ESSAYS ON IMPROVING SALES PERFORMANCE

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The undersigned, appointed by the Dean of the Graduate School, have examined the dissertation entitled

ESSAYS ON IMPROVING SALES PERFORMANCE

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And hereby certify that in their opinion it is worthy of acceptance.

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Thanks to my beautiful wife. Kelli, you have been my constant and source of support. You have filled a place in my heart that I once did not know existed. My life would never be the same without you. I love you!

Thanks to my parents for their support and never failing pride in me and love for me. Thanks to my family and friends for your friendship and love.

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ABSTRACT

This research is a result of a collaborative effort with Shelter Insurance Companies in Columbia, Missouri. The first essay focuses on sales team design. Based on an effect called Group Motivation Gain, previous research has focused on weaker team members in social psychology lab settings. This research extends the findings to stronger and weaker performers in a sales setting. The findings suggest that stronger and weaker sales team members perform better when paired with someone moderately different in ability.

The second essay focuses on the value of customers attained during sales contests as opposed to the value of customers attained at other times. The findings suggest that initial purchases are lower for customers attained in the sales contest. However, contrary to suggestions in literature, sales contests seem to have no negative long-term effects on customer value.

INVESTIGATING SHORT-TERM PERFORMANCE GAINS IN SALES TEAMS

CHAPTER I: INTRODUCTION- ESSAY 1

This is an era of increasing customer demands on suppliers. As these demands grow, sales managers have looked to the sales team as a way to meet the increasing needs of customers (Piercy, Cravens and Lane 2001). As such, selling in areas such as manufacturing, product management and medical is being performed more often by sales teams (Jackson et al. 1999). In addition to meeting the customer demands, teams are seen as a useful approach to better manage customer relationships and the value of customers. In the popular press, teams have also been suggested as a method to *stimulate the performance of the team members* (Galea 2005). Companies such as AT&T, IBM and Proctor & Gamble have developed sales teams to improve the overall customer interface (Cron and DeCarlo 2006). However, former IBM president, Lou Gerstner, has spoken about the difficulties with sales teams. The difficulties in motivating individuals in teams include high expenses and complex performance management (Johnston and Marshall 2006, p. 59). Research has also noted similar difficulties with teams. Perry, Pearce and Sims (1999) observe that selling teams involve complex issues with regard to coordination, collaboration and cooperation. Other studies have found that certain team behaviors can lead to decreased performance in the sales district (e.g. Posdakoff and Mackenzie 1994). Specifically, they find that team behaviors can decrease the short-term performance of a sales team.

Despite these conflicting observations, little empirical research has been done to help understand the impacts that teams might have on overall selling performance (Jones et al. 2005). The lack of research in this area suggests a need for a better understanding of performance in sales teams and the how reward structures may be designed to improve performance within sales teams (Albers 2002). Furthermore, researchers should seek to understand the impact of how the team is constituted (Weitz and Bradford 1999).

The present research builds on an effect called *group motivation gain* (cf. Hertel, Kerr and Messé 2000; Messé et al. 2002) to understand the impact of team constitution and reward structure on the performance of individuals in the team. In these social psychology studies, group motivation gain appears to result in changes in short-term performance for individuals in teams. In these studies, weaker team members are shown to perform better in a team setting than they do in the same task as an individual. Pairing individuals has been suggested as a method to improve performance of weaker sales team members as well (Sullivan 1995). This essay seeks to understand the conditions that lead to increased performance in sales teams.

Six primary contributions of the current research are:

1. This research provides insight of sales teams on performance, an area where there is limited research in the sales management domain.
2. This essay borrows from the psychology literature, specifically the theory surrounding group motivation gain, to investigate the impacts of teaming on the sales performance of individuals within teams.
3. This research tests the group motivation gain effect in a field experiment setting. Previously, this effect has only been tested in laboratory experiments,

thus the field sales experiment affords an opportunity to test the external validity of previous findings.

4. This research examines team constitution based upon quantitative differences in past performance. Previous research uses mostly qualitative measures. Qualitative differences can be more difficult to measure, in the case of variables such as personality (Dixon, Gassenheimer and Barr 2003). In the case of variables such as gender (Piercy et al. 2001) and ethnicity (Mohammed and Angell 2004), qualitative measures to design teams can be burdened with social issues.
5. This study reviews the conditions where gains in performance among team members might occur. Specifically, this research utilizes a conceptualization based on group motivation gain to investigate the impact of team constitution (difference in ability of each team member) and reward structures (additive versus conjunctive) on the performance of team members. The reward structure is manupulated, as opposed to the task structure used in past research, in order to test the impact of group motivation gain.
6. The group motivation gain literature (cf. Hertel et al. 2000; Messé et al. 2002) has suggested several possible theoretical antecedents for this effect; these include instrumentality, impression management, coaching, self-efficacy and learning. By testing these links empirically, a nomological network for group motivation gain can be developed.

In the sales domain, there is limited *empirical* research on teams (Jones et al. 2005). As opposed to previous research in group motivation gain, this research utilizes a

field experiment to test the external validity of previous findings. Furthermore, this study tests the impact of team composition on the *weaker and stronger member* of the team. Previous research in group motivation gain has focused on the weaker team member. However, there is less value in the sales setting if the weaker member improves only to see losses in the stronger member. This research examines the impact of teaming upon the individual members of that team in a sales setting. More specifically, this paper considers the impact of teaming two individuals and how differences in their ability and the task may impact the individual performance within the team. In this setting, individuals are not expected to "team sell;" that is to jointly present and sell their product to a customer. However, the reward structure is designed in a way that team members are expected to exhibit team or group membership behaviors such as making contact with each other and attempting to motivate their team member.

CHAPTER II: LITERATURE REVIEW- ESSAY 1

1. Team Selling

A growing number of companies utilize team approaches to sell products and services (Jackson et al. 1999; Jones et al. 2005). Investigations of teaming in marketing research have led to discussions regarding the value of creating teams (Johnston and Marshall 2006). The issues usually range from design and coordination aspects of teams, to motivation and compensation for the members of the team. Primarily, the marketing literature has considered teaming as a way to offer different options and better service to the customer; this idea is represented in the key account management literature (e.g. Homburg, Workman and Jensen 2002). These teams typically have a cross-functional make up in order to offer increased levels of service to customers. For example, Proctor & Gamble has key account teams to specifically service their relationship with Wal-Mart.

Little academic research has focused on the relationship between team members and how that relationship impacts team design (Jones et al. 2005). However, there are suggestions, in the sales team literature, to consider more details about which individuals should be teamed and how these individuals should be compensated for their performance and effort within the sales team (Albers 2002).

Marketing managers typically use teams to achieve one of two primary goals. The team is established as a partnership with a customer to provide dedicated service. In this case, teams are typically formed as a group of cross-functional specialists. In cross-functional teams, members come from various functional areas including sales, marketing, logistics, engineering and research. Individuals are placed together in a team

to resolve a broader spectrum of problems for their customers (Weitz and Bradford 1999).

Second, teams are also used as a tool for members to motivate and learn from each other. In this case, the goal of establishing sales teams includes the growth, development and advancement of team members (Perry et al. 1999). Likewise, the popular press has espoused establishing temporary sales teams as an effective method to energize sales programs (Sullivan 1995). The sales literature has made many attempts to understand when and how team formation can increase productivity. However, little has been done to understand the proper make up of teams under different types of team selling tasks (Weitz and Bradford 1999).

To date, the outcomes and behaviors resulting from teaming have produced conflicting results. For example, when team behaviors are broken down into positive valenced organizational citizenship behaviors such as helping other team members, teams are found to lead to lower sales performance. Among a list of possible explanations, Posdakoff and Mackenzie (1994), speculate the negative relationship may be related to spending too much time on team behaviors and not enough time on selling activities. To overcome this effect, the increase in performance of those receiving help must exceed any loss in sales by the member who is helping. Most research attempts to answer whether teaming has a positive or negative impact upon the organization and individuals involved. Others have looked at the behavioral impacts, such as the "lone wolf" behaviors, and demographic variables on the effectiveness of an individual in team tasks (e.g. Dixon et al. 2003). Few have considered team constitution and reward structures and their possible effects on the overall team's performance (Weitz and Bradford 1999).

In the context of team constitution, a salesperson's ability may have an important role. If coaching is expected among team members, then the difference in ability between each team member may be important when evaluating the likely performance of individuals within the team. Drawing on the group motivation gain literature, this research investigates how the team constitution can impact the performance of individuals within that team. Prior results in the group motivation gain literature reveal that the *weaker* team member can show significant gains in performance, when they are moderately weaker than their counterpart (Messé et al. 2002). This results in a curvilinear relationship, specifically an inverted U, between difference in ability of the team members and performance of the individual.

The recent group motivation gain literature provides little information regarding the impact on the *stronger* team member. For the marketing manager, it is important to know what happens to the stronger team member if the weaker team member improves in performance. Is this just a mere trade-off in performance? In the seminal research of Köhler (1926, 1927), he speculates a curvilinear relationship for the stronger team member similar to that found among weaker team members. Köhler observed increased effort from the stronger team members as a result of being in a team of moderate difference in ability. Yet the impact of this effect on the stronger team member has received no empirical testing. The curvilinear relationships for weaker and stronger performers suggest that managers and researchers should pay attention to not only whether people are assigned to teams but how the team members are assigned when they assess performance of individuals in teams.

2. Group Motivation Gain

In social psychology, laboratory experiments suggest that an individual teamed with a better performer in a competitive task will outperform his/her own results in an individual setting under certain conditions (Hertel et al. 2000; Stroebe, Diehl and Abakoumkin 1996). These findings occur for individuals teamed with a partner who is *moderately* better in individual ability. Furthermore, the results seem to occur primarily in conjunctive tasks, where the overall team outcome is tied to the weaker performer, as opposed to additive tasks where overall team performance is equally weighted between the two team members (Steiner 1972). The existence of either of these two conditions, (1) moderate difference in ability and/or (2) conjunctive task conditions, suggest that the performance gain cannot be explained by the mere presence of another as is the case with social facilitation (Allport 1924; Zajonc 1965). If gains could occur due to the mere presence of another individual, then performance would increase for all members in teams.

Group motivation gain involves a situation where the weaker member of a team performs better in specific team settings than they would in an individual setting. Köhler (1926) found that weaker individuals outperform their individual performance when paired with someone of moderately higher ability. He found that in low and high levels of difference in ability the performance gain for the weaker individual is small or even negative. Thus, group motivation gain has a curvilinear effect, being the highest at moderate levels of team members' difference in ability. Köhler tested this result in a series of physical persistence tasks, but offered little theoretical explanation of these

results. He did describe the impact of motivation within the teams noting that there appeared to be a high level of coaching received by those who produced the greatest group motivation gains.

Stroebe et al. (1996) replicated the Köhler effect in another series of experiments. The authors suggest that goal comparison (cf. Locke and Latham 1990) could be a possible antecedent for group motivation gain. Stroebe et al. envision that the stronger member's performance becomes a goal for the weaker member. Using this rationale, when the goal seems reasonable and achievable, at low and moderate differences in ability, a performance gain by the weaker team member seems possible. However, in a team with high difference in ability, the perceived goal set by the stronger member is viewed as unrealistic.

Hertel et al. (2000) ran experiments for additive and conjunctive tasks. This classification allows differentiation of tasks based upon the way an individual's inputs are related to the group output. *Additive* tasks are ones in which both members perform the task individually and the group's performance evaluation is the equally weighted between its members; thus, either individual could continue performing when one member withdraws from the team (Steiner 1972). *Conjunctive* tasks are situations where the group's performance is dependent on the weaker individual (Steiner 1972; Hertel et al. 2000). In an absolutely conjunctive task the stronger member is not able to continue the task once the weaker member withdraws.

Hertel et al. (2000) ran these conditions as two sets of laboratory experiments involving weight lifting. For all experiments, the team performance (the total weight lifted by the team in the individual condition) was compared to the weaker team

member's individual performance (the weight lifted by the individual in the individual condition). In the additive condition, the team members would lift two separate bars within the same room. Each member would independently hold 0.79 kg bars in the air as long as possible. The two separate times for holding the weights were added and divided by two. Thus, in the additive task, it was possible for the stronger member of the group to continue performing after the weaker member withdraws from the task (i.e. continue holding the bar) and improve the team's performance. Performance, in the additive condition, is simply the average performance of the two subjects. Despite the task being performed in the presence of the other team member, additive tasks did not show significant improvement for the weaker team member.

In contrast, the conjunctive task was designed in such a way that the team's performance was dependent on the weaker member. That is, once the weaker member stopped performing, the other could not continue the task. For example, in the weight lifting task, the team would hold one bar that was twice the weight, 1.58kg, and twice the length of the bar used in individual tasks. When the weaker member released the weight, the stronger member was forced to do the same, since he was not allowed to adjust his hands. Thus, the task hinged on the weaker member increasing his/her performance for conjunctive improvement to be exhibited. Consistently, group motivation gain experiments find that the weaker subject in conjunctive, competitive tasks performs better when teamed with a team member moderately better in the individual task (Messé et al. 2002).

Hertel et al. (2000) explain this effect by using the expectancy theory argument of instrumentality (Vroom 1964). Instrumentality, or indispensability, of the weaker team

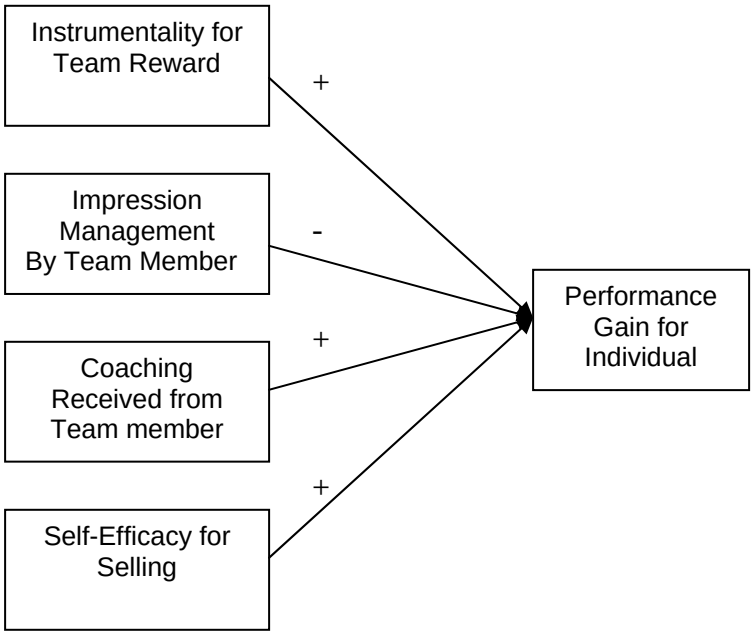
member to the team is seen as the primary effect explaining group motivation gain. This argument says that weaker individuals will continue to see their effort as more important to the team's performance when differences in ability are larger. However, at very large differences in ability, the weaker team member perceives that no matter how much extra effort is exerted, they will never be able to contribute to the team. Therefore, minimal performance gain results when the difference in ability is large. Consistent with the expectations stated by Hertel et al. (2000) and Messé et al. (2002), instrumentality should be correlated with the resulting performance gain. However, Hertel et al. (2000) find, unlike Köhler (1926; 1927), the gain continued even as the difference in ability became more extreme.

Köhler's curvilinear effect was not replicated in the literature until Messé et al. (2002). They found that the knowledge of ability difference was necessary for the curvilinear effect. Messé et al. (2002) found that the knowledge of the team member's ability allows individuals to reassess their instrumentality to the group when there is a high difference in ability. When there is a large difference in ability they see themselves as less instrumental to the group and therefore are less likely to demonstrate group motivation gain.

While theoretical antecedents of group motivation gain have not been directly tested through measuring the perceptions of the participants, there have been several perspectives offered in the literature. The most common explanation of group motivation gain is that the team members try harder and exert more effort when they have perceived *instrumentality* for the performance of the team (Hertel et al. 2000). Others suggest that *impression management* (Lount, Messé and Kerr 2000), *coaching* (Hertel et al. 2000) and

self-efficacy should be contributing factors that lead to these performance gains. Yet these theoretical explanations remain as suggestions in the literature, with no empirical testing. The present research tests these potential theoretical antecedents to the occurrence of group motivation gain by collecting survey data from team members. Drawing on this literature, this research presents and tests these relationships to the outcome variable, performance gain of the team members (see Figure 1).

Figure 1 Conceptual Model of Performance Gain of Individuals in Teams.



Furthermore, the group motivation gain literature offers few suggestions regarding the impact on the *stronger team member*. If the performance gain in the *weaker team member* is accompanied by a loss in performance of the stronger team member, the overall effect is limited. Thus, an important contribution of this research is

to understand the impact of teaming on the performance of *both* individuals in the team (i.e. the stronger and the weaker member).

3. Instrumentality

The results of group motivation gain have been discussed using the expectancy theory variable called instrumentality (Vroom 1964). Vroom's expectancy theory is based on the idea that people have different values of a given reward. As the individual sees their own performance as instrumental (indispensable) for the reward, the individual is likely to put forth more effort into achieving the reward.

In group motivation gain, authors use instrumentality as an explanation of the performance gains. They suggest that when the difference in ability is perceived to be moderate as opposed to high or low, weaker individuals perform at higher levels because they see their effort as an important contribution to the team's ability to achieve the reward. When the member's ability is nearly equal, neither member is seen as "holding back" the other. When there are large differences in ability, the weaker team members see that it is difficult to match the performance of the more capable team members, and would thus give up early. However, when the difference in ability is moderate the less capable member will see their effort as more important to the team performing at its full ability (Hertel et al. 2000).

4. Impression Management

Impression management is defined as the degree to which individuals moderate their behavior in order to manage their superiors' impressions. King and Booze (1986) suggest that individuals in the sales context will attempt to manage the formation of impressions about themselves by their sales supervisors. It has been shown that those attempting to manage the impressions of supervisors perform better as individuals (Camp et al. 2004). That is, impression managers are more likely to perform better in individual tasks, where superiors' attribution for performance can be more clearly made.

5. Coaching

Missing from academic research on group motivation gain is the effect of coaching that Köhler (1926) describes. Köhler designs a task where individuals lift a bar in a conjunctive task that is twice as heavy as the individual task bar. He explains observed results in these studies,

> "...it would be very logical to assume that the weaker person would not lift the bar as long as the stronger person, therefore he would contribute less to the lifting task. The stronger would then carry more weight, which would cause him to exhaust faster. However, this did not take place, because the stronger person verbally demanded more effort (of the weaker member)…" (p. 276, per professional translation).

Many scholars and practitioners state that leaders in successful teams will participate in coaching activities. Coaching is the direct interaction of a leader with a team member in order to shape the performance of team members (Wageman 2001). Literature has found support for the idea that coaching will improve group processes (Kaplan 1979). However, findings regarding performance of teams with coaching are mixed (cf. Posdakoff and MacKenzie 1994; Komaki, Desselles and Bowman 1989). Some have stated that a focus on coaching activities can weaken the coach's focus on other performance related dimensions of their job, especially in the short-term.

The coaching literature recognizes peers as effective trainers (Hunt and Michael 1983, Rich 1998). Coaching can create strengthened social networks and produce results such as job satisfaction, organizational commitment, personal learning and performance (Higgins and Kram 2001). To the extent that training and knowledge sharing can occur between coworkers, there is likely to be a positive impact of coaching on performance.

6. Self-Efficacy

In describing the motivation gain in another experiment, Köhler (1926) states that as self-confidence of the individual increased; performance increased. Köhler's use of self-confidence is similar to recent conceptualizations of self-efficacy. Self-efficacious people see themselves as capable of organizing and executing courses of action needed to perform well in their job (Bandura 1986). In this case, self-efficacy is defined as an individual's self-perception of their ability to perform well in a given task. In the sales literature, self-efficacy has been tied to increases in performance. Sujan, Weitz and Kumar (1994) found self-efficacy moderates the relationship between performance orientation and working hard, which leads to increased performance. These authors explain that people high in self-efficacy will work harder and therefore achieve higher outcomes. Individuals low in self-efficacy will question their ability to achieve successful outcomes.

CHAPTER III: HYPOTHESES- ESSAY 1

There is a sentiment among some managers that all salespeople do not participate in sales motivation programs or do so only on a limited basis. In a recent article, Rodger Stotz, a Vice-President of Maritz, Inc. identified that incentives often only motivate the top five percent of performers and have little impact on the mid-level performers (Galea 2005). In this case, the minority of sales personnel provide a majority of incremental sales.

Forming sales teams is one of the recommended ways to combat lack of participation in sales efforts by some members of the sales force (Sullivan 1995). Stotz says, “they (A performers) can offer 'tips from the top' class sessions, for example, once a month. Sharing tips for success motivates the B's.” (Galea 2005, p. 9) Teams can provide variety for the design of marketing programs. Furthermore, team members can provide a critical source of individualized motivation. However, some research finds that team behaviors can have a negative association with sales performance of the team (Posdakoff and Mackenzie 1994).

H_{1a}: Performance of individuals in team tasks will be higher than performance of individuals in individual tasks.

H_{1b}: Performance gain of individuals in team tasks will be higher than the gain of individuals in individual tasks.

There are many possible explanations for the results suggested in H_1. For example, social facilitation might suggest that all individuals in the team would perform better. However, a basic premise of the current research is that the team constitution and reward structure can contribute to the performance of the individuals within the team.

The performance gain found in group motivation gain seems to occur primarily in conjunctive conditions (Hertel et al. 2000). The following hypotheses investigate the gain across reward conditions (additive versus conjunctive). Individuals teamed together in an additive condition are not expected to perform any differently than they would in an individual task. This is rationalized because individuals in the additive condition have less incentive to coordinate their efforts. The additive condition seems to provide little psychological linkage in their performance to the team's performance (Hertel et al. 2000).

> H_2: Individual performance for additive rewards will be lower than individual performance for conjunctive rewards.

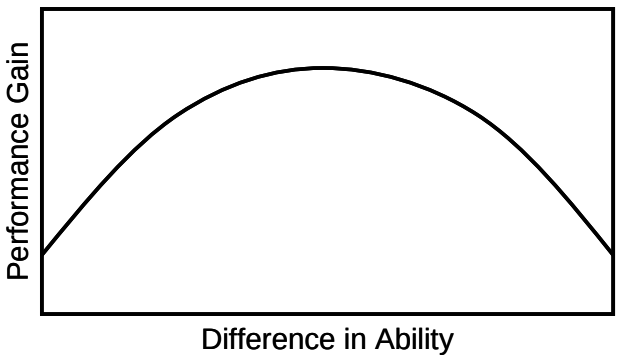
To demonstrate group motivation gain, Hertel et al. (2000) design a conjunctive condition where the weaker performer determines the group's performance (Steiner 1972). In the conjunctive condition, "it was the less capable member of the dyad who was critical for producing the observed motivation gain." The authors describe the impact on the weaker member, "when the less capable member saw their contribution as indispensable to the group, their dyads performed much better" (Hertel et al. 2000, p. 591).

Köhler suggests that the degree of discrepancy in abilities of the partners moderates the performance gain, thus resulting in an inverted U curvilinear shape with difference in ability on the x-axis and performance on the x-axis. Messé et al. (2002) find that knowledge of ability difference is necessary for the individuals to reassess their instrumentality to the group, thus resulting in the curvilinear function found by Köhler.

In sales, individuals work together on a regular basis. Co-workers see monthly sales reports for individuals in their district and watch as their peers receive recognition. Therefore, a salesperson will have knowledge of the other team member's ability. Consistent with Messé et al. (2002), knowledge of the team member's ability will lead to lower levels of group motivation gain at high levels of ability difference in team members (see Figure 2). The findings of Messé et al. (2002) suggest that social facilitation cannot fully explain this performance gain since it will be just as likely across all levels of difference in team member ability.

> H_3: Performance gain for individuals in team selling tasks, relative to weaker individuals in individual tasks, will have an inverted U relationship to the difference in ability of the team members.

Figure 2 Performance Gain for Individuals in Team Tasks.



This research seeks to understand which individuals in the team will exhibit performance gain. Some research shows that the impact of teaming will be different for each individual in the team. For example, the stronger member may take on a coaching role, causing them to focus less on performance (cf. Posdakoff and MacKensie 1994).

There is little explanation about the impact on the performance of stronger team members within group motivation gain literature. However, Köhler (1926) postulates that the stronger individual will also exert more effort when paired with someone of moderate difference in ability. Köhler makes this inference, in tasks like the weight lifting described earlier in this paper, from the fact that some teams with moderate differences in ability not only outperformed the weaker individual, but also outperform the stronger individuals.

The absolute conjunctive nature of the tasks used in these and more recent laboratory experiments make it difficult to track the performance of the stronger team member once the weaker member stops the task. Subsequent research has not been able to test the effect on the stronger team member. Hertel et al. (2000) simply state the stronger member in the additive tasks had, "neither distinctive motivation losses nor distinctive motivation enhancements…" (p. 595).

> H_{4a}: Performance gain for weaker individuals in team selling tasks, relative to weaker individuals in individual tasks, will have an inverted U relationship to the difference in ability of the team members.

H_{4b}: Performance gain for stronger individuals in team selling tasks, relative to stronger individuals in individual tasks, will have an inverted U relationship to the difference in ability of the team members.

Behavioral Explanations of Group Motivation Gain

The preceding hypotheses seek to explain what occurs in this effect. Previous literature speaks conceptually of possible theoretical explanations of group motivation gain but offer little testing. The following hypotheses outline a theoretical rationale for this effect.

Instrumentality, or indispensability, of the team member to the team is seen as the primary effect explaining group motivation gain. Existing literature suggests that individuals will see their effort as more important to the team's performance as the difference in ability of the team members is larger. However, at some large difference in ability the team member perceives that no matter how much extra effort is exerted, they will never be able to contribute to the team. Therefore, little gain in performance results when the difference in ability is very large. Consistent with the expectations stated by Hertel et al. (2000) and Messé et al. (2002) instrumentality should be correlated with the resulting performance change.

> H_5: The degree to which the team member perceives that their effort is instrumental to the group's performance will be positively related to the performance gain of that team member.

Impression management is a key indicator of performance in certain settings Lount et al. (2000). In the group setting, it is suggested that individuals who seek to manage the impressions of their managers will more likely do so when they are in

individual tasks. Like Camp et al. (2004), this research suggests that impression managers will perform better in individual tasks, where superiors' attribution for performance is more clear. In a group task, the attribution for performance is less clear and therefore impression managers are expected to have lower performance in the team setting. Since it is easier to manage impressions when acting as an individual, impression managers are expected to decrease performance in the team setting.

> H_6: Impression management will be negatively related to the performance gain of that team member.

Studies have shown that peers can be effective in improving the performance of their peers through coaching (Hunt and Michael 1983). Coaching creates stronger social networks and produces results such as job satisfaction, organizational commitment and performance (Higgins and Kram 2001).

The teaming of two individuals is mentioned as a way to increase the impact of sales contests by Sullivan (1995). Pairing individuals in a group offers an opportunity for coaching to occur. There is a growing trend in sales management towards teamwork and team selling approaches for agents. Teams and groups approaches where the individuals involved can gain strength and expertise required for specific selling situations (Ingram et al. 2004).

The design of the group motivation gain studies is conducive to testing for results of coaching effects. Köhler anecdotally mentioned in teams that there are varying degrees of coaching and encouragement from the stronger team member.

H_7: The perception of receiving coaching from a team member will be positively related to the performance gain of the team member receiving the coaching.

In describing the motivation gain in one experiment, Köhler (1926) states that "due to the impact of the encouragement of the partner, the self-confidence of the other individual increased…" Köhler's use of self-confidence is similar to more recent conceptualizations of self-efficacy. Self-efficacious people see themselves as capable of organizing and executing courses of action needed to perform well in their job (Bandura 1986).

Self-efficacy has been tied to increases in performance. Sujan et al. (1994) found self-efficacy moderates the relationship between performance orientation and working hard, which leads to increased performance. They explain that people high in self-efficacy will work harder and therefore achieve higher outcomes. Individuals low in self-efficacy will question their ability to achieve successful outcomes.

H_8: An individual's self-efficacy for a task will be positively related to the performance gain of that team member.

CHAPTER IV: METHODOLOGY AND RESULTS- ESSAY 1

1. Data Environment

In order to conduct this research a collaborative relationship with Shelter Insurance Companies (Shelter) was developed. Shelter is a Midwestern financial services company with operations in 13 states, involving over 1300 agents, covering 78 districts. Shelter sells insurance in three primary lines of business; home, auto and life insurance.

In the summer of 2004, Shelter ran a sales contest for the first time in several years. The 2004 summer contest was set up such that one district challenged another and the district with the higher sales performance received a $1,000 cash prize. Districts were paired by the corporate office based on similarity in sales of life insurance over the previous year. Performance for the pairing was based on the percent of the district's goal[1] that was achieved times the percentage of agents that wrote at least two policies within the summer contest. Life insurance sales were the focus of the 2004 summer contest since it is the most profitable product. Life insurance is also considered the most difficult product to sell. The difficulty in selling life insurance has two factors; regulatory and the nature of the sale. Both auto and home insurance have requirements that regulate their purchase (legal for auto, loan related for home). On the other hand, life insurance is not mandatory. Secondly, life insurance is considered an unsought product (Kotler and Keller 2006) because it forces customers to consider their own mortality.

[1] Shelter computes the goal as the number of agents in the district multiplied by two.

The context of this study is a similar contest that was run during the summer of 2005. For the purposes of this study, Shelter allowed a field experiment to overlay the existing, *district pairing* design. (For a copy of the scripts that Shelter managers used to introduce this contest see Appendices C-E. Appendix F has a summary of the rules of the 2005 *district pairing* contest.) This experiment and a subsequent survey allow for testing of the aforementioned hypotheses. The design for this experiment is described in the following sections.

2. Data Sample

The sales districts are divided into four separate test groups for this field experiment. In this process, both districts competing in the *district pairing competition* were assigned to the same reward condition. Twenty-four sales districts consisting of 414 individuals were assigned to conditions involving teams. These individuals were divided into 207 *two-person teams.* Half of these districts, were assigned to a condition with a reward based upon the additive sales performance of the team members. The other half of these districts were assigned to a condition with a reward based upon the conjunctive performance of the two team members. An additional twelve districts with 229 *individuals* were established as a control group with the same award amount (control group A). The remaining forty-three districts were considered a control, using the same task that was assigned to them in 2004 (control group B). There was no additional monetary reward for districts in control group B. The cell size was imposed by Shelter due to budget constraints to pay out various rewards (see Table 1). The experiment occurred during the Summer 2005 Life Contest, from July 11 to August 2, 2005.

Shelter assigned the district pairs that competed against each other. Each pair was randomly assigned to an additive, a conjunctive, or one of the two control conditions. In the additive and conjunctive conditions, each team competed for $450 in team prizes within each district. The first place team received $300 and the second place team received $150. This reward was split equally between the two team members.

The districts were divided into terciles based on past performance. This was done to ensure that each condition had a balanced representation of historically high, medium

and low performing districts (see Table 2). Within the aforementioned constraints, random assignment of districts to each of these conditions was made.

As noted earlier, this teaming design is an overlay of the existing *district pairing* contest. The winning district based on that reward received a $1,000, like last year's contest. Both control groups experienced essentially the same contest that was administered in 2004 (i.e. individuals tried to help their district win the *district pairing* contest without being paired with any other individual). The contest design was announced to district managers through an annual manager's meeting held in May 2005. The managers were given the rules for their respective districts and reward conditions. They then conveyed the contest rules and rewards to agents in their district. This method of announcing the contest rules is similar to that used in past years. Neither the district managers, nor the agents were made aware the changes in the contest were part of an experiment.

Control group A had the same average pay out $950 ((1,000 * 50% probability) + 450) as the test conditions. This control group is established so that the total payout is the same as that of the test groups. Control group B had an average payout of $500, the same as last summer's contest payout.

Table 3 provides an overview of the descriptive statistics. This table suggests that the districts in each condition are similar in respect to experience of the agents, average district rank, average unit sales and average premiums during the 2004 contest.

Table 1 Summary of Experimental Conditions.

Condition	Number of Districts	n	Experimental Structure	District Pairing Structure	Comments
Additive	12	175	Team, Top 2 teams in each district get prizes totaling $450	Half the districts get $1,000	Teams compete based on additive performance
Conjunctive	12	236	Team, Top 2 teams in each district get prizes totaling $450	Half the districts get $1,000	Teams compete based on conjunctive performance
Control A	12	228	Individual, Prizes total $450 for top 4 in each district	Half the districts get $1,000	Total prize dollars are same as additive and conjunctive
Control B	43	543	Individual, No individual prizes	Half the districts get $1,000	Design identical to 2004

Table 2 District Assignments.

2004 District Rank	Additive Districts	Conjunctive Districts	Control A Districts	Control B Districts
High	6,7,18,25	8,9,23,24	11,16,17,18	All other districts from 1 to 26
Medium	32,33,37,41	34,35,43,47	29,31,35,45	All other districts from 27 to 52
Low	53,58,70,74	54,56,60,61	55,57,64,65	All other districts from 53 to 78

Table 3 Individual Demographics by Condition.

Reward Condition	Team Member	n	Experience	Average District Rank	2004 Unit Sales	2004 Premium
Additive	Weaker	89	16.1	37.8	1.48	363.75
Conjunctive	Weaker	119	17.1	37.8	1.33	316.16
Control A	Weaker	112	16.1	31.8	1.28	312.07
Control B	Weaker	265	14.4	39.9	1.25	327.55
Additive	Stronger	89	12.6	37.8	4.31	1,197.69
Conjunctive	Stronger	118	14.4	37.8	4.16	1,390.68
Control A	Stronger	117	11.3	31.8	4.39	1,397.45
Control B	Stronger	278	11.7	39.9	3.97	1,273.06

Individuals within a district were assigned to the two-member teams based upon 2004 sales. In a 16-member district, the top performer is paired with the lowest performer, number 2 with number 15, number 3 with number 14, etc. This was done to maximize variance in difference in ability. Team members who were not eligible to participate in the summer 2004 contest were ineligible to participate in the 2005 experiments, since the baseline for awards was established from 2004 summer contest sales. At Shelter's request, only districts with even numbers of agents were used for the reward conditions. In the control groups, "pseudo" teams were used for the purposes of analysis and comparison to the test conditions. These "pseudo" teams were not known to the individuals in the control groups. Otherwise these team assignments followed the same procedures used in the test groups.

3. Rewards

The top performing team in each condition was paid $300 and the second place team was paid $150. Rewards were based on the following structure:

Conjunctive - based on the percentage increase in sales for each team member. ((2005 contest sales – 2004 contest sales)/2004 contest sales)

Agent 1: 10 to 12 units = 20% = 20 points

Agent 2: 1 to 2 units = 100% = 100 points

Team: (20+100) = 120 point increase

Additive - based on the absolute increase in sales for each team member. (2005 contest sales- 2004 contest sales)

Agent 1: 10 to 12 units = 2 units = 2 points

Agent 2: 1 to 2 units = 1 unit = 1 point

Team: 3 unit increase= 3 points

As noted earlier, all districts have a 50% chance to earn a $1,000 district level reward. In addition, control group A has individuals competing for $450 in individual prizes. Those prizes were based on an increase in individual performance (2005 contest sales – 2004 contest sales). The cash prizes were; first place $150, second place $125, third place $100 and fourth place $75. Control group A has the same average payout, $950 per district, as districts in additive and conjunctive conditions.

It should be noted that the test conditions are based upon the reward structure as opposed to previous work that manipulated the task. This field experiment provided limited ability to manipulate the task. It was not feasible to ask the agents to jointly call on customers. Manipulating the reward structure avoids the issue of joint sales calls. Furthermore, the reward manipulation allows continued monitoring the performance of both team members even if one of the team members (usually the weaker member) withdraws from the task.

4. Survey

A pre-announcement of the survey was sent to all sales agents in the test conditions on July 25, 2005. This pre-announcement included an endorsement of the survey by Shelter's Vice-President of Sales. On August 1, an e-mail was sent with a link to a web based survey. The survey asked questions regarding the number and type of contacts made, instrumentality, coaching, impression management and self-efficacy (see Appendix B for a detail of the items in the survey). Respondents were assured that their responses would remain confidential. There was a follow-up email sent on August 15. Of those in the test conditions, 324 of 414 individuals responded to the survey for a 78.3% response rate. Early and late responses were not significantly different (Armstrong and Overton 1977). Furthermore, the respondents do not differ significantly from the non-respondents in terms of experience or their 2004 sales in the contest or total 2004 sales premium or total units of 2004 life sales. These tests serve as evidence that non-response bias does not exist in this data.

5. Secondary Data

Shelter provided data for the number of life insurance policies written in the 2004 and 2005 summer sales contests. This data is used to calculate the sales performance gain for all agents, following the approach previously outlined. (For a further description of this data file, see Appendix G.)

6. Data Preparation

The data was evaluated for out of range responses, univariate and multivariate outliers. Four observations were removed since they were clearly outliers based on the number of life insurance policies written in 2005. One observation was removed since the team partner was terminated before the contest ended. The data was also investigated for missing responses and items, none were found. The cells in this analysis are unequal in size therefore SPSS General Linear Model, Sum of squares type III is used for the ANOVA (Tabachnick and Fidell 2001, p. 297).

Evaluation of the univariate statistics, skewness, and kurtosis suggests that the data is reasonable and distributed normally (Tabachnick and Fidell 2001). Furthermore, homogeneity of variance and multicollinearity were assessed across all survey constructs and the 2005 life insurance unit sales. These statistics were deemed reasonable due to VIF scores below 10 (Mason and Perrault 1991). The overall descriptive statistics are summarized in Table 4.

Exploratory and confirmatory factor analyses were also run on all survey items. Exploratory factor analysis was performed as a Varimax rotation with minimum Eigen values of 1. Item loading are all greater than .5. The survey was designed to measure learning and coaching as individual constructs. However, the exploratory analysis revealed that learning and coaching did not discriminate. Therefore, in the final testing these items were merged as a single construct. The result of exploratory analysis also resulted in the elimination of two items (questions 6 and 18) due to their cross loadings with other constructs (see Appendix B). The confirmatory factor analysis resulted in a

final model that converged. The resulting fit indices are acceptable, NFI .902, NNFI .920, CFI .930 and RMSEA .083. Reliabilities for each construct are above acceptable minimum levels, impression management (α = .774), coaching (α =.915), instrumentality (α = .823) and self-efficacy for selling (α = .853).

Table 4 Means, Standard Deviations, VIF and Correlations.

	Constructs	Mean	St. Dev	VIF	1.	2.	3.	4.	5.	6.
1.	2004 Sales	2.74	2.38	1.129	1.00					
2.	Instrumentality	4.42	1.63	1.661	.122*	1.00				
3.	Learning	2.20	1.57	5.722	-.109	.114*	1.00			
4.	Impression management	5.36	1.32	1.881	.244**	.561**	-.168**	1.00		
5.	Self Efficacy for selling life insurance	4.64	1.30	1.490	.295**	.408**	-.091	.528**	1.00	
6.	Coaching received	2.43	1.60	5.912	-.139*	.167**	.907**	-.152**	-.063	1.00

*p < .05 (two-sided); **p < .01 (two-sided).

7. Hypothesis Testing

Individuals in teams should perform better than individuals performing on their own. This basic premise of this paper is represented in H_1. Testing of H_{1a} is accomplished by measuring the level of life insurance sales during the 2005 Summer Contest for individuals in teams versus individuals working independently. H_{1b} is tested by using the percentage change in the performance of each individual from 2004 to 2005.

Using the first measure, the average sales for individuals who were in teams in 2005 is 2.23 units of life insurance . The average sales for individuals working on their own were 1.88 units of life insurance ($F= 9.678$, $p< .01$) (see Tables 5 and 6). Thus, the performance of teamed individuals is stronger than the performance of individuals who were not in a team.

Table 5 Means, Standard Deviations of 2005 Unit Sales for Teamed and Unteamed Individuals.

Condition	Mean	Std. Deviation	N
Team	2.23	1.921	411
Unteamed	1.88	1.783	771
Total	2.00	1.839	1182

Table 6 Mean Difference in 2005 Unit Sales for Teamed and Unteamed Individuals.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	32.473(a)	1	32.473	9.678	.002
Intercept	4527.228	1	4527.228	1349.185	.000
Condition	32.473	1	32.473	9.678	.002
Error	3959.523	1180	3.356		
Total	8728.000	1182			
Corrected Total	3991.997	1181			

For H_{1b}, the performance gain is calculated, which is essentially the percentage change in performance (2005 performance- 2004 performance)/ 2004 performance. (Individuals who wrote zero applications in 2004 is change from 0 to 1 unit and is treated as a GMG of 100, a change from 0 to 2 is treated as a GMG of 200 and so forth, see Table 7) This performance gain is compared across the subjects. The average performance in teams is +.09 and the average for individuals' not in teams is -.03 ($F= 3.844$, $p<.05$) (see Tables 8 and 9).

Table 7 Agents with Zero Sales in 2004.

Condition	N	N with Zero 2004 Sales	Mean Sales in 2005
Team	411	49	1.33
Unteamed	771	126	1.00
Total	1282	175	1.09

Table 8 Means, Standard Deviations of Performance Gain for Teamed and Unteamed Individuals.

Condition	Mean	Std. Deviation	N
Team	.09	1.099	411
Unteamed	-.03	.994	771
Total	.01	1.033	1182

Table 9 Mean Difference in Performance Gain for Teamed and Unteamed Individuals.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4.094(a)	1	4.094	3.844	.050
Intercept	1.130	1	1.130	1.061	.303
Condition	4.094	1	4.094	3.844	.050
Error	1256.698	1180	1.065		
Total	1261.012	1182			
Corrected Total	1260.792	1181			

Using these metrics, it appears that individuals performed better in teams than those in control groups who were not teamed. However, each team member is indeed different in terms of ability. The group motivation gain literature informs the impact of the team on the weaker performers, but offers no empirical findings regarding the impact on the stronger individuals in the team. This is important because if, as Posdakoff and MacKenzie (1994) suggest, one team member's gain is detrimental to the other team member's performance, the potential overall impact of teaming might be limited.

The results in H_1 are dissected to look at the impact specifically on stronger and weaker members of the team. The results show that weaker individuals in teams write 1.76 applications on average in 2005. The mean number of applications written for the unteamed weaker performers is 1.51 ($F=2.927$, $p<.10$) (see Tables 10 and 11). This marginal significance suggests that weaker individuals may have performed better in the teamed conditions than in the control group. The mean for the stronger teamed individuals is 2.71. The mean for the unteamed stronger performers is 2.23 units ($F=8.256$, $p>.01$) (see Tables 12 and 13).

Table 10 Means, Standard Deviations of Unit Sales in 2005 for Weaker Teamed and Unteamed Individuals.

Condition	Mean	Std. Deviation	N
Teamed	1.76	1.757	207
Unteamed	1.51	1.585	377
Total	1.60	1.650	584

Table 11 Mean Difference in Unit Sales Written for Weaker Teamed and Unteamed Individuals.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Corrected Model	7.947(a)	1	7.947	2.927	.088
Intercept	1431.536	1	1431.536	527.282	.000
Condition	7.947	1	7.947	2.927	.088
Error	1580.092	582	2.715		
Total	3085.000	584			
Corrected Total	1588.039	583			

Table 12 Means, Standard Deviations of Unit Sales in 2005 for Stronger Teamed and Unteamed Individuals.

Condition	Mean	Std. Deviation	N
Teamed	2.71	1.966	204
Unteamed	2.23	1.890	394
Total	2.39	1.928	598

Table 13 Mean Difference in Unit Sales for Stronger Teamed and Unteamed Individuals.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	30.315(a)	1	30.315	8.256	.004
Intercept	3275.854	1	3275.854	892.189	.000
Condition	30.315	1	30.315	8.256	.004
Error	2188.335	596	3.672		
Total	5643.000	598			
Corrected Total	2218.651	597			

The group motivation gain literature suggests that performance gains should occur for weaker team members in tasks that are conjunctive in nature. Thus, H_2 is formulated to test this finding in this sales setting. Before looking at this gain, satisfaction with the team member and one objective measure, the number of contacts made between team members, as used to understand if the tasks induced a different activity. The weaker individuals in the conjunctive task report higher levels of satisfaction with the team and more contacts. The satisfaction for those in conjunctive tasks is reported at 3.80 while the satisfaction for individuals in the in additive task is 3.43, this is significant at p=.05 in a one-tailed t-test. These individuals also report marginally more contacts, 1.66, with their counterparts in conjunctive tasks, while those in the additive condition report 1.56 contacts.

To test H_2, the weaker members of the teams in additive versus conjunctive tasks are compared using ANOVA. In aggregate, there is no significant differences in the unit sales for individuals in the conjunctive versus the additive tasks. The mean of 1.84 in additive tasks versus 1.69 in the conjunctive task (F=0.358, p=.550) (see Tables 14 and 15).

Table 14 Means, Standard Deviations of Unit Sales in 2005 for Weaker Individuals in Test Conditions.

Condition	Mean	Std. Deviation	N
Additive	1.84	1.808	89
Conjunctive	1.69	1.722	118
Total	1.76	1.757	207

Table 15 Mean Difference in Unit Sales for Weaker Individuals in Test Conditions.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1.108(a)	1	1.108	.358	.550
Intercept	634.924	1	634.924	205.035	.000
Condition	1.108	1	1.108	.358	.550
Error	634.815	205	3.097		
Total	1276.000	207			
Corrected Total	635.923	206			

This hypothesis led to considering whether the two test groups and the two control groups are significantly similar in the number of applications written. To test this, ANOVA was run between all participants in the additive versus conjunctive tasks. The lack of difference in performance of the test conditions supports merging these groups when testing the next two hypotheses ($F=1.425$, $p= .233$) (see Tables 16 and 17). Similarly, no statistical difference is found in the number of applications written between the two control conditions ($F=1.055$, $p= .305$) (see Tables 18 and 19).

Table 16 Means, Standard Deviations of Applications Written in 2005 for Individuals in Test Conditions.

Condition	Mean	Std. Deviation	N
Additive	2.36	2.003	175
Conjunctive	2.13	1.855	236
Total	2.23	1.921	411

Table 17 Mean Difference in Unit Sales for Individuals in Test Conditions.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	5.253(a)	1	5.253	1.425	.233
Intercept	2027.044	1	2027.044	550.050	.000
Condition	5.253	1	5.253	1.425	.233
Error	1507.248	409	3.685		
Total	3554.000	411			
Corrected Total	1512.501	410			

Table 18 Means, Standard Deviations of Unit Sales in 2005 for Individuals in Control Conditions.

Condition	Mean	Std. Deviation	N
Control A	1.98	1.955	228
Control B	1.84	1.705	543
Total	1.88	1.783	771

Table 19 Mean Difference in Unit Sales for Individuals in Control Conditions.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3.354(a)	1	3.354	1.055	.305
Intercept	2343.670	1	2343.670	737.532	.000
Condition	3.354	1	3.354	1.055	.305
Error	2443.668	769	3.178		
Total	5174.000	771			
Corrected Total	2447.022	770			

Hierarchical regression suggests that the change in sales from 2004 to 2005 for individuals in teams has an inverted U relationship with the difference in ability of the team members. This data reveals that the quadratic form is significant at the .001 level (see Table 20). Furthermore, the R-squared improves from 0.17 to 0.20 when the quadratic term is introduced. Hierarchical regression suggests this improvement in R-squared is significant at the .05 level. The quadratic fit reveals that the performance gains are highest for individuals of moderate differences in ability with their group member. Performance wanes as the difference in team member ability is large or small. This test serves to confirm H_3 and H_4. Figure 3 and 4 represents the linear and quadratic best fit lines for the change in sales from 2004 to 2005 for weaker and stronger team members.

Figure 3 Change in Unit Sales by Difference in Team Member Ability- Weaker Team Members.

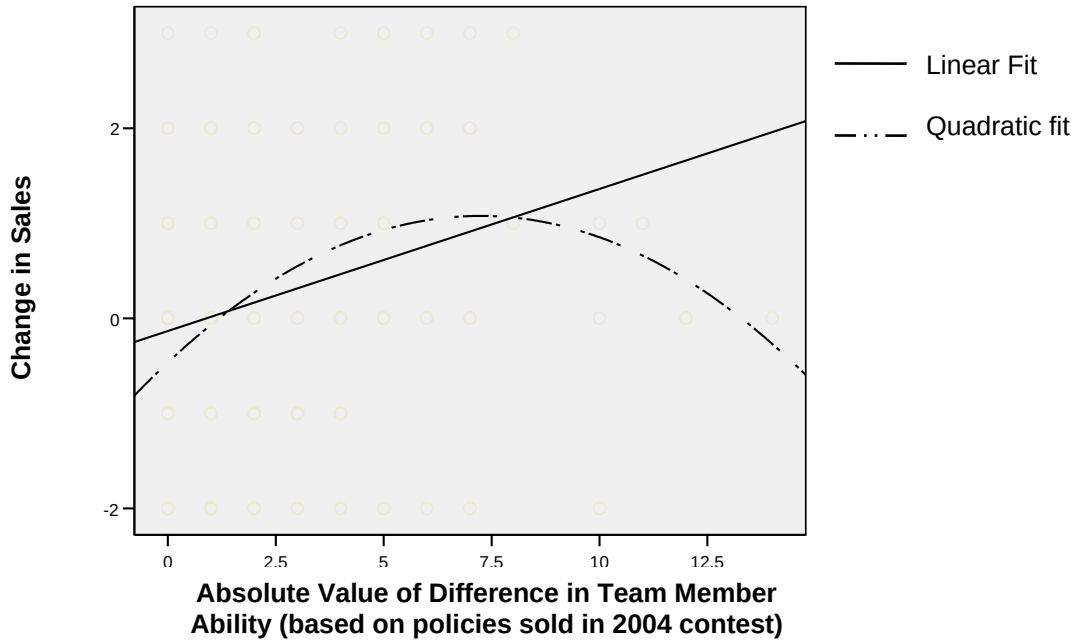


Figure 4 Change in Unit Sales by Difference in Team Member Ability- Stronger Team Members.

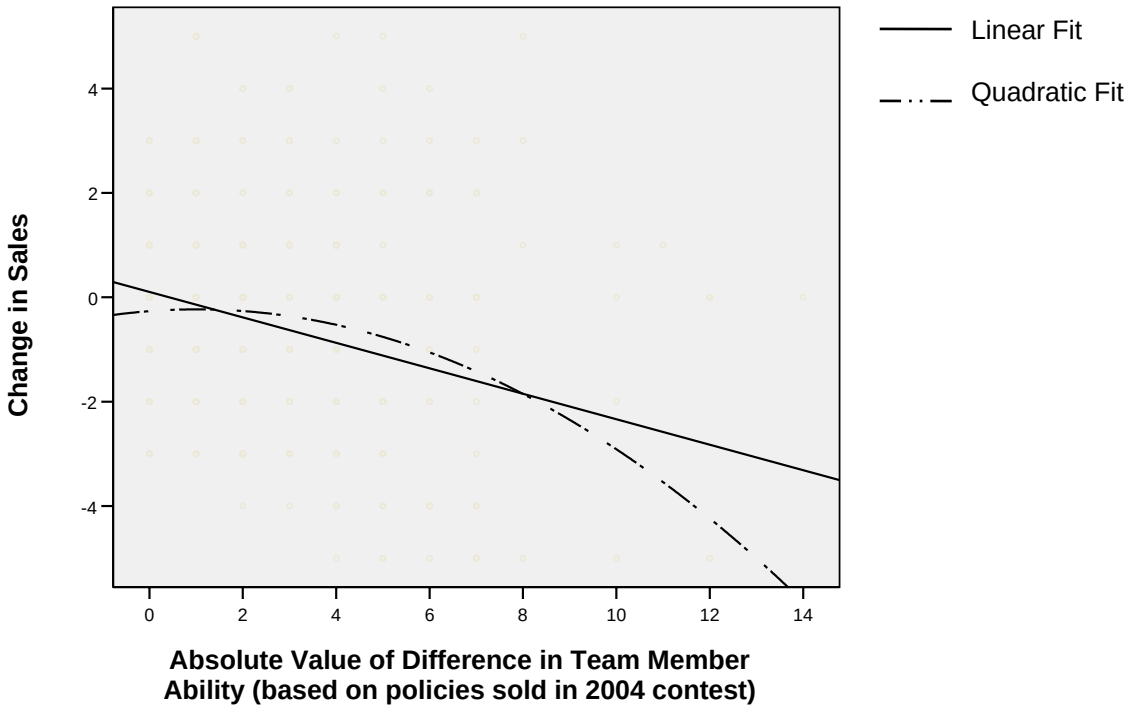


Table 20 Model Fit for Change in Unit Sales by Difference in Ability of Team Members.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	2.795	.392		7.138	.000
	Strength (num)	-1.688	.235	-.321	-7.168	.000
	Difference	-.261	.043	-.270	-6.025	.000
2	(Constant)	2.414	.404		5.978	.000
	Strength (num)	-1.687	.233	-.321	-7.251	.000
	Difference	.060	.106	.062	.564	.573
	Difference Squared	-.034	.010	-.362	-3.301	.001

It is important to note the absolute difference in ability. However, it is believed to be of value to use repeated measures ANOVA to descriptively analyze this data. ANOVA does necessitate using a categorical variable for the independent variable, difference in ability. There are two primary reasons that repeated measures ANOVA is of value. First, there is extra power in this analysis by using two repeated measures for the performance in 2004 and 2005. Second the categorical variable of quartiles helps by considering teams that are similar in their difference in ability. Specifically, a repeated measure ANOVA is used, contrasting the performance of individuals across four different quartiles of difference in ability to add to the robustness of the analysis of H_3 and H_4.

Using repeated measures ANOVA provides a type of control for the performance in 2004 (the first measure), while evaluating the 2005 performance (the second measure). A coded variable is created to represent each team and quartile combination. Since the hypothesized relationships are non-linear, contrasts are run on each quartile to determine where the differences might exist.

The contrasts were tested for differences in performance between individuals in teams and those not in teams within each of the four quartiles. In quartile 1, the quartile with the lowest difference in ability of the two team members, there is no significant contrast between the teamed and unteamed individuals (F=1.624, p=0.203) (see Table 21).

Table 21 Team Versus Unteamed Performance Gains in Quartile 1.

Source	Type III Sum of Squares	Df	Mean Square	F	Sig.
Intercept	165.829	1	165.829	82.700	.000
Strength	25.213	1	25.213	12.574	.000
Condition	3.256	1	3.256	1.624	.203
Error	727.883	363	2.005		

The only significant contrasts exist in quartile 2, (F=3.364, p < .10) (see Table 22), and quartile 3, (F=7.108, p<.01) (see Table 22). In quartile 4 there is no difference (F=0.079, p=.779) (see Table 24). In quartiles 2 and 3 the teamed individuals perform better than unteamed individuals. The results of the overall repeated measures ANOVA are shown in Figure 5. Furthermore, Figure 6 shows the difference in 2005 unit sales by quartile. These all serve to further supports H_3.

Table 22 Team Versus Unteamed Performance Gains in Quartile 2.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	8.444	1	8.444	3.566	.060
Strength	226.056	1	226.056	95.474	.000
Condition	7.966	1	7.966	3.364	.068
Error	722.154	305	2.368		

Table 23 Team Versus Unteamed Performance Gains in Quartile 3.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	80.203	1	80.203	23.950	.000
Strength	870.891	1	870.891	260.057	.000
Condition	23.803	1	23.803	7.108	.008
Error	904.189	270	3.349		

Table 24 Team Versus Unteamed Performance Gains in Quartile 4.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Intercept	453.211	1	453.211	89.448	.000
Strength	1936.854	1	1936.854	382.267	.000
Condition	.401	1	.401	.079	.779
Error	1175.488	232	5.067		

Figure 5 Teamed Versus Unteamed Unit Sales by Quartile.

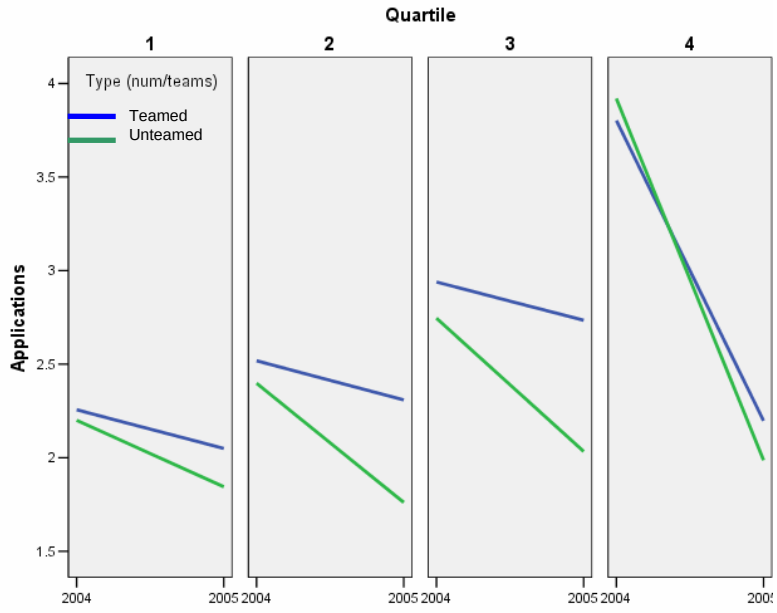
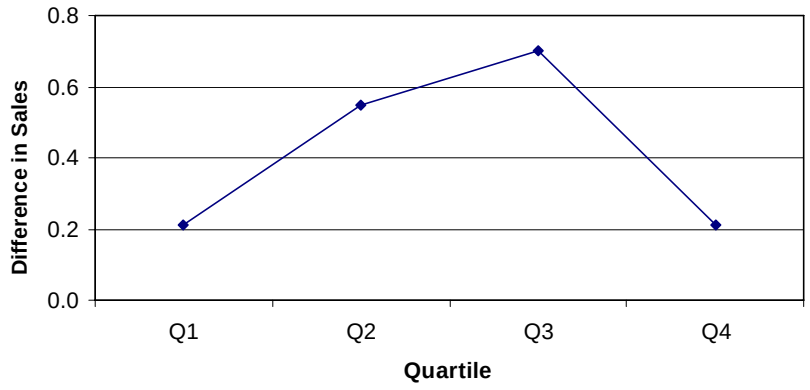


Figure 6 Difference in Team Versus Unteamed 2005 Unit Sales by Quartile.



In order to test H_{4a} and H_{4b}, (that the inverted U relationship holds for weaker and stronger team members), the same contrasts were run for only weaker and then only stronger individuals. The significances are weaker, as the data is further parsed into smaller subsets, there is marginal significance in quartile 2 for weaker individuals at the <.10 level. This result reveals that weaker individuals in teams have marginally better performance gains than individuals not in teams. For stronger individuals, significance exists at the <.05 level in quartile 2. Across all other quartiles, for weaker and stronger individuals, there is no significance for the difference in performance gain of teamed versus unteamed individuals. Therefore, the results offer additional support for H_{4a} and support H_{4b}.

The final part of the analysis seeks to explain what drives of the performance gain. The explanations for the performance gain are assessed through a survey that was conducted at the conclusion of the Summer 2005 Sales Contest. The descriptive statistics and correlations resulting from this survey are summarized in Table 4.

The behavioral explanations of the performance gain are tested in an overall model by including each of the behavioral variables as covariates with the dependent variable being the repeated measures of 2004 and 2005 applications written during the summer sales contests. Following are the results of this model test.

This data supports the relationship of instrumentality, H_5, with the number of applications written in 2005 ($F= 21.063$, $p<.001$). Impression management, H_6, likewise is significant ($F=4.001$, $p< .05$). As hypothesized, impression management has a negative relationship to performance gain. The perception of receiving coaching, H_7, has a positive relationship, however is not significant ($F=0.691$, $p=.406$). The result suggests that self-efficacy, H_8, is statistically significant but has a negative relationship to performance gains ($F=6.398$, $p<.05$) (see Table 25). It is possible to explain this result because those high in self-efficacy for selling life insurance may perform better outside the team relationship.

Table 25 Behavioral Explanations of Performance Gain.

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Factor	.363	1	.363	.123	.726
Factor * coach	2.035	1	2.035	.691	.406
Factor * im	11.776	1	11.776	4.001	.046
Factor * self efficacy	18.829	1	18.829	6.398	.012
Factor * instrumentality	61.989	1	61.989	21.063	.000
Error(factor1)	924.121	314	2.943		

Some of the results did vary from the hypotheses. For example, H_7, was not significant. There are some post-hoc conjectures that could explain this. Possibly, like Posdakoff and MacKenzie (1994) suggest, coaching may not be a direct relationship to

performance improvements within teams. Coaching may not be accepted by all team members. Furthermore, in this experiment, teams are segmented based upon performance in the previous sales contest. It is possible that performance in the 2004 sales contest does not accurately represent the ability of sales agents to coach effectively.

The finding regarding self-efficacy is in the opposite direction of the hypothesis. Further analysis reveals that it is the high self-efficacy performers who drive this negative relationship. It is possible that high self-efficacy performers are discouraged by the teaming exercise, and therefore decrease in performance.

CHAPTER V: IMPLICATIONS, LIMITATIONS AND FUTURE DIRECTIONS - ESSAY 1

This paper considers the impacts of placing salespeople in short-term team tasks and measuring their performance gains. Drawing on the group motivation gain literature from social psychology and extend these findings. Specifically, the findings suggest that in a sales setting, the difference in ability of the team members is a moderating variable in the performance of the individuals in the group. Previously, this effect has only been tested in laboratory environments. This research serves to extend the external validity of previous work by testing for group motivation gain in a field experiment and in a sales setting. The inverted U form of the results in this research suggests that being in a team should not be the considered an end point. That is, researchers and practitioners should also consider how the team is formed. Since individuals in teams constructed with individuals of moderate difference in ability perform the best, managers should be careful in constructing teams. Instead of constructing teams consisting of members who are similar in difference in ability or highly different in ability, it is better to form teams where the individuals in the teams are moderately different in ability. For example, in a 16 person district the top performer will be teamed with the number 9 performer and 2 with 10 and so forth.

By looking at the difference in ability of the team members an additional tool is provided for managers and researchers to consider when designing teams and groups of individuals. While much literature has suggested that qualitative variables, such as personality (Dixon, Gassenheimer and Barr 2003) might be helpful in designing teams,

such latent concepts can often be difficult for managers to assess. Using past performance gives researchers and managers a readily available metric that is not burdened with social issues when they design teams and groups. Furthermore, this approach looks beyond connotations that people should perform differently based upon demographic characteristics such as race, gender and ethnicity.

No statistical difference is found in the performance based on the reward structure, additive versus conjunctive. The manipulation did seem to impact some behaviors. For example, in the conjunctive condition, team members made more contact with each other, suggesting that the manipulation did change behavior of the agents. This can lead to a possible explanation that the reward structure, when defined as additive versus conjunctive, does not matter in the assessment of the performance of the individuals in this field setting. It is possible that some members did not completely understand the rules. This could have reduced the likelihood of finding differences between the two test conditions. It would be interesting for future research to consider field sales settings, where the actual task could be manipulated. This would lead to better understanding if the difference in task performance found by previous group motivation gain researchers (Messé et al. 2002, Stroebe et al. 1996 among others) applies to field sales settings. Future research could utilize a setting where selling is often conducted individually and by teams.

Interestingly, all individuals, stronger and weaker, performed better when they were paired with someone moderately different in ability. Previous research has limited empirical results regarding the impact of this performance gain on the stronger team member, despite the 80 year old suggestion of Köhler (1926) that stronger individuals

also appeared to perform better in teams with a moderate difference in ability. Without this finding the prior results regarding weaker performers (e.g. Hertel et al. 2000; Messé et al. 2002), are limited in their relevance for researchers and managers. Specifically, if a weaker person improves performance only to see losses by the stronger team member, the import of team constitution based on the difference in ability is limited. However, stronger and weaker team members seem to demonstrate performance gains in moderate difference in ability teams.

Furthermore, the overall gains by the stronger individuals are more significant than the gains by the weaker individuals. This suggests that previous research may have overlooked an important element in this performance gain, the stronger team member. It is possible that the stronger team member is motivated in moderate differences in ability to keep their identity as the stronger team member or that they see this team construction as desirable and therefore are happy to contribute to the team's performance.

Kohler (1926) and others have tested the effects of group motivation gain in groups larger than two. Messé et al. (2002) suggest that discrepancy among team member ability will become a stronger issue as the team grows in size. The current research only considers the impact of two person teams. Sales teams can be constructed in three person or larger teams. A useful direction for future research could be to understand the impact of this performance gain on all the individuals in sales teams larger than two people.

In understanding why this performance gain occurs, there is little a priori empirical work that considers possible antecedents for this performance gain. The current investigation of the behavioral explanations of the performance gain produces

some interesting findings. While the number of constructs and relationships explored are limited, this study does provide a mechanism to begin a more methodical approach to understanding the nomological network around this performance gain. Instrumentality is the strongest antecedent in explaining performance gains in the individuals. This research suggests that teaming individuals with someone moderately different in ability is one way to foster instrumentality that leads to higher performance. However, there are a multitude of other methods that have been expanded on by Vroom (1964), Luthans (1995) and others. Future research may wish to compare the instrumentality associated with this type of teaming and other team related variables such as roles and norms, empowerment, communication within the team and team cohesiveness.

The negative relationship to managing the impression of superiors to the performance gain is also important. This suggests that impression management may be important to assess when the team is formed. That is, if potential group members are likely to manage impressions their supervisors have of them, these members are likely to perform better as an individual than they will in the team.

It is unclear why self-efficacy for selling life insurance is negatively related to the performance gain. Other research has found that self-efficacy leads to positive performance outcomes (Sujan et al. 1994). Post hoc, it could be suggested that the teaming event did not improve self-efficacy for selling life insurance. If this is the case, it is debatable that the team may hinder the performance of individuals who already have efficacy in their ability for a task. Future research may wish to assess if teaming does impact self-efficacy for the task. This could support or reject the plausibility of this post hoc conjecture.

It is disappointing that coaching did not show a significant effect in this setting. Perhaps longer-term tasks or tasks where there is more interaction of the group members could help clarify this relationship and the mixed findings in the literature (Posdakoff and MacKenzie 1994; Komaki et al. 1989).

Perhaps additional experiments that are more controlled, such as the laboratory experiments of previous research, can be built to further expand on the underlying reasons why sales performance might increase. Furthermore, it would be of interest to measure the impacts of short-term teaming on the future behaviors and future performance. That is, did forming a team lead to any variables that have a persistent effect on the performance of the individual? This study and others (e.g. Messé et al. 2002) have considered this effect in the short term. Knowledge regarding the potential long-term impact of this effect on the team members remains largely speculative. Additional longitudinal data sets could help inform this issue. However, such a design will have to account for potential confounding.

Managers are deluged with ideas of how to organize their sales teams to optimize performance. Difference in ability could be viewed as just another suggestion. However, take note of the significant potential payoff which exists when the difference in ability of team members is considered. Sales teams composed of individuals who are moderately different than their partner had sales fall from 553 to 479 in this study, a 13.4% decrease in performance. However, other individuals fell 29.7% in their sales from 2004 to 2005. Teaming all individuals with someone who has a moderate difference in ability can reasonably result in an additional 440 units sales in 2005. Given the average policy

premium was $312 in 2005, using this estimation produces a potential increase of over $135,000 in sales for the company in 2005 (see Table 26).

Table 26 Impact of Designing Teams Based on Difference in Ability.

	All	Teamed Q2 and Q3	Others	Sales at Teamed Rate	Increase in Sales	Average Value of Summer 2005 Policies	Additional Sales
2005 Sales	2,366	479	1,887	2,806	433	$ 312	$ 135,096
2004 Sales	3,239	553	2,686	3,239			
% Change	-27.0%	-13.4%	-29.7%	-13.4%	18.6%		

Literature sales teams and groups have considered several variables of import. This research proposes that the difference in ability of the team members is important when considering the constitution of teams. In doing so, it is shown that the group motivation gain does seem to appear in the sales setting. Furthermore, the beginnings of a nomological network which helps understand the antecedents to this performance gain is developed. While the additional variables do add complexity to research designs, the potential financial impacts suggest that this variable should not be overlooked by researchers considering team constitution issues.

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ASSESSING THE CUSTOMER VALUE IMPACT OF SALES CONTESTS

CHAPTER VI: INTRODUCTION- ESSAY 2

Marketing managers are being asked more frequently to justify their marketing expenditures (Albers 2002; Mantrala 2002). Yet, marketing is singled out for lack of ability to rationalize expenditures to senior management (Vence 2005). In a recent survey, nearly half of marketing managers state they lack confidence in predicting overall marketing results. Some of the criticisms of attempts to measure marketing performance are related to short-term results and "softness" in the numbers provided by marketing. This softness is most closely related to marketing measures, such as customer satisfaction, for which specific relationships to financial measures are not clear. Similarly, Srivastava, Shervani and Fahey (1999) have noted gaps in the language and metrics of marketing that inhibit meaningful dialogs with finance and senior management.

These gaps between the languages of marketing and finance have led to a growing effort to justify marketing expenditures with measures that connect directly to bottom line performance (cf. Abraham and Lodish 1990; Rust, Lemon and Zeithaml 2004; Gupta, Lehmann and Stuart 2004). For example, in the area of sales promotions, short-term efforts of marketing are known to change customers' long-term value by heightening their price sensitivity and destroying brand equity (Mela, Gupta and Lehmann 1997). Some have gone so far as to suggest the possible elimination of promotions due to their

long-term negative impact (Lal and Rao 1997). Similar problems and debates exist in the literature and practice in the area of sales incentives and sales contests. In fact, these problems have led some authors to state that sales incentives cannot be effective in terms of generating long-term customer relationships (e.g. Hampton 1970; Kohn 1993a, 1993b).

Research in the area of sales contests measurement is sparse and is limited to short-term metrics such as return on investment (Wildt et al. 1987; Gopalakrishna, Garrett, Mantrala and Moore 2006). This has allowed some claims regarding the ineffectiveness of sales contests to linger.

Scholars within marketing have pointed to customer value as an appropriate metric to measure long-term impacts of marketing efforts on the customer. In recent years, emphasis on customer value research has grown, building on the work of Blattberg and Deighton (1996), Reinartz and Kumar (2003), Rust et al. (2004) and Lewis (2006). Customer value, the discounted cash flows of the stream of future profits from a customer (Kotler and Keller 2006), has been described as an important metric in designing and evaluating marketing programs (Berger et al. 2002; Gupta et al. 2004). Furthermore, measuring and predicting customer value and assessing the impact of marketing programs on customer value are defined as top tier priorities by the customer management and marketing productivity communities of the Marketing Science Institute (2004).

The current research combines these streams of research by focusing on customer value within the sales contest context. Specifically, a customer value perspective (cf. Rust et al. 2004; Gupta et al. 2004) is utilized to examine claims that question the value

of customers acquired in sales contests. Some authors, in the incentives and sales contest literature, argue that the value of customers gained during these marketing programs are likely to be lower than the value of customers gained outside of the sales contest (cf. Hampton 1970; Wildt, Parker and Harris 1980/81; Kohn 1993a, 1993b). However, the speculations remain untested in the academic literature. The negative view of sales contests is built upon the assumptions of higher customer dissatisfaction from being pressured to buy, perceptions that sales agents shorten sales cycles during the contest, and the lower propensity of the customers who purchase during a contest to maintain relationships with the company. The primary argument of the proponents of sales contests is that contests stimulate extra selling effort in the short-term, thus bringing higher volume of customers to the firm (Wotruba and Schoel 1983). Furthermore, sales contests continue to be used in practice. It is unclear if the conjectures about lower value are correct. If these conjectures are false, marketing managers can better justify their expenditures in these marketing programs. If the value of the average customer acquired in the program is less, managers must consider if the lower average customer value is an acceptable trade off for the higher volume of customers that they may attract during the program. This justification may be somewhat easier if the difference in value is limited to the short-term components of average customer value. If the long-term average customer value is impacted this justification is more complex.

To date, this literature has considered valuing customers within cohorts (Gupta et al. 2004) and revealed that marketing programs can impact customer equity (Rust et al. 2004; Reinartz and Kumar 2003 and Venkatesan and Kumar 2004). Blattberg and Deighton (1996, p. 163) define a cohort as “a group of customers acquired at the same

point in time." In the literature, cohorts have been operationalized as those that are acquired or retained in the same year. In the context of evaluating the effectiveness of marketing programs, this operationalization has limited utility since most marketing programs run for periods that are defined by a fiscal calendar. By defining cohorts at more refined levels, such as the duration of marketing programs, contributes to this literature and to our understanding of the value of customers that purchase during marketing programs.

The present research is conducted in a setting of sales contests. Some research in this area has documented the short-term impact of the contest. Wildt et al. (1987) document the impact of sales contests on *the firm* during the contest. More recently, research has documented that a contest can have dynamic effects before, during and after the official contests duration for *the agent* and *the firm* (Gopalakrishna, Garrett, Mantrala and Moore 2006; Wildt et al. 1987). Yet no empirical evidence exists regarding the *long-term impacts to the firm* of customers who purchase during the contest.

This paper presents research targeted at understanding the average *short-term* and *long-term value of customers* who purchase during sales contests. This paper draws from the growing body of literature on customer value (Rust et al. 2004; Gupta et al. 2004; Reinartz and Kumar 2003) to build this understanding.

The final section of this paper considers the efficient frontier of performance, based upon the total expected customer value generated by an individual sales agent in the contest. The efficient frontier is utilized in order to give managers and research an alternative method to evaluate agent performance based upon the inputs that are available to that agent.

This essay sets forth three major contributions:

1. Assess the average value of customers attained during and outside the sales contest,
2. Use of the customer value framework to assess the validity of several conjectures made about the impact of sales contests on customers by dissecting the components of customer value, and
3. Assess agent performance using a long-term metric, *customer value*, and compare it to short-term, traditional measures of agent performance.

CHAPTER VII: LITERATURE REVIEW- ESSAY 2

1. Sales Contests

The marketing programs being considered in this research are sales contests. Research was initiated in this area by Haring and others in the 1950s and 1960s. Since that time, a debate regarding the effects of sales contests was sparked by Hampton (1970). This debate has continued over the years. Some have looked at the short-term effects of the contest for the firm (Wildt et al. 1987). Others have considered the dynamic short-term effects for the agent and the firm (Gopalakrishna et al. 2006). This literature has provided evidence that additional effort provided by sales people may lead to additional *aggregate sales* for the firm. However, unanswered questions remain regarding the *average long-term customer value* for customers acquired *during the contest*. The dearth of empirical research on the customer impact of sales contests has left room for speculation in this debate. Following are the four conjectures often pointed out when discussing customer effects of sales contests:

1. During contests, agents may injure customer relationships. This results the generation of lower value customers (Wildt, Parker and Harris 1980/81; Hampton 1970; Wotruba and Schoel 1983; Cabrello 1988),
2. Contests can lead to a focus on the quantity of sales and not the value of those sales (Kohn 1993b),

3. Contests may encourage salespeople to focus on immediate performance and ignore long-term benefits to themselves and the firm (Kohn 1993a/b; Wildt et al. 1980/81), and
4. Contests may promote the acquisition of customers that are more likely to have a short tenure with the firm (Wildt et al. 1980/81; Wotruba and Schoel 1983).

The first criticism states that the pressures of the contest may harm the customer relationship and therefore impair the overall value of customers acquired during the contest. This is based on the following ideas; damaged customer relations from salespeople that misrepresent the product (Wildt, Parker and Harris 1980/81), overstocking the customer with inventory (Hampton 1970; Wotruba and Schoel 1983) and strain on the customer relationship (Cabrello 1988). These negative impacts can lead to a loss of future sales (Wildt et al. 1980-81) and can lower the value of the initial sales, thus lowering the average value of the customers.

In practice, there are similar reports. In an extreme case, Morgan Stanley paid a $50 million settlement after charges of giving poor advice to customers as a result of a contest that paid out only $100,000 to brokers (Lauricella 2003a, b). In another case, *The Wall Street Journal* reported intense negative reactions by customers resulting from a sales incentive program at Sears' Auto Centers in the early 1990s (Fuchsberg 1994). Charges against Sears' allege that employees systematically recommended unnecessary repairs in order to earn higher incentive payouts. Sears ended up paying $15 million in refunds to their customers, as a result of nineteen class action lawsuits. Stories like these

are symptomatic of long-term problems that can occur because of sales contests that typically have a short-term focus.

While it may be rare that sales contests lead to such extreme actions against the firm, the customer's dissatisfaction with the sales process can lead to lower average customer value for customers acquired during the sales contest. However, there is some literature that suggests that the average value of customers that purchase in the contest may be higher than customers that are acquired outside the contest. Some suggest that agents will stockpile their best customers for the contest and then redeem sales during the contest (Still, Cundiff and Govoni 1981). Neither assertion has been empirically tested in the marketing literature. This conjecture questions the overall average customer value.

The second conjecture considers the possibility that a salesperson's focus on contest rewards will lead to a focus on short-term benefits of the contest (Kohn 1993a). This short-term focus may then result in shortened sales cycles and a focus on sales numbers (Kohn 1993b). Thus, salespeople may only seek easy to attain customers and spend less time building relationships with each customer. This happens as the salespeople attempt to gain a sale and move on quickly to the next customer. This may lead to a lower initial order value.

The third conjecture suggests that sales contests will lead salespeople to ignore long-term benefits to the firm and the salesperson while focusing on the immediate benefits of the sales contest (Kohn 1993a,b; Wildt et al. 1980/81). If this conjecture is supported, there should be lower levels of future purchases, within the focal product line and other products in the company portfolio, by customers that make their initial purchase during the contest.

The final conjecture states that sales contests promote the acquisition of short tenure customers (Wildt et al. 1980/81; Wotruba and Schoel 1983). As a result of salespeople "dipping" further into their pool of potential customers, defection rates from the firm could be higher for customers that are acquired during the sales contest.

The academic literature is sparse on this subject and while these conjectures are put forth in the trade press, there is no empirical testing of them. This lack of scientific rigor limits the credibility of many of these claims. In environments of limited resources, every expenditure must be validated. This makes the preceding claims critical as marketing managers seek to understand how sales contests impact the value of customers who purchase within the sales contest. Rust et al. (2004) suggest projected customer value as an appropriate metric to evaluate marketing programs. The current study builds on the work of Rust et al. by measuring the long-term financial impact of sales contests on customers acquired as a result of that marketing program.

These conjectures can be tested by developing cohorts that are divided by customers that make purchases during or outside of contests. A further distinction is employed by looking at the customer value through acquisition, retention and add-on sales (Blattberg, Getz and Thomas 2001). For the purpose of this study, acquisition customers are those who are new to a firm. Retention refers to current customers of the firm that purchase more of a focal product from a firm. Add-on customers are defined by having prior purchases from one or more product lines with a firm, but for the first time they make a purchase from the focal product line. After identifying these cohorts, the next step is to consider if customers who purchase during sales contests differ in their value from customers who purchase outside the program. After understanding the impact

on average customer value, the components of customer value are dissected as a test of the remaining three conjectures.

2. Customer Value

The current stream of customer value literature dates back to Reichheld and Sasser (1990). In that article, and in two subsequent books by Reichheld (1996, 2001), the merit of customer loyalty as a method to build firm equity is discussed. Reichheld makes the contention that loyal customers are more profitable, cheaper to serve and more likely to make additional purchases in the long-term. The idea of building equity in the firm based upon marketing concepts is not new, and is reminiscent of a long history of the brand equity literature (cf. Keller 2002). The customer value literature expands on brand equity by providing a method to consider the value of the customer to the firm across all brands and activities. Brand equity is constrained to the considerations of the value of a brand. The underlying theme in considering customer value is best stated by Blattberg and Deighton (1996, p. 143), "brands don't create wealth; customers do." In the customer value literature, brands are one of the tools at the marketing manager's disposal to build long-term customer value. Blattberg et al. (2001, p. 6) expand on the importance of managing customer value stating, "customer (value) orientation focuses on a firm's entire future net income stream across brands and services. It (customer value) does not view the customer only through the narrow aperture of the brand."

There are several notable advancements in customer value research in the last five years. Reinartz and Kumar (2003) focus on factors which impact customer value such as the tenure of the customer, the cost of servicing the customer and the price paid by the customer. Rust et al. (2004), among others, have responded to Blattberg et al.'s (2001) appeal to consider acquisition versus retention costs. They also respond to the need for understanding the implications of customer lifetime value for marketing programs and

how these programs can be designed to focus on the most profitable customers (Niraj, Gupta and Narasimhan 2001; Venkatesan and Kumar 2004). Towards this aim, Rust et al. project return on investment based upon projected improvements in scores on a satisfaction survey. They then project the impact of improvements in customer satisfaction upon the overall customer value of the firm. More recent work has considered the impact of offering promotional discounts on the long-term customer value (Lewis 2006).

Recently, the marketing literature has continued to respond to Reichheld's (1996, p. 55) call to understand different cohorts of customers. Gupta et al. (2004) look at cohorts of customers (sets of customers acquired at a given point in time) to understand the differing defection and acquisition rates of the cohorts and their impact on firm value. The authors show that factors such as retention rates and margins can vary by cohort. Gupta et al. build a model that allows for variations in these rates over time within each cohort to counteract the biases of level acquisition and defection rates for all customers mentioned by Schmittlein and Mahajan (1982). They utilize a customer value model that incorporates these continuous processes. They propose this model as a method to value the firm. This model is applied to show that improvements in the retention of customers can have a greater impact on firm value than improvements in margin and acquisition costs.

Gupta et al. (2004) show that customer value can be used as a metric to assess firm value. Lewis (2006) and Rust et al. (2004) provide the most direct efforts to utilize customer value approaches that consider the value of customers acquired within specific marketing programs. The current research builds on these studies by considering cohorts

that are determined by the duration of the marketing program. The current research, like Lewis (2006), defines cohorts based on customers that make purchases within a particular marketing program (customers that purchase in the sales contests versus those that purchase outside the contest). Furthermore, the customer value approach produces empirical evidence to test the previously mentioned conjectures regarding the impacts of sales contests.

Venkatesan and Kumar (2004) show that customer value can be more valuable to the firm than other leading metrics. This study assesses agent performance, rather than firm performance, to consider long-term customer value attained by individual agents as a result of sales during the contests. Finally, efficient frontier benchmarking is used to develop an illustrative example to evaluate the long-term performance of agents in the sales contest. This research shows that the total customer value attained in the long-term by the agent can produce a different picture of the performance of the sales agents, than short-term measures that are traditionally used by the firm.

3. Efficient Frontier Benchmarking

Efficient frontier benchmarking is utilized to increase the managerial usefulness of this analysis. This benchmarking approach examines the efficiency of individual salespeoples' ability to capture customer value for the firm, relative to the resources available to that salesperson.

Efficient frontier benchmarking is an application of linear programming used to measure the relative efficiency of employees and operating units that share similar goals. This analysis technique looks at a set of input measures (independent variables) and how they relate to one or more output measures (dependent variables) (Anderson, Sweeney and Williams 1994).

Horsky and Nelson (1996) use efficient frontier benchmarking to investigate the relationship of sales force size to productivity of the sales force. The formula works such that the total error is minimized, such that each individual error for a district is greater than or equal to zero. The result of this function is called the efficient frontier (Figure 7, line 1). Subjects that have an error equal to zero are operating on the efficient frontier. Traditionally, in such a scenario the total squared error is minimized to predict the average response of the district to sales forces size (Figure 7, line 2). Using this technique in allows benchmarking which agents are producing the best customer value (dependent variable) given their particular inputs (available resources).

Figure 7 District Sales Response to Number of Salespeople.

4. Research Setting

This research is based on historical data from a leading insurance company in the United States. Specifically, the data came from Shelter Insurance Companies (Shelter), whose annual sales exceed $1 billion. The firm operates in 13 Midwestern states in the United States with over 1300 independent agents covering 78 sales districts.

The sales scenario- Every year, Shelter administers two six-week sales contests, largely similar in format, to motivate agents to sell life insurance policies, the firm's highest margin product line. Two other product lines, auto and home insurance, are in the portfolio of the company. Agents receive commission on all products. Auto and home insurance sales are expected to continue during the life insurance contests. Agents producing sales above a specified target for life insurance during the contest period receive a prize; achieving higher sales levels, results in better prizes. The top sales producers across the company receive additional prizes and recognition awards. Despite utilizing sales contests for several years, Shelter management remains uncertain about the contests' impact on their customers.

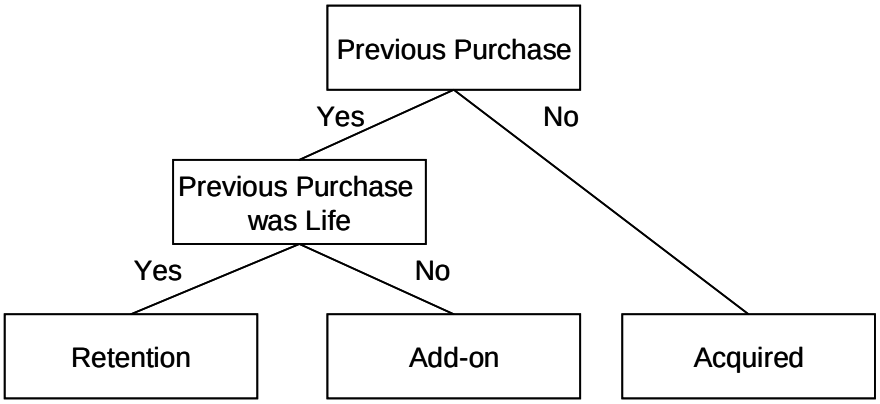
The data- The data utilized in this research includes sales of the three product lines from 1995 to 2004. Specifically, a sample of customers, those who made life purchases in 1996, is analyzed. In 1996, there were two six-week sales contests. It cost over $152,000 to administer these two contests. Shelter also provided data on margins for each product line.

The first life insurance purchase in 1996, by the customer, determines that customer's cohort. If the customer's initial life insurance purchase was made in the sales contest they are labeled as a contest customer, otherwise customers are labeled as a non-

contest customer. If a customer had no previous record of purchase in any of the three lines, they are also labeled acquired customers. If they had a previous life purchase, they are labeled a retention customer. If they have previously owned auto or home insurance with Shelter, but had not purchased life insurance until 1996, they are labeled as a member of the add-on cohort, since they have added on a new product line (Blattberg et al. 2001). The combination of acquisition/ retention/ add-on creates three groups (see Figure 8). A total of six cohorts are created when these groups are divided by contest and non-contest customers.

At this point, the present value of future cash flows from 1996 through 2004 is calculated. To test the propositions, discussed in the next section, customer value is broken down by the first 1996 life purchase, additional life purchases made after 1996, and additional purchases made from other product lines. For each of these calculations the initiating event is the first life purchase in 1996. Therefore, customer value is computed based on the future cash flows from that point until 2004, the last full year of data made available by the firm (i.e., purchases initiated before 1996 are not a part of these calculations).

Figure 8 Determination of Retention, Add-on and Acquired Customers.



CHAPTER VIII: RESEARCH MODEL AND PROPOSITIONS- ESSAY 2

Customer value research has made several advances in refinement and detail, such as Gupta et al.'s (2004) analysis of cohorts based upon the fiscal calendars of the firms. However, cohorts based upon the fiscal calendar cannot tell the full story for many marketing programs. Many marketing programs run for only a few months, weeks or even days. Therefore, a further level of refinement is necessary (e.g. customer activities during a marketing program versus activities outside the program). Following the conjectures in the sparce existing literature (e.g. Kohn 1993a, Hampton 1970), the expectation is that customers making purchases in the sales contest will have a lower average customer value to the firm.

> P_1: On average, customers (a) acquired, (b) added-on, (c) retained during the sales contest will have lower customer value than customers gained outside the contest.

However, to stop here would be misleading. P_1 suggests that contests produce customers of lower average value. However, the aggregate nature of customer value may mask some important differences. By looking at the components of customer value, it is possible to better understand why this difference occurs. Reichheld (1996) suggests that relying on static averages can result in misrepresentation of the present value of the customer. This led to the later work considering cohorts. In the current research,

customer value can be disaggregated by looking at the components of customer value. These components include:

- value of the initial purchase made during the contest,
- value of future cash flows related to the initial purchase,
- value of future cash flows related to additional purchases within that product line,
- value of future cash flows related to additional purchases in other product lines and
- differences in customer acquisition costs during the marketing program.

Some researchers have stated that contests will lead to a focus on sales numbers to the detriment of maximizing the sales of the purchases made during the time of the sales incentive (Kohn 1993a). This can be manifest in a couple of ways. During the contest, the heightened focus on the contest can lead to lower value of the purchase made during the contest, due to the abbreviated sales process.

> P_2: On average, the sales related to the first policy purchased in the contest will be of lower sales dollars than the first policy purchased outside the contest for (a) acquired, (b) add-on and (c) retained customers.

An alternative explanation may be that salespeople focus on making easy sales to existing customers as opposed to attempting to make high risk, high reward sales to

newly acquired customers. It is recognized in the literature that sales to newly acquired customers require more effort on the behalf of the salesperson than sales to existing customers (Johnston and Marshall 2006, p. 50-51). Likewise, it is suggested that:

> P_3: On average, the sales contest will motivate (a) more sales to retained customers than add-on customers and (b) more sales to add-on customers than acquired customers.

Further claims have suggested that sales contests lead salespeople to sacrifice on-going customer value for the immediate rewards associated with the sales contest. If this is the case, customers who purchase during the contest will have lower future purchases in the focal product line and additional product lines than customers who purchase at other times of the year.

> P_4: Customers (a) acquired and (b) added-on during the sales contest will have lower dollars of future life purchases.

> P_5: Customers (a) acquired and (b) added-on during the sales contest will have a lower quantity of future life purchases.

> P_6: Customers (a) acquired and (b) added-on during the sales contest will have lower dollars of future purchases in other product lines.

P_7: Customers acquired during the sales contest will have a lower quantity of future purchases in other product lines.

Reichheld (2001) is clear in his call for managers to structure incentives so that quantity is not seen as an end-point. When quantity is the primary driver of sales in the contest, there is a higher probability to attract short-term, high-risk customers. The sales contest literature suggests that agents, during a contest, will be more likely to acquire short tenure customers (Wildt et al. 1980/81).

P_8: Customers acquired during a sales contest will stay for a shorter duration with the company than customers gained outside the sales contest.

CHAPTER IX: METHODOLOGY AND RESULTS- ESSAY 2

1. Customer Value

In order to test the propositions, future cash flows are assigned a contribution margin. The contribution margins are different for each product line. Since there is an additional acquisition cost, customers who purchase during the sales contest are assessed a different contribution margin for their purchase of life than customers who purchase outside the contest. A contribution margin of 8% is used for life purchases after 1996, 1% is used for all home purchases and 3.5% for auto purchases. These margins were provided by Shelter's actuaries. In 1996, life sales during either of the two contests are differentiated from sales outside the contests. Sales contests in 1996 cost $152,000 to administer. Since sales from purchases made in the 1996 contests are approximately $1.1 million, their value to Shelter approximately equals the contest cost, thus the margin on these sales is 0%.[2] Outside the contest in 1996, the contribution margin is 14%.[3] The first purchase of life has a different contribution margin based upon the date of the actual purchase. After applying the contribution margins, cash flows from 1996 to December 2004 are discounted at an 8% rate.[4] The present value is stated in terms of the month of the first 1996 life purchase of each customer. The following equation is used to compute overall customer value:

[2] ($1.09M sales *14%= 152,600. Since the contest costs are $152,000, the margin on these policies are 0%.
[3] (($2.71M sales in 1996 *8%)+152,000)/ 2.71M= 14%
[4] This discount rate and the contribution margins were provided by Shelter actuaries.

$$(1) \qquad CV_i = \sum_{k=1}^{3} \sum_{t=0}^{T} CM_{kt} \frac{M_{kt}}{(1+r)^t}$$

Where CV_i= the customer value of a customer in cohort i,

k= product lines such that 1=life, 2 =home and 3= auto,

CM_{kt}= the contribution margin for product k at time t,

M_{kt}= product k sales to a customer in time period t,

r= the discount rate and

T= total number of periods (months).

The average aggregate customer value of customers acquired outside the contests in 1996 is $311. However, the value of customers acquired in the contest is $253. The difference in value produced a mean difference of $58 in total value ($t = 5.898$, $p < .001$). The claims in the literature of lower overall value for customers acquired in the contest are supported by this result. Customers acquired in these contests do indeed have a statistically lower value than the customers acquired outside the contests (see Table 27).

A similar result is found for add-on customers, the customer value of customers added-on during the contests in 1996 is $322, while those adding-on outside the contest offer $404 in value, ($t = 4.872$, $p <.001$). However, there is no significant difference in the value of retained customers in the contest, which is $560 versus the value of customers retained outside the contest, $544 ($t = 0.298$, $p > .10$). Therefore, P_{1a} and P_{1b} are supported, but P_{1c} is not supported.

Table 27 Tests for Equality of Mean between Customers Purchasing Inside the Contest and Outside the Contest.

Customer Type	Policy Classification	Contest		Non-contest		t-value	
		N	Mean	N	Mean		
Acquired	Life Sales- Initial 1996 Purchase	2055	248.95	2294	300.44	-4.758	****
	Life Sales- First Policy	2055	1684.75	2294	1974.82	-4.085	****
	Life Sales- Other Policies	2055	958.68	2294	925.90	0.460	
	Life Sales- Total	2055	2643.43	2294	2900.72	-2.332	**
	Life Count	2055	1.85	2294	1.77	1.778	*
	Home Count	2055	0.50	2294	0.57	-0.946	
	Home Sales	2055	400.06	2294	373.13	0.903	
	Auto Count	2055	1.59	2294	1.53	0.816	
	Auto Sales	2055	1637.90	2294	1629.55	0.103	
	P&C Count	2055	2.09	2294	2.11	-0.169	
	P&C Sales	2055	2037.95	2294	2002.68	0.377	
	Total Sales	2055	4681.38	2294	4903.40	-1.417	
	Customer Value	2055	252.97	2294	310.70	-5.898	****
Add-on	Life Sales- Initial 1996 Purchase	1091	268.96	1418	335.57	-4.069	****
	Life Sales- First Policy	1091	1876.95	1418	2293.49	-3.694	****
	Life Sales- Other Policies	1091	1273.59	1418	1342.38	-0.529	
	Life Sales- Total	1091	3150.55	1418	3635.86	-2.627	***
	Life Count	1091	2.12	1418	1.69	1.804	*
	Home Count	1091	1.29	1418	1.12	1.055	
	Home Sales	1091	666.86	1418	633.61	0.497	
	Auto Count	1091	2.87	1418	2.64	1.875	*
	Auto Sales	1091	2430.98	1418	2472.00	-0.332	
	P&C Count	1091	4.16	1418	3.75	1.834	*
	P&C Sales	1091	3097.84	1418	3105.30	-0.049	
	Total Sales	1091	6248.38	1418	6741.16	-1.859	*
	Customer Value	1091	322.42	1418	403.61	-4.872	****
Retained	Life Sales- Initial 1996 Purchase	401	217.38	511	229.44	-0.618	
	Life Sales- First Policy	401	2656.41	511	2788.68	-0.540	
	Life Sales- Other Policies	401	3504.64	511	2875.62	1.264	
	Life Sales- Total	401	6161.05	511	5664.30	0.794	
	Life Count	401	3.13	511	2.85	1.410	
	Home Count	401	0.96	511	1.05	-0.305	
	Home Sales	401	605.42	511	496.99	1.496	
	Auto Count	401	2.33	511	2.07	1.407	
	Auto Sales	401	2146.87	511	2064.55	0.819	
	P&C Count	401	3.30	511	3.12	0.503	
	P&C Sales	401	2833.76	511	2561.53	1.187	
	Total Sales	401	8994.82	511	8225.83	1.096	
	Customer Value	401	559.54	511	544.11	0.298	

* significant <.10
** significant <.05
*** significant <.01
**** significant <.001

There is a difference in value for acquired and add-on customers. However, looking at the aggregate value tells little about potential causes of this difference in value. To consider possible explanations the components of customer value are considered.

To test P_2 the discounted cash flows of premiums paid on the first life insurance policy are considered. This first life insurance policy averages $1,975 in premium for customers acquired outside the contest. However, the first life insurance policy averages $1,685 in premium for customers acquired in the contest. This produced a mean difference of $290, ($t = 4.085$, $p < .001$). This difference reveals that salespeople do reap less sales dollars per customer, for customers that are acquired during the sales contest. A possible explanation of this finding is that shortened sales processes might occur during the sales contest (Kohn 1993; Wildt et al. 1980/81).

Similarly, add-on customers have a higher amount of premium collected from the first policy when added-on outside the contest $2,293 versus $1,877 when added-on during the contest, ($t = 3.694$, $p < .001$). However, there is no significant difference for retained customers in the contest, $2,656 versus outside the contest $2,789.

A possible outcome of the shorten sales process would be for the salespeople to focus on sales volume.[5] If this were the case, one would expect sales people to focus on sales which are easier to make. One manner that this could materialize is by spending more time and effort selling to existing customers with established relationships (Johnston and Marshall 2006). This being the case, the expectation is that retention customers will be the largest group represented in the number of transactions during the contest. However, the numbers tell a different story (see Table 27). Retention customers

[5] This is partially revealed through the increased number of sales that occur during the contest. As table 28 shows, over 45% of the entire 1996 customer base is acquired in only 12 weeks.

represent the smallest group inside (11.4%) and outside the contest (12.1%). Newly acquired customers represent 57.9% of the customers who buy in the contest, while add-on customers represent 30.7%. Outside the contest the numbers are not much different, 54.3% and 33.6% that are acquired and added-on, respectively. Interestingly, the sales to customers that are most difficult to gain, newly acquired customers, rise slightly, while the other cohorts fall, in their percentages during the contest. Thus, P_3 is not supported.

The next goal is to understand the value of future life purchases, which occur after the first life purchase. In testing P_4, the average discounted cash flows are higher for customers acquired in the contest, $959, versus customers acquired outside the contest, $926. However, this difference is not statistically significant ($t = 0.460$). Likewise, this difference is not significant across add-on and retained customers. P_4 is not supported suggesting that there is no negative impact on the future sales of the focal product, life insurance.

Similar results are found in testing P_5. Customers acquired in the contest buy, on average, 1.85 additional life policies after the initial purchase, while those acquired outside the contest make 1.77 additional purchases ($t = 1.778$, $p < .10$). However, the direction is opposite to P_{5a}. Similarly, add-on purchase quantities are slightly higher in the contest 2.12 versus 1.69 outside the contest, ($t = 1.804$, $p < .10$). In addition, retained purchase quantities are higher 3.13 versus 2.85, ($t = 1.410$, $p > .10$), but this difference is not significant. These tests suggest that acquired and add-on customers who purchase during the contest might have a greater future quantity of purchases of the focal product than customers that purchase at other times of the year. The small absolute difference in additional purchases is cause to be cautious about claims that customers acquired in the

contest will make more future purchases. However, this finding differs from the popular "wisdom" that suggests sales contests will cause the agent to focus on short-term goals and lose sight of long-term value of the customers they acquire.

It is also important to consider the value of future purchases in other product lines, (P_6 and P_7). Across all property and casualty purchases, customers that are initially acquired in the contest purchase 2.09 policies of home and auto insurance with an average discounted cash flows of $2,038. Those acquired outside the contest make 2.11 purchases of home and auto insurance. They have an average discounted cash flow of $2,003. Customers that are added-on during the contest buy 4.16 property and casualty policies, with an average discounted cash flows of $3,098. While those added-on outside the contest buy 3.75 policies, with an average discounted cash flows of $3,105. Finally, retained customers during the contest buy 3.30 policies, with an average discounted cash flow of $2,834. Those retained outside the contest buy 3.12 policies, with an average discounted cash flow of $2,562. The only difference that shows significance is the quantity of add-on purchases, ($t = 1.834$, $p = <.10$), and in that case it is opposite in direction to the stated proposition. The lack of significance elsewhere suggests that purchasing in the contest does not lead to lower the future acquisition in non-focal product lines.

P_8 asks if customers acquired in the contest are less likely to remain with the company. The idea of "alive" and "dead" customers (Rust et al. 2004) is used in this analysis. In this case, customers are considered alive if they maintain their initial purchase of life insurance. Studies in sales contests appear to suggest that customers acquired during a sales contest will be less likely to stay with the company than

customers gained outside the sales contest. However, customers acquired during and outside the contest have little variation in their propensity to stay "alive." In fact, the percent of "alive" customers in the acquired cohorts are the same, 56.8%, as of the end of 2004. (see Table 28). Likewise, there is little difference for add-on customers. The percent of customers added-on during the contest that stay is 55.5%, and 53.7% of those added-on outside the contest stay. Furthermore, retention customers stay at 68.2% and 65.0%, when they are retained during the contest or outside the contest respectively. Therefore, P_8 is not supported.

The previous tests point out that customers acquired in the contest are of less total value than customers acquired outside the contest. However, a customer's long-term value difference is established by the first policy. The purchases that occur after the initial policy do not differ significantly in sales dollars or value. In fact, the value after the initial 1996 purchase for customers acquired in the contest is slightly (about $12) higher.

For add-on customers, (customers that were previously Shelter customers, but had not yet purchased life), many of the same relationships occur as in the acquired customers. The biggest difference is that the sales dollars of the first policy are much less valuable for individuals who made add-on purchases in the contest. This difference of over $400 accounts for the difference in total customer value for add-on customers. There are no statistical differences for customers retained in the contests versus those that are retained outside the contests. This is consistent with the idea that the quality of the customer relationship explains some of the difference in the lower value of the first policy sold in the contest. A retained customer already had a developed

Table 28 Percent of Alive Customers.

		Count		Percent									
Customer Type		1996	2005	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Acquisition	Contest	2055	1167	100.0%	99.7%	92.9%	89.2%	85.2%	79.0%	73.0%	67.8%	63.5%	56.8%
	Non-contest	2294	1302	100.0%	96.9%	91.8%	90.0%	84.8%	77.9%	71.7%	67.6%	63.6%	56.8%
Add-on	Contest	1091	605	100.0%	99.5%	94.0%	91.1%	85.6%	78.2%	72.7%	66.7%	62.4%	55.5%
	Non-contest	1420	763	100.0%	95.9%	89.5%	87.1%	82.5%	75.4%	70.1%	65.3%	61.1%	53.7%
Retention	Contest	403	275	100.0%	100.0%	96.8%	95.5%	91.3%	85.9%	81.9%	77.9%	74.4%	68.2%
	Non-contest	512	333	100.0%	99.2%	96.3%	94.1%	90.8%	87.1%	80.7%	75.8%	70.3%	65.0%

relationship for this product with the sales agent. Therefore, retained customers should respond better than a new customer to the lower levels of available time given by the agent during the contest. Likewise, the statistics show that their purchases are not statistically different whether they make a purchase in the contest or outside the contest.

It is interesting to note the differences in value of each of the three customer types. From the point of their first 1996 purchase forward, the new purchases of acquired customers are worth $283 on average to Shelter over the nine years of this analysis, while add-on customers are worth $368 and retained customers are worth $551. This higher value for retained customers is consistent with previous research (cf. Gupta et al. 2004). Furthermore, retained customers are the only group in which the total value is higher for customers that purchase during the contest (see Table 29).

Table 29 Value of Customer Purchases

	Contest		Non-contest		Total	
	n	Value	n	Value	n	Value
Acquired	2,055	$ 252.97	2,294	$ 310.70	4,349	$ 283.42
Add-on	1,091	$ 322.42	1,418	$ 403.61	2,509	$ 368.31
Retained	401	$ 559.54	511	$ 544.11	912	$ 550.89
Total	3,547	$ 308.99	4,223	$ 370.14	7,770	$ 342.23

2. Efficient Frontier Benchmarking

Agents differ in their inputs towards performance. Shelter measures agent performance based on sales and does not consider differences in inputs. Efficient frontier analysis allows inputs to benchmark the performance of individual agents based on their ability to capture customer value for the firm. In this analysis, the total customer value attained by each agent is calculated and that value is compared based on the inputs available to each agent.

The customer value brought in by each sales agent during a contest is computed by adding the customer value for each customer of that agent in 1996. The total customer value for each individual agent is used as the output measure in the analysis. Due to the 250 unit constraint in the Frontier Analyst software, the efficient frontier analysis is limited, in this part of the paper, to the state of Missouri. Missouri is the largest state served by Shelter. There were 208 agents in Missouri in 1996, 188 of which had life sales history at the start of 1996 and were active agents throughout the year.

Two inputs are analyzed as an illustrative example of efficient frontier benchmarking in this setting. Those variables are sales history for life insurance for each agent, a proxy for performance potential of the agent, and the number of households per agent in the district, a proxy for potential of the territory. These variables are largely uncontrollable. Greater robustness of this technique is available when controllable variables are used. However, such variables were not available in this study. Given the limited data available from the company regarding agents in 1996, these two variables

were selected because they capture ability and environmental dimensions of performance. A graphical depiction of these results in represented in Figure 9.

Figure 9 Efficient Frontier for Agent's Customer Value in the Sales Contest.

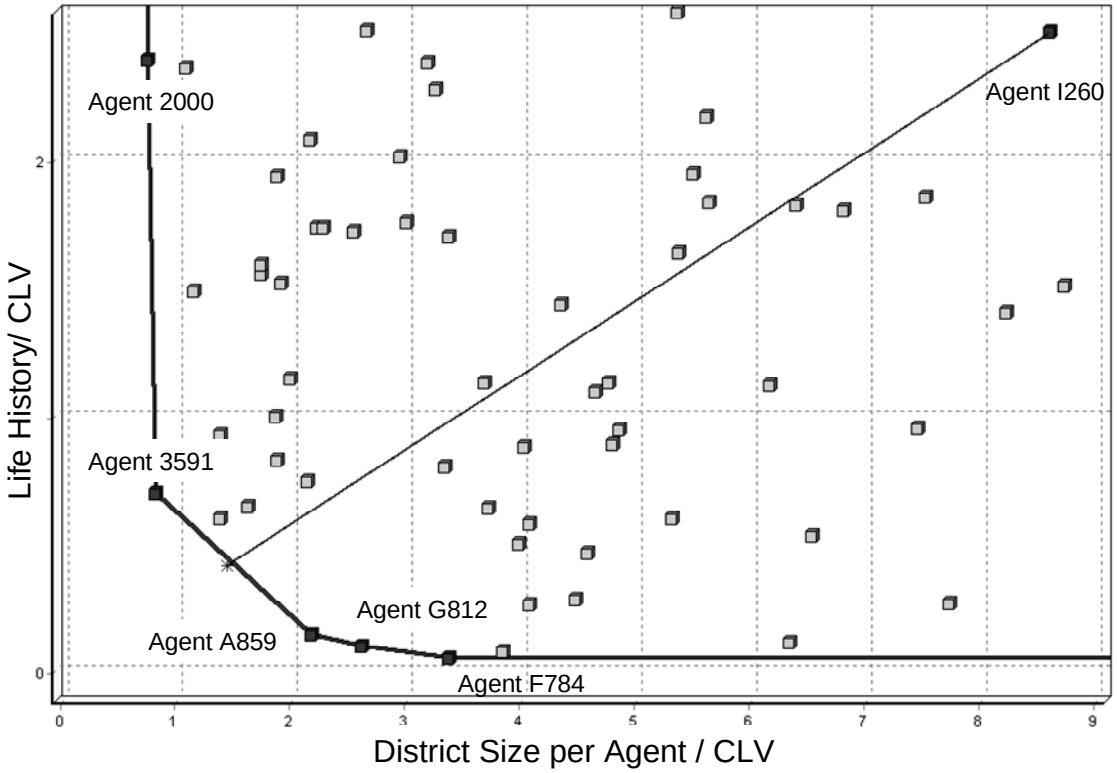


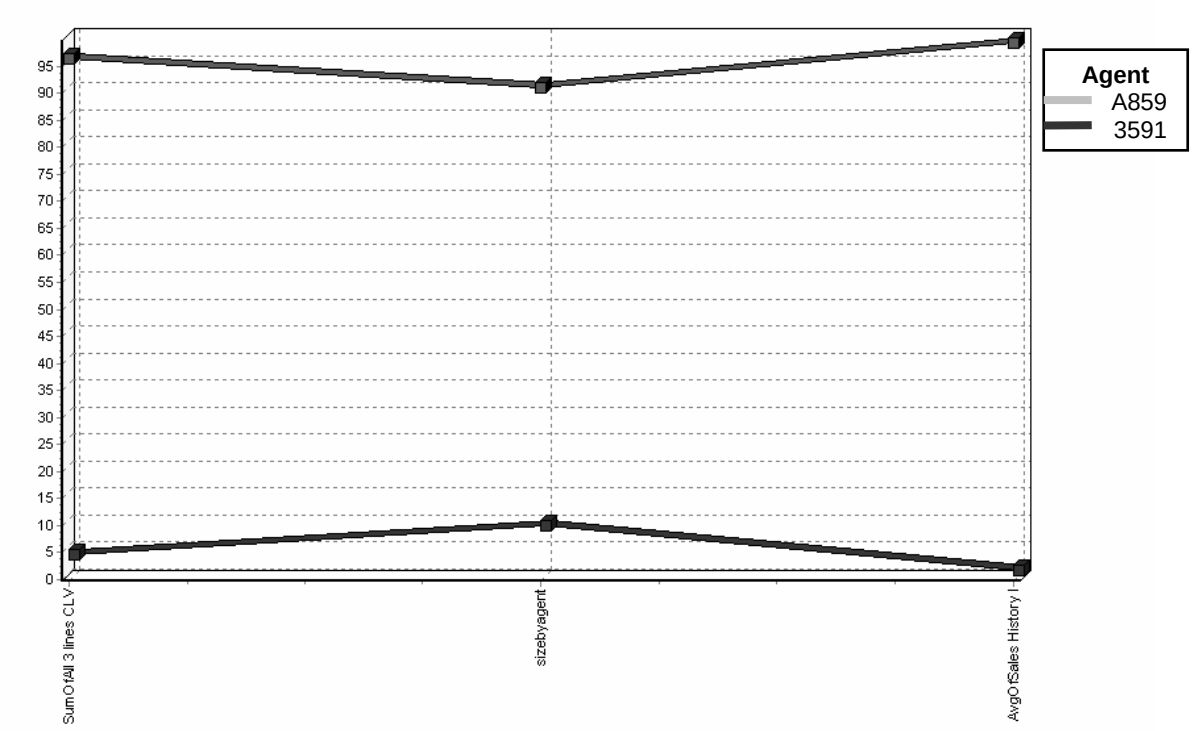
Figure 9 represents all agents in Missouri as of 1996. The axes represent the two input variables, district size per agent in a district and sales history. The x-axis is the district size per agent in the district divided by the total customer value acquired by an agent. The y-axis is the 1996 life history of the agent divided by their attained customer value. This model is an output maximization model with constant returns to scale. Agents 2000, 3591, A859, G812 and F784 are on the efficient frontier. Agent I260 is not

on the efficient frontier. The line points out the spot on the efficient frontier that serves as the benchmark for agent I260. The difference in each of the points, compared to their reference point creates an efficiency score. The efficient agents have scores of 100; the remaining agents are less than efficient. The reference point for agent I260 is a combination of agents 3591 and A859, both of which produced higher customer value in the 1996 contests. Table 30 represents the number of times a particular agent on the efficient frontier becomes a reference point. Figure 10 outlines the relative contributions of agents 3591 and A859 in producing the reference point on the efficient frontier for agent I260.

Table 30 Reference Set Frequency.

Agent Number	Reference Count
3591	156
A859	148
G812	25
2000	23
F784	14

Figure 10 Reference Contributions.



In an efficient business, the distribution of efficiency scores are skewed towards 100%, pointing out that there is little room for improvement based on the inputs. Figure 11 shows that is not the case in this data set. The skewed distribution suggests room for improvement in individual performance based on the inputs of experience and sales history. Figure 11 suggests that few agents, given their level of inputs, are performing near the efficient frontier. Figure 12 represents the potential improvements that can be made by the agents in this analysis.

Figure 11 Distribution of Efficiency Scores.

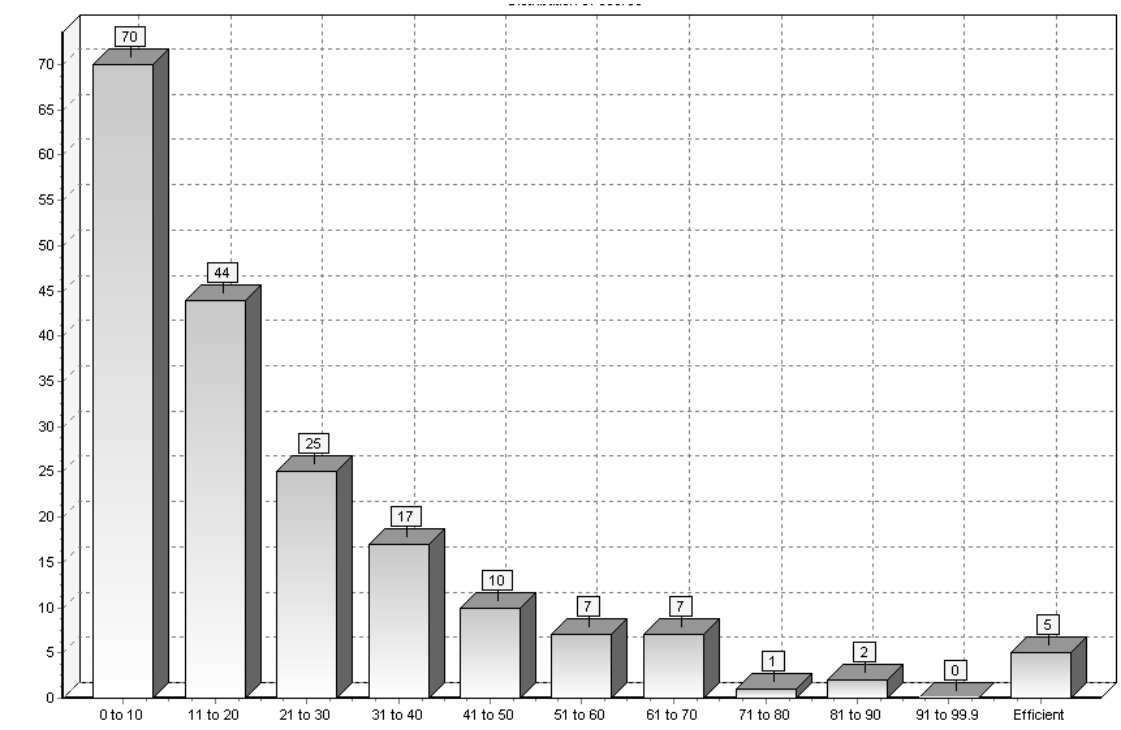
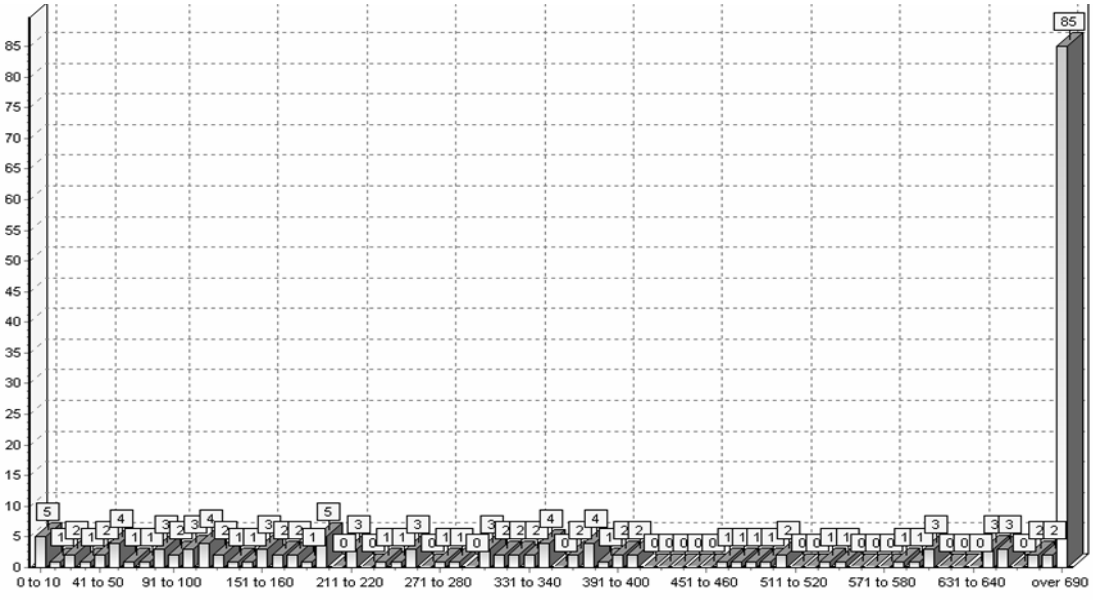


Figure 12 Distribution of Potential Improvements.



Efficient frontier analysis is used to consider individual performance within the sales districts. When looking at one district within Missouri, a somewhat different picture of performance than Shelter's traditional measures of policy count and first year sales premium. Table 31 shows the 19 agents in this district. The next two columns show the actual count of policies and the agent's rank based upon that count. The next two columns show the premium of sales and the rank of each agent based upon the premium. The next two columns show the customer value attained by each agent and the respective ranks based upon this metric. The final columns show the efficiency score (essentially a distance from the efficient frontier) and the agent's rank based upon that metric.

Using the efficiency score as a benchmark, agents 4934, A859, F959 and 1372 are consistently under-ranked by Shelter in this district. This is true whether Shelter used policy count or premium to rank agents in this particular contest. Agents 3400, A995, G351 and A580 are consistently over-ranked in this district when considering the current criteria used by Shelter. These discrepant agents show that given their resources (in this case relative district size and sales history) different expectations for these agents' performance are jsutified. Furthermore, Agents 3591 and A859 serve as ideal benchmarks for other agents since they are on the efficient frontier.

Table 31 Ranks of Agents in District 53.

Agent	Count	Count Rank	Premium	Premium Rank	Customer Value	CV Rank	Efficiency Score	Efficiency Rank
3591	13	1	$ 2,065.60	3	$ 5,097.86	1	100	1
A859	3	10	$ 781.84	9	$ 1,876.04	4	100	2
4815	4	6	$ 2,059.36	4	$ 2,518.14	3	78.57	3
3400	5	3	$ 2,808.00	1	$ 3,458.36	2	63.77	4
F959	4	4	$ 417.00	15	$ 764.59	9	37.07	5
4934	2	11	$ 213.00	17	$ 525.40	11	34.11	6
1404	4	5	$ 1,001.04	8	$ 1,203.68	7	23.3	7
A995	6	2	$ 2,274.20	2	$ 1,208.65	6	22.6	8
E185	2	15	$ 1,350.72	5	$ 1,216.86	5	22.54	9
4922	2	14	$ 1,068.00	7	$ 1,099.95	8	21.2	10
C642	1	19	$ 1,350.00	6	$ 539.59	10	20.77	11
4279	3	8	$ 565.86	12	$ 417.05	14	12.6	12
1372	1	17	$ 108.00	18	$ 241.02	19	12.12	13
E930	3	7	$ 526.00	13	$ 425.10	13	11.54	14
G351	3	9	$ 587.18	11	$ 427.24	12	10.76	15
4695	2	12	$ 279.00	16	$ 348.93	16	9.69	16
F186	1	18	$ 486.00	14	$ 416.63	15	8.24	17
G250	1	16	$ 96.20	19	$ 285.65	17	7.65	18
A580	2	13	$ 649.32	10	$ 271.52	18	5.32	19

CHAPTER X: IMPLICATIONS, LIMITATIONS AND FUTURE DIRECTIONS - ESSAY 2

In this paper, customers are followed over eight years. That data is used to calculate the customer value for customers acquired in two sales contests in 1996 and those acquired outside the contests in the same year. This builds on the recent work of Lewis (2006) by further understanding the impact of specific marketing programs in terms of customer value. This calculation of customer value provides the opportunity to comparison the value of customers attained during the contest versus those acquired outside the contest.

By analyzing the components of customer value, several conjectures regarding the effectiveness of sales contests are explored. The data reveals that popular assumptions about the impact of sales contests on customers are not always true. The overall value of customers in the contest is lower. However, this can be attributed to the first policy purchase. In fact, customers who purchase during the contest or outside the contest do not appear to differ in value of subsequent purchases.

In testing these conjectures some suppositions are made about the agent and customer factors that may have led to the differences in value. Future research may consider capturing agent and customer variables to better understand why value differs. For example, to consider the lower value of the first policy sold in the contest, data could be captured regarding if customers who purchase during the sales contests perceive shortened sales cycles. Future research may attempt to validate that those who purchase in the contest are slightly more likely to make future purchases than those who buy

outside the contest. In this data set, most of the sales are to acquired customers as opposed to retained or add-on customers. Furthermore, this gap grew slightly during the contest. Studies of the agent behaviors and the customers' response to these behaviors inside and outside the contest could be beneficial to better understanding the findings in this paper.

Some managers and researchers may choose to accept the lower value of initial purchases in the contest as a sacrifice for the higher quantity of purchases that accompany sales contests. Future research should consider alternate contest designs where the initial purchase value is not sacrificed. For example, researchers could examine the implications of designing contests based upon rewards that are paid to agents who sell to retention customers, who do not appear to have lower values in this data set.

The fact that retained customers are the only group in this data set which does not have lower value when attained in the contest merits future research. It is possible that these customers require less relationship building and therefore are ideal customers for salespeople who are working under increased time pressure, in this case due to the contest deadline. This speculation deserves future testing; in more sales contests, in different industries and even for other marketing program types.

An overall analysis of this contest may seem to be a logical step. However, the exact dynamics of contests in other settings are likely to vary, (i.e. the contest cost, the contest duration, the number of customers making purchases, the value of those purchases and the industry holding the contest are among the variables that could vary). What is the overall value of customers that purchase in the contest? Were the lower value customers worth the effort of Shelter? To "know" this one would need to

understand if customers who purchase in the contest would have purchased without the contest. This fact is difficult for even the agent or the customer to assess. What can be assessed is the number of customers who would have needed to purchase life insurance without the contest, in order for the company to gain the same customer value. 3,547 customers made their initial 1996 life purchase in the contest (see Table 29). These customers had a value of $1,095,989 to Shelter, averaging $309 of value per customer. Those making purchases outside the contest had an average value of $370 to the company. In order to reap the same level of customer value, Shelter would have needed to acquire 83.5% of these customers (($1,095,989/$370)/3,547) without the contest. Therefore, one can conclude that the contest had a positive impact on customer value, if more than one in six of the sales would not have been acquired without the benefit of the contest.

Further, agent performance can be evaluated based upon the amount of customer value the agents bring into the firm. Efficient frontier analysis allows evaluation of agents based upon the inputs and resources available to them. The efficient frontier represents the optimal performance of an agent based upon their inputs. Managers can make decisions about reallocation of resources to move agents to more optimal points along the efficient frontier. The efficiency scores from efficient frontier analysis show that this measure produces different rankings than that produced by Shelter's traditional measures of quantity and sales dollars. Efficient frontier analysis shows that the inputs each agent employs matter in the evaluation of their performance relative to other agents. The availability of data limited the number of possible inputs that could be evaluated. Future studies can benefit from utilizing inputs that are more controllable and perhaps

more possible inputs for consideration. Such inputs might include latent variables regarding the agent's approach to selling, the types of customers they sell to and the amount of firm resources (e.g. advertising budget, training) accessible to that agent.

This analysis is in a one company setting. This is largely dictated by the difficulty of obtaining this type of firm data. However, further studies could assist in building the generalizability of these results. There is also a limit in the time horizon of the data. While the nine years used in this data set is longer than the time horizon for most other published studies on customer value, researchers will continue to benefit from data sets that cover greater portions of the entire customers' lifetime with the company.

This analysis is performed for a contractual product, whose future cash flow is partially controlled by a contract. However, like the setting described in Thomas, Blattberg and Fox (2004) the customers are free to terminate their contract at any time.[6] Additional studies in settings that are free of contracts could produce insightful results (Reinartz and Kumar 2003).

Furthermore, this study is limited by a product class that has relatively long customer lifecycles. This consideration causes the size of the necessary data set to grow in terms of the time period needed for sufficient analysis. Despite this fact, interesting results are still found in the current work.

[6] For home and auto insurance they can terminate, however, regulations may require they purchase another policy with this company or another company.

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APPENDIX

APPENDIX A: SURVEY COVER LETTER- ESSAY 1

Dear Shelter Insurance Agent,

We are researchers at the University of Missouri, Columbia with research interests in the area of sales and sales management. As part of our ongoing research, we are studying the impact of sales contests and we ask you to participate in this survey.

This survey should take no more than 10 minutes to complete. Your responses will be kept strictly confidential. We will conduct the analysis at the aggregate level; thus, no individual will be identified in the results. Your participation is voluntary and you can withdraw at any time from this study.

We thank you for helping us in this important research project. If you have any questions, please do not hesitate to contact either of us via e-mail or telephone.

Please click here to access the survey.

Thank you again for your attention.

Sincerely,

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APPENDIX B: SURVEY ITEMS- ESSAY 1

	Item	Strongly Disagree			Neutral			Strongly Agree	Reve	Construct	Source
1	My team partner was willing to help me perform better during the 2005 Summer contest	1	2	3	4	5	6	7		Coaching	Posdakoff and MacKensie 1994
2	My team partner gave me verbal feedback regarding my performance during the 2005 Summer contest	1	2	3	4	5	6	7		Coaching	Rich 1998
3	I trust and respect the advice offered by my team partner	1	2	3	4	5	6	7		Coaching	Rich 1998
4	My team partner gave me encouragement to perform better during the 2005 Summer contest	1	2	3	4	5	6	7		Coaching	Fine and Pullins 1998
5	My team partner shared specific ideas to help me perform better	1	2	3	4	5	6	7		Coaching	Fine and Pullins 1998
6	My performance was critical to my team performing well in the Summer 2005 contest	1	2	3	4	5	6	7		Instrumentality	Tyagi 1982, Tea 1981
7	My effort in this team contributed to the ability to earn the team reward	1	2	3	4	5	6	7		Instrumentality	Tyagi 1982, Tea 1981
8	My effort in this team will lead to recognition for my team	1	2	3	4	5	6	7		Instrumentality	Tyagi 1982, Tea 1981
9	I was instrumental in contributing to this team	1	2	3	4	5	6	7		Instrumentality	Developed
10	The awards associated with the team performance in the 2005 Summer contest are desirable to me	1	2	3	4	5	6	7		Valence	Ingram and Bellenger 1983, Dubinsky Jolson et al 1993
11	The team rewards were an important part of the 2005 Summer contest	1	2	3	4	5	6	7		Valence	Developed
12	When I worked on a daily basis during the 2005 Summer contest the team reward provided motivation for me	1	2	3	4	5	6	7		Valence	Ingram and Bellenger 1983, Dubinsky Jolson et al 1993

APPENDIX B: SURVEY ITEMS- ESSAY 1 (continued)

	Item	Strongly Disagree			Neutral			Strongly Agree	Reve	Construct	Source
13	I am satisfied with the assignment of my team partner	1	2	3	4	5	6	7		Satisfaction with partner	Developed
14	The idea of being rewarded based on the joint performance with my team partner and I is satisfying to me	1	2	3	4	5	6	7		Satisfaction with teaming concept	Developed
15	I am aware of the past performance of my team partner	1	2	3	4	5	6	7		Awareness of past performance	Developed
16	I try to act as a model employee by performing well in sales contest	1	2	3	4	5	6	7		Impression Management	Wayne and Liden 1995
17	Performing well in sales contest is a good way to show superiors that you try to do a good job in your work	1	2	3	4	5	6	7		Impression Management	Wayne and Liden 1995
18	I work hard in the sales contest because results will be seen by others	1	2	3	4	5	6	7		Impression Management	Wayne and Liden 1995
19	Performing well in the contest is a good way to show coworkers that you try to do a good job in your work	1	2	3	4	5	6	7		Impression Management	Wayne and Liden 1995
20	I am good at selling life insurance	1	2	3	4	5	6	7		Self Efficacy	Sujan, Weitz and Kumar
21	I find it difficult to convince customers to buy life	1	2	3	4	5	6	7	Reve	Self Efficacy	Sujan, Weitz and Kumar
22	I know the right thing to do in selling situations	1	2	3	4	5	6	7		Self Efficacy	Sujan, Weitz and Kumar
23	I am good at finding out what customers want	1	2	3	4	5	6	7		Self Efficacy	Sujan, Weitz and Kumar
24	My team partner helped me learn new processes to better sell life insurance	1	2	3	4	5	6	7		Learning	Selnes and Salis 2003
25	My relationship with this my team partner helped me learn to better identify customer needs and preferences	1	2	3	4	5	6	7		Learning	Selnes and Salis 2003
26	Procedures I have learned from my team partner helped me be more confident in selling life insurance	1	2	3	4	5	6	7		Learning	Selnes and Salis 2003
27	I have learned to communicate more effectively with customers from my team partner	1	2	3	4	5	6	7		Learning	Kleinman, Siegel, Eckstein 2001
28	Due to the relationship with my team partner I have improved my selling skills	1	2	3	4	5	6	7		Learning	Kleinman, Siegel, Eckstein 2001

APPENDIX B: SURVEY ITEMS- ESSAY 1 (continued)

29	In the two weeks immediately before the Summer 2005 contest how many hours per week did you spend working with life insurance products?									Effort	Developed
	…..What percent of this time was spent developing leads									Effort	Developed
	…..What percent of this time was spent closing sales									Effort	Developed
30	During the Summer 2005 contest how many hours per week did you spend working with life insurance products?									Effort	Developed
	…..What percent of this time was spent developing leads									Effort	Developed
	…..What percent of this time was spent closing sales									Effort	Developed
31	In the two weeks immediately following the Summer 2005 contest how many hours per week do you plan to spend working with life insurance products?									Effort	Developed
	…..What percent of this time was spent developing leads									Effort	Developed
	…..What percent of this time was spent closing sales									Effort	Developed
32	How many times were you and your team partner in contact using the following methods since the Summer 2005 contest was announced									Contacts	Developed
	….. By phone									Contacts	Developed
	….. By email									Contacts	Developed
	….. By face to face									Contacts	Developed
	….. Other									Contacts	Developed
	….. Total contacts									Contacts	Developed
33	During sales contests what percent of your time do you spend trying to sell policies to customers that **have** previously bought an auto, home or life policiy from you?									Acquisition	Developed
	During sales contests what percent of your time do you spend trying to sell policies to customers that have **NOT** previously bought an auto, home or life policiy from you?									Retention	Developed
34	Outside of the sales contests what percent of your time do you spend trying to sell policies to customers that **have** previously bought an auto, home or life policiy from you?									Acquisition	Developed
	Outside of the sales contests what percent of your time do you spend trying to sell policies to customers that have **NOT** previously bought an auto, home or life policiy from you?									Retention	Developed

APPENDIX C: SAMPLE SCRIPT FOR MANAGERS IN ADDITIVE CONDITION

- ESSAY 1

SPECIAL CONTEST FOR MISSISSIPPI DISTRICT 7

In addition to the rules for the Summer Swashbuckler Contest, agents in the district have been paired into teams to compete for additional awards.

The top two teams in the district that exceed their combined submitted applications in the 2004 Summer Life Contest by the highest number of applications will receive awards.

The second place team in the district will receive $150.00.
The top team in the district will receive $300.00.

Agents who were not with the Companies during the 2004 Summer Contest are not eligible to compete.

If there is a tie, the team with the most combined Contest premium will be the winner. Both agents on a team must be active at the end of the Contest period to be eligible for awards.

The teams are:

Team	**2004 Summer Contest Applications**
Agent A	12
Agent Z	2
Agent B	7
Agent Y	2
Agent C	6
Agent X	2
Agent D	4
Agent W	2
Agent E	4
Agent V	2

APPENDIX D: SAMPLE SCRIPT FOR MANAGERS IN CONJUNCTIVE

CONDITION - ESSAY 1

SPECIAL CONTEST FOR ARKANSAS DISTRICT 10

In addition to the rules for the Summer Swashbuckler Contest, agents in the district have been paired into teams to compete for additional awards.

The top two teams in the district that exceed their combined submitted applications in the 2004 Summer Life Contest by the highest percentage will receive awards.

The team percentage is calculated by adding together the individual percentage change over the 2004 Contest for each team member individually.

Example 1:

	Apps in Summer 04 Contest	Apps in Summer 05 Contest	% Change
Agent #1	10	11	+10%
Agent #2	1	2	+100%
Team Total			+110%

Example 2:

	Apps in Summer 04 Contest	Apps in Summer 05 Contest	% Change
Agent #1	10	9	-10%
Agent #2	1	2	+100%
Team Total			+90%

The second place team in the district will receive $150.00.
The top team in the district will receive $300.00.

Agents who were not with the Companies during the 2004 Summer Contest are not eligible to compete.

If there is a tie, the team with the most combined Contest premium will be the winner. Both agents on a team must be active at the end of the Contest period to be eligible for awards.

APPENDIX D: SAMPLE SCRIPT FOR MANAGERS IN CONJUNCTIVE CONDITION - ESSAY 1 (continued)

The teams are:

Team	2004 Summer Contest Applications
Agent A	14
Agent Z	0
Agent B	13
Agent Y	1
Agent C	8
Agent X	2
Agent D	5
Agent W	2
Agent E	4
Agent V	2
Agent F	4
Agent U	2
Agent G	3
Agent T	2
Agent H	2
Agent S	2

APPENDIX E: SAMPLE SCRIPT FOR MANAGERS IN CONTROL GROUP A-

ESSAY 1

SPECIAL CONTEST FOR LOUISIANA DISTRICT 5

In addition to the rules for the Summer Swashbuckler Contest, agents in the district can compete for the following additional awards based in their increase in applications submitted over the number of applications submitted in the 2004 Summer Contest.

The awards are as follows:

1st place	$150
2nd place	$125
3rd place	$100
4th place	$75

Agents who were not with the Companies during the 2004 Summer Contest are not eligible to compete.

If there is a tie, the team with the most combined Contest premium will be the winner.

The agent must be active at the end of the Contest period to be eligible for awards.

Agent	**2004 Summer Contest Applications**
Agent A	4
Agent Z	2
Agent B	3
Agent Y	3
Agent C	4
Agent X	9
Agent D	7
Agent W	2
Agent E	2
Agent V	3
Agent F	5
Agent L	3
Agent M	5
Agent P	2
Agent G	2
Agent J	2
Agent Q	1

APPENDIX F: SUMMER 2005 CONTEST RULES- ESSAY 1

Marketing 2005 Summer Life Contest – Summer Swashbuckle

OVERVIEW

The contest is for properly submitted Life policies. Each district is matched against another district similar in size and with similar performance in the 2004 Summer Contest.

Awards are presented to each District winning their match up.

HOW A DISTRICT WINS

The district in each match-up with the best "Performance Index" (percentage of agents reaching the goal of 2 submitted apps x percent of goal reached by the district) will be the winning district. The percentage of goal is the percentage of agents submitted 2 or more applications. Ties will be broken with the most premium submitted per agent in the district.

AWARDS

Each winning district receives $50 per agent in the district as of June 30, 2005 to be used by the District Sales manager for a district function of his/her choice.

The top agent in submitted applications in each state will receive a special recognition plaque.

The top three District Sales managers and the top State Sales Manager in the Company in Performance Index will receive a special recognition plaque.

GENERAL RULES

1. This contest is three weeks long. Applications must be written between Monday, July 11 and Tuesday, August 2, 2005. All applications must be postmarked by the post office (not meter stamp date) no later than Tuesday, August 2, 2005.
2. Applications will not count unless the FULL mode premium is received by August 2, 2005.
3. All applications submitted without premium written during the Contest will receive contest credit only if the money is received prior to August 2, 2005.

APPENDIX G: DATA FILES- ESSAY 1 and 2

Sales data file- includes the purchases made by customers and assigns the sales to a specific agent. This file includes the following columns:

- *Family number*- the customer number.
- *Policy number*- unique policies held by each customer.
- *Policy unit*- with policy number identifies add-on purchases.
- *Policy type*- the line of the purchase (life, home or auto).
- *Effective date*- the date a policy is written.
- *Issue date*- the date the policy is physically issued.
- *Premium*- the dollar amount paid for the policy in that year.
- *Termination date*- the final date of service for an individual policy.
- *Agent number*- the agent that sold the policy.

Agent data file- includes key demographic data of each agent. This file includes the following columns: *Agent number, Agent address and Agent hire date.*

VITA

Kirt Jason Garrett was born November 20, 1972 in Mattoon, Illinois. He grew up in Poplar Bluff, Missouri where he graduated high school in 1991. Jason attended Oklahoma Baptist University where he received a BBA in Accounting in 1994. In 1996, Jason completed an MBA at Washington University in St. Louis. Jason stayed in St. Louis where he worked successfully as a consultant and manager at Arthur Andersen for over 6 years. He consulted in a wide range of industries including pharmaceutical, consumer goods, financial services, and paperboard. Jason completed his Ph.D. in Marketing in 2006. Jason met Kelli Benét Fulton in 2002. They married one year later. Jason and his beautiful wife Kelli live in Peoria, Illinois where Jason is a faculty of the Marketing Department of the Foster College of Business Administration at Bradley University.