966 |
| Skewness (Bowley) | 0.333 | -1.000 | -0.333 | -1.000 | -1.000 | -1.000 |
| Kurtosis (Pearson) | -0.833 | 1.539 | -0.798 | 1.668 | -0.737 | -0.034 |
| Kurtosis (Fisher) | -0.808 | 1.721 | -0.771 | 1.858 | -0.706 | 0.044 |
| Standard error of the mean | 0.183 | 0.149 | 0.200 | 0.114 | 0.203 | 0.187 |
| Lower bound on mean (95%) | 3.307 | 5.298 | 3.930 | 5.482 | 4.584 | 4.869 |
| Upper bound on mean (95%) | 4.034 | 5.892 | 4.728 | 5.936 | 5.391 | 5.612 |
| Standard error(Skewness (Fisher)) | 0.271 | 0.271 | 0.271 | 0.271 | 0.271 | 0.271 |
| Standard error(Kurtosis (Fisher)) | 0.535 | 0.535 | 0.535 | 0.535 | 0.535 | 0.535 |
| Mean absolute deviation | 1.388 | 1.009 | 1.464 | 0.781 | 1.510 | 1.359 |
| Median absolute deviation | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| Geometric mean | 3.271 | 5.365 | 3.834 | 5.599 | 4.533 | 4.851 |
| Geometric standard deviation | 1.673 | 1.391 | 1.741 | 1.237 | 1.637 | 1.571 |
| Harmonic mean | 2.829 | 4.983 | 3.185 | 5.454 | 3.899 | 4.235 |

**Appendix F.2: Investment Questions**

| Statistic | Investment 1 | Investment 2 | Investment 3 | Investment 4 |
|---|---|---|---|---|
| No. of observations | 79 | 79 | 79 | 79 |
| Sum of weights | 79 | 79 | 79 | 79 |
| Minimum | 1.000 | 1.000 | 1.000 | 1.000 |
| Maximum | 7.000 | 7.000 | 7.000 | 7.000 |
| Freq. of minimum | 3 | 3 | 10 | 2 |
| Freq. of maximum | 16 | 16 | 11 | 17 |
| Range | 6.000 | 6.000 | 6.000 | 6.000 |
| 1st Quartile | 4.000 | 4.000 | 2.500 | 4.000 |
| Median | 5.000 | 5.000 | 5.000 | 6.000 |
| 3rd Quartile | 6.000 | 6.000 | 6.000 | 6.000 |
| Sum | 397.000 | 397.000 | 351.000 | 407.000 |
| Mean | 5.025 | 5.025 | 4.443 | 5.152 |
| Variance (n) | 2.860 | 2.911 | 4.120 | 2.736 |
| Variance (n-1) | 2.897 | 2.948 | 4.173 | 2.772 |
| Standard deviation (n) | 1.691 | 1.706 | 2.030 | 1.654 |
| Standard deviation (n-1) | 1.702 | 1.717 | 2.043 | 1.665 |
| Variation coefficient | 0.337 | 0.339 | 0.457 | 0.321 |
| Skewness (Pearson) | -0.778 | -0.804 | -0.449 | -0.813 |
| Skewness (Fisher) | -0.793 | -0.820 | -0.457 | -0.829 |
| Skewness (Bowley) | 0.000 | 0.000 | -0.429 | -1.000 |
| Kurtosis (Pearson) | -0.321 | -0.315 | -1.210 | -0.355 |
| Kurtosis (Fisher) | -0.262 | -0.256 | -1.211 | -0.298 |
| Standard error of the mean | 0.191 | 0.193 | 0.230 | 0.187 |
| Lower bound on mean (95%) | 4.644 | 4.641 | 3.985 | 4.779 |
| Upper bound on mean (95%) | 5.407 | 5.410 | 4.901 | 5.525 |
| Standard error(Skewness (Fisher)) | 0.271 | 0.271 | 0.271 | 0.271 |
| Standard error(Kurtosis (Fisher)) | 0.535 | 0.535 | 0.535 | 0.535 |
| Mean absolute deviation | 1.343 | 1.343 | 1.799 | 1.375 |
| Median absolute deviation | 1.000 | 1.000 | 1.000 | 1.000 |
| Geometric mean | 4.610 | 4.600 | 3.783 | 4.774 |
| Geometric standard deviation | 1.604 | 1.615 | 1.901 | 1.554 |
| Harmonic mean | 3.996 | 3.973 | 2.973 | 4.222 |

## Appendix F.3 Training Questions

| Statistic | Training 1 | Training 2 |
|---|---|---|
| No. of observations | 79 | 79 |
| Sum of weights | 79 | 79 |
| Minimum | 1.000 | 1.000 |
| Maximum | 7.000 | 7.000 |
| Freq. of minimum | 2 | 3 |
| Freq. of maximum | 5 | 13 |
| Range | 6.000 | 6.000 |
| 1st Quartile | 3.000 | 4.000 |
| Median | 4.000 | 5.000 |
| 3rd Quartile | 6.000 | 6.000 |
| Sum | 344.000 | 385.000 |
| Mean | 4.354 | 4.873 |
| Variance (n) | 2.330 | 2.819 |
| Variance (n-1) | 2.360 | 2.856 |
| Standard deviation (n) | 1.526 | 1.679 |
| Standard deviation (n-1) | 1.536 | 1.690 |
| Variation coefficient | 0.351 | 0.345 |
| Skewness (Pearson) | -0.225 | -0.666 |
| Skewness (Fisher) | -0.229 | -0.679 |
| Skewness (Bowley) | 0.333 | 0.000 |
| Kurtosis (Pearson) | -0.763 | -0.471 |
| Kurtosis (Fisher) | -0.733 | -0.422 |
| Standard error of the mean | 0.173 | 0.190 |
| Lower bound on mean (95%) | 4.010 | 4.495 |
| Upper bound on mean (95%) | 4.699 | 5.252 |
| Standard error(Skewness (Fisher)) | 0.271 | 0.271 |
| Standard error(Kurtosis (Fisher)) | 0.535 | 0.535 |
| Mean absolute deviation | 1.279 | 1.357 |
| Median absolute deviation | 1.000 | 1.000 |
| Geometric mean | 4.025 | 4.464 |
| Geometric standard deviation | 1.539 | 1.606 |
| Harmonic mean | 3.613 | 3.878 |

## Appendix F.4 Performance Questions

| Statistic | Performance 1 | Performance 2 | Performance 3 | Performance 4 |
|---|---|---|---|---|
| No. of observations | 79 | 79 | 79 | 79 |
| Sum of weights | 79 | 79 | 79 | 79 |
| Minimum | 2.000 | 4.000 | 1.000 | 1.000 |
| Maximum | 7.000 | 7.000 | 7.000 | 7.000 |
| Freq. of minimum | 4 | 1 | 1 | 8 |
| Freq. of maximum | 17 | 13 | 18 | 16 |
| Range | 5.000 | 3.000 | 6.000 | 6.000 |
| 1st Quartile | 4.000 | 6.000 | 5.000 | 4.000 |
| Median | 6.000 | 6.000 | 6.000 | 5.000 |
| 3rd Quartile | 6.000 | 6.000 | 6.000 | 6.000 |
| Sum | 426.000 | 472.000 | 452.000 | 376.000 |
| Mean | 5.392 | 5.975 | 5.722 | 4.759 |
| Variance (n) | 2.011 | 0.379 | 1.492 | 3.676 |
| Variance (n-1) | 2.036 | 0.384 | 1.511 | 3.723 |
| Standard deviation (n) | 1.418 | 0.616 | 1.222 | 1.917 |
| Standard deviation (n-1) | 1.427 | 0.620 | 1.229 | 1.930 |
| Variation coefficient | 0.263 | 0.103 | 0.213 | 0.403 |
| Skewness (Pearson) | -0.847 | -0.310 | -1.749 | -0.647 |
| Skewness (Fisher) | -0.863 | -0.316 | -1.783 | -0.660 |
| Skewness (Bowley) | -1.000 | | -1.000 | 0.000 |
| Kurtosis (Pearson) | -0.226 | 0.638 | 3.642 | -0.715 |
| Kurtosis (Fisher) | -0.161 | 0.760 | 3.963 | -0.683 |
| Standard error of the mean | 0.161 | 0.070 | 0.138 | 0.217 |
| Lower bound on mean (95%) | 5.073 | 5.836 | 5.446 | 4.327 |
| Upper bound on mean (95%) | 5.712 | 6.113 | 5.997 | 5.192 |
| Standard error(Skewness (Fisher)) | 0.271 | 0.271 | 0.271 | 0.271 |
| Standard error(Kurtosis (Fisher)) | 0.535 | 0.535 | 0.535 | 0.535 |
| Mean absolute deviation | 1.184 | 0.371 | 0.858 | 1.609 |
| Median absolute deviation | 1.000 | 0.000 | 1.000 | 1.000 |
| Geometric mean | 5.152 | 5.942 | 5.511 | 4.173 |
| Geometric standard deviation | 1.388 | 1.113 | 1.376 | 1.808 |
| Harmonic mean | 4.843 | 5.907 | 5.123 | 3.347 |

## Appendix F.5: Post-employment
## (Currently Employed)

| Statistic | Money | Full-time | Change | Education |
|---|---|---|---|---|
| No. of observations | 77 | 77 | 77 | 77 |
| No. of missing values | 0 | 0 | 0 | 0 |
| Sum of weights | 77 | 77 | 77 | 77 |
| Minimum | 1.000 | 1.000 | 1.000 | 1.000 |
| Maximum | 4.000 | 4.000 | 4.000 | 4.000 |
| Freq. of minimum | 16 | 13 | 29 | 19 |
| Freq. of maximum | 37 | 16 | 9 | 15 |
| Range | 3.000 | 3.000 | 3.000 | 3.000 |
| 1st Quartile | 2.000 | 2.000 | 1.000 | 2.000 |
| Median | 3.000 | 3.000 | 2.000 | 2.000 |
| 3rd Quartile | 4.000 | 3.000 | 3.000 | 3.000 |
| Sum | 229.000 | 203.000 | 160.000 | 178.000 |
| Mean | 2.974 | 2.636 | 2.078 | 2.312 |
| Variance (n) | 1.402 | 0.985 | 1.059 | 1.098 |
| Variance (n-1) | 1.420 | 0.998 | 1.073 | 1.112 |
| Standard deviation (n) | 1.184 | 0.992 | 1.029 | 1.048 |
| Standard deviation (n-1) | 1.192 | 0.999 | 1.036 | 1.055 |
| Variation coefficient | 0.398 | 0.376 | 0.495 | 0.453 |
| Skewness (Pearson) | -0.701 | -0.260 | 0.488 | 0.369 |
| Skewness (Fisher) | -0.715 | -0.266 | 0.497 | 0.376 |

| Statistic | | | | |
|---|---|---|---|---|
| Skewness (Bowley) | 0.000 | -1.000 | 0.000 | 1.000 |
| Kurtosis (Pearson) | -1.082 | -0.964 | -0.981 | -1.046 |
| Kurtosis (Fisher) | -1.074 | -0.947 | -0.966 | -1.035 |
| Standard error of the mean | 0.136 | 0.114 | 0.118 | 0.120 |
| Lower bound on mean (95%) | 2.704 | 2.410 | 1.843 | 2.072 |
| Upper bound on mean (95%) | 3.245 | 2.863 | 2.313 | 2.551 |
| Standard error(Skewness (Fisher)) | 0.274 | 0.274 | 0.274 | 0.274 |
| Standard error(Kurtosis (Fisher)) | 0.541 | 0.541 | 0.541 | 0.541 |
| Mean absolute deviation | 0.997 | 0.850 | 0.856 | 0.890 |
| Median absolute deviation | 1.000 | 1.000 | 1.000 | 1.000 |
| Geometric mean | 2.642 | 2.406 | 1.827 | 2.066 |
| Geometric standard deviation | 1.719 | 1.587 | 1.679 | 1.635 |
| Harmonic mean | 2.237 | 2.139 | 1.607 | 1.830 |

**Post-Unemployment (Currently Unemployed)**

| Statistic | X1 | X2 | X3 | X4 |
|---|---|---|---|---|
| No. of observations | 26 | 26 | 26 | 26 |
| No. of missing values | 0 | 0 | 0 | 0 |
| Sum of weights | 26 | 26 | 26 | 26 |
| Minimum | 0.000 | 0.000 | 0.000 | 0.000 |
| Maximum | 1.000 | 1.000 | 1.000 | 1.000 |
| Freq. of minimum | 23 | 21 | 18 | 10 |
| Freq. of maximum | 3 | 5 | 8 | 16 |
| Range | 1.000 | 1.000 | 1.000 | 1.000 |

| | | | | |
|---|---|---|---|---|
| 1st Quartile | 0.000 | 0.000 | 0.000 | 0.000 |
| Median | 0.000 | 0.000 | 0.000 | 1.000 |
| 3rd Quartile | 0.000 | 0.000 | 1.000 | 1.000 |
| Sum | 3.000 | 5.000 | 8.000 | 16.000 |
| Mean | 0.115 | 0.192 | 0.308 | 0.615 |
| Variance (n) | 0.102 | 0.155 | 0.213 | 0.237 |
| Variance (n-1) | 0.106 | 0.162 | 0.222 | 0.246 |
| Standard deviation (n) | 0.319 | 0.394 | 0.462 | 0.487 |
| Standard deviation (n-1) | 0.326 | 0.402 | 0.471 | 0.496 |
| Variation coefficient | 2.769 | 2.049 | 1.500 | 0.791 |
| Skewness (Pearson) | 2.408 | 1.561 | 0.833 | -0.474 |
| Skewness (Fisher) | 2.558 | 1.659 | 0.885 | -0.504 |
| Skewness (Bowley) | | | 1.000 | -1.000 |
| Kurtosis (Pearson) | 3.797 | 0.438 | -1.306 | -1.775 |
| Kurtosis (Fisher) | 4.915 | 0.807 | -1.325 | -1.899 |
| Standard error of the mean | 0.064 | 0.079 | 0.092 | 0.097 |
| Lower bound on mean (95%) | -0.016 | 0.030 | 0.118 | 0.415 |
| Upper bound on mean (95%) | 0.247 | 0.355 | 0.498 | 0.816 |
| Standard error(Skewness (Fisher)) | 0.456 | 0.456 | 0.456 | 0.456 |
| Standard error(Kurtosis (Fisher)) | 0.887 | 0.887 | 0.887 | 0.887 |
| Mean absolute deviation | 0.204 | 0.311 | 0.426 | 0.473 |
| Median absolute deviation | 0.000 | 0.000 | 0.000 | 0.000 |

**Appendix F.6 Box Plots: (Pre-Layoff)**



Box plot (Commitment 2)



Box plot (Commitment 4)

**Box plot (Performance 1)**



**Box plot (Performance 2)**

**Box plot (Performance 3)**