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The Use of Debit Cards in Promoting On-Time Payment Behavior in A Daycare Center in The Rio Grande Valley Region of Texas

Ruben James Nieto
University of Texas-Pan American

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THE USE OF DEBIT CARDS IN PROMOTING ON-TIME PAYMENT BEHAVIOR IN A
DAYCARE CENTER IN THE RIO GRANDE
VALLEY REGION OF TEXAS

A Thesis

by

RUBEN JAMES NIETO

Submitted to the Graduate School of the
University of Texas-Pan American
In partial fulfillment of the requirements for the degree of

MASTER OF ARTS

December 2011

Major Subject: Experimental Psychology

THE USE OF DEBIT CARDS IN PROMOTING ON-TIME PAYMENT BEHAVIOR IN A
DAYCARE CENTER IN THE RIO GRANDE
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COMMITTEE MEMBERS

Dr. Frederick Ernst
Chair of Committee

Dr. Philip Gasquoine
Committee Member

Dr. Mark Winkel
Committee Member

December 2011

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ABSTRACT

Nieto, Ruben J., The Use of Debit Cards in Promoting on-time Payment Behavior in a Daycare Center in the Rio Grande Valley Region of Texas. Master of Arts (MA), December, 2011, 37 pp., 2 tables, 6 illustrations, 54 references, 23 titles.

The study investigates the inappropriate payment behavior of consumers at a local daycare in the Rio Grande Valley. An AB, baseline and intervention, single subject design was used to increase the on-time payment behavior of consumers paying on time at the daycare. Baseline data was taken for 14 weeks before the intervention was implemented. The intervention consisted of an alternative payment method, accepting credit and debit cards, [as an antecedent, to the consumer in order to receive payments on time]. This alternative payment method showed that on-time payment behavior increased compared to pre-intervention.

DEDICATION

The completion of my master's degree would not have been achievable without the love and support of my mother, Chris Nieto, brother and sister in law, Robby and Isabel Nieto, and my best friend who I love with all my heart, Edith Hernandez. I am forever grateful for their love and support through the hard times and the good.

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Also, I would like to thank the daycare that chose to participate in the study and take a leap of faith that it would be for the better and to never forget that change is a good thing, God Bless.

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CHAPTER I

INTRODUCTION: CREDIT & DEBIT CARDS

Many daycare owners in the Rio Grande Valley have a problem with clients not paying on time which results in financial loss. This study investigated some of the underlying causes of late payments and proposed an alternative payment option where the client has the option of paying with a credit or debit card. In the study, there was no interaction between the investigator and the clients of the daycare owner, rather all interaction was between the investigator and the owner of the daycare center. The intervention used a form of positive reinforcement by adding an additional payment method for the clients, specifically the use of credit/debit cards. Adding the credit/debit card payment option for the clients will be positive reinforcement or response cost reduction for them because of the convenience that it provides them in making payments. The use of checks has declined from 85% to 59% between 1979 to 2002 (Armesh, Saljoughi, & Kord, 2010). It has also been shown that electronic payments have increased to 41% as well. Consumers are now replacing their old ways of paying with credit/debit cards. In households, cash holdings or the pocket amount of cash on hand, has decreased between 1984 and 1995 from \$148 to \$100 (Hancock & Humphrey, 1988). The invention of credit cards was to satisfy the consumer's demand for a more convenient way to pay instead of satisfying the consumer demand for credit (Johnson, 2007). In this study it was also found that the use of cash in paying household expenses decreased from 30% to 20%.

The first credit card was introduced by Bank of America in the state of California in 1958 and the first debit card was introduced in 1975 (Brown & Plache, 2006). At the time, they were convenient because: they earned interest on small loan funds; protected consumers for lost or stolen cards; and were a faster way of paying by swiping their card instead of waiting for change or writing a check.

The hypothesis of this study, by adding a credit card as a payment option it will increase client on-time payment behavior by avoiding late fees, a form of positive punishment, administered by the daycare by reducing response cost.

Primary Functions of Credit Cards

The primary function of credit cards is to facilitate economic exchange between parties (Hirschman, 1979). Consumers can be stimulated to purchase and spend by the acceptance of multiple credit cards at a venue. A bank credit card or a department store card will increase spending behavior in consumers because of their convenience which increased purchases at that business. Credit card usage increased the frequency and magnitude of spending behavior in consumers (Soman 2001). These two studies demonstrate that noncash payments in the form of credit and debit cards are both more convenient and more reinforcing for the consumer to utilize. From the consumer's perspective, cash and checks have become an aversive payment method as opposed to swiping credit and debit cards. Payments made by credit card have resulted in weaker aversive impact because of the month long payment cycle (Soman, 2001). The convenience of paying with the credit or debit card positive reinforces the consumer because of the decreased time it takes to go through the checkout.

In the Rio Grande Valley, some daycares only accept cash and check payments possibly resulting in daycares being paid late by their clients. Some of the solutions to late payments tried

by the daycare owners have been: in the form of late payment fees ranging from \$5-\$20; prompting clients with notices; and termination of services for chronic offenders. Despite these interventions, late payments have been a major and chronic issue for daycare owners. Some owners have been suffering with this problem for as much as 10 or more years. For these daycare owners the consequences of clients paying late have been: falling behind in paying business bills; falling behind in paying personal bills; not being able to pay their employees on time; and late charges from the bank for late fees.

Where Have Checks Gone?

Schuh and Stavings (2009) have shown that check usage declined by 8.4% from 31.0% in 2003 to 22.6% in 2006. According to Poteet & Purches (2011), not only are debit cards replacing checks but that cash usage is decreasing because of the usage of alternative payment methods like credit cards and mobile payments, payments accepted by smart phones. The reason that checks have become less convenient to consumers is because of their cost and the different payment instruments that businesses carry, e.g., credit/debit cards. One of the ways that they are inconvenient to consumers and banks is by “bounced” or returned checks. In 2000, there were 251 million interbank checks that were returned in the United States (Gerdes & Walton II, 2002). This causes an inconvenience to consumers by having to pay late fees and overdraft fees. Humphrey (2004) found that credit card terminals have been the major force driving back the use of cash. An interesting finding by Schuh and Stavings was the relative convenience of checks decreased by about 30% and the relative cost of checks actually increased by the same. Credit and debit card usage, as an alternative payment instrument, was found to be positively influenced by relative cost, convenience, and timing to the consumers. Among the payment methods that

were surveyed; (cash, check, credit and debit cards). It was shown that credit cards lead the way in being the most cost effective, convenient, and time effective way of paying.

Why Plastic?

Why would consumers prefer credit cards over cash and debit cards over check? One reason is because of security. Grace (2011) said that cash has been shown to be the least secure way of paying by consumers and credit cards are more secure. Consumers do not have to carry around large amounts of cash when they carry a credit card and if their purse or wallet is stolen, they can easily call customer service and report it stolen. Cash on the other hand is a different story; one does not get reimbursed for losing or having his/her cash stolen. Nearly three-quarters of all United States noncash payments were made through some type of electronic payment method. Choudhary and Tyagi (2009) and Hayashit (2006) found that 74.9% of United States families had at least one credit card and have many benefits like convenience, reward programs, and credit for a time period. Bucks, Kennickell, and Moore (2006) found that the median number of cards in family's households was two. See-Peng and Yiing-Jia (2010) described credit cards as being convenient as they are secure, offering warranty protection of merchandise purchases, can act as an emergency cash advance during tough times, and have 24-7 customer service at their disposal. Credit card usage increased at an annual rate of 12.2% in the 1980s (Garcia, 1980). Hayhoe, Leach, Turner, Bruin, and Lawrence (2000), demonstrated that college student attitudes were quite favorable towards credit cards. If they had positive experiences with them, then more than likely they would become users in the future. They also found that gender influenced purchases. Females made more clothing purchases and males made more entertainment purchases. Sprenger and Stavins (2010) found that men are less likely to use their debit cards or write checks but significantly more likely to use cash. Younger individuals are

more likely to use debit cards as opposed to credit cards and that income has the biggest effect on the use of credit cards. Little by little credit cards have replaced cash and debit cards have replaced checks. Moore and Taylor (2011) found that debit cards have been replacing checks because consumers are turning away from using credit cards to debit cards because they want to be more financially disciplined because of the economic downturn. They also showed that there were 25.3 billion debit card transactions as opposed to 21.7 billion transactions for credit cards in 2006.

People use electronic payments more because e-payment's costs have risen less than the cost of paper-based payments (Humphrey, Kim, & Vale 2001). They also cost about 1/3 to 1/2 that of paper-based non cash payments and the United States has 2.5 more noncash transactions than Norway and Europe and nearly 7.5 transactions to that of Japan per person. Hancock and Humphrey (1997) found in the literature that the volume of cash transactions vary by method but is in the range of 50% to 83%. Cash volume transactions are the frequency that consumers use as compared to other noncash transactions. Cash is considered the final payment and can be used immediately with no delays. These are some of the advantages of making purchases with cash. The average cash transaction in the United States is around \$5.00. One of the reasons that the average cash transaction is low is because of its relationship with high crime rates. Countries with high rates of crime correlate with consumer demand for noncash payment methods. The United States compared with Japan and Europe, has a higher crime rate that were statistically significant for the replacement of all but the lowest value of cash transactions. There is a disadvantage using cash when the amount for payment is very large. There has been a rise of 36% in the usage of ATM's and a 508% increase in the use of debit cards between 1989 and 1995 (Gerdes & Walton, 2002). There are several advantages that debit cards have over cash

like convenience and security that the alternatives do not offer. Because of these advantages, consumers are more inclined to use their debit cards than cash. Electronic payments have accounted for 40% of all noncash payments in 2000, (Gerdes & Walton 2002). Big retail stores like Wal-Mart and Target have changed their ways and have been accepting alternative payment methods like credit and debit cards, but what about small businesses like daycare centers? These type of businesses are more conservative, or afraid of, and do not have the means to keep up with changing trends for lack of resources or information. So what stops small businesses in accepting alternative payments? Loke (2007) found that merchants' personal background, the type of business, and volume of sales were all significant in regards to merchants' acceptance of credit cards. They also found that customer usage of credit cards and other merchants accepting them, influence their decisions to implement alternative payment methods. The main reason for accepting credit cards according to merchants was how credit cards have helped increase their sales. Over 70% of merchants surveyed said that their business's sales increased an average of 20%. Bressler, Bressler, and Bressler (2011) suggested that companies that are newer and more efficient in their industry are driving out the older companies that are not as efficient and lack adaptation. They indicated that technological adoption is influenced by the desire to have the advantage over their competitors. Daycare centers are not retail therefore they would not be able to increase sales because the cash flow volume is the same from a week to week basis and month to month. Instead, this study will try to increase "on-time" payments from the daycare clients.

Reinforcing Through Rewards and Loyalty Programs

Credit cards also provide many reinforcers through reward programs (Ching & Hayashi, 2010). Because the credit card payments have been growing rapidly in recent years, networks have found ways for consumers to use their cards more by providing them with attractive reward

systems. They found that the effects of rewards were positive when they took into account consumer payments, perceived attributes of payment methods, and perceived payment method acceptance by retail stores. Removing the rewards from credit cards made the consumer change to more paper-based types of payment methods. Ching and Hayashi (2010) found that the primary payment choice was credit cards because of reward systems. Schuh and Stavings (2009) showed it was convenience and cost that were reinforcing. Simon, Smith, and West (2010) indicated that loyalty programs, programs that reward and encourage loyal buying behavior, positively influence consumer payment methods. Having a loyalty program, increased credit card usage while decreasing cash payments. They concluded that price incentives do influence consumer payment patterns and choice. Valverde and Zegarra (2011) found that the choice of card payments can be modified significantly by rewards. Rewards are more effective with debit than for credit cards. An individual with an average credit score and history can be influenced by loyalty programs with an increased probability of 23% in credit card usage which reduces the probability paying with cash by 14%.

Meyvis (2005) describes a term called “fungible” which, when lacking in credit card programs gives merchants leverage over consumers by motivating them to purchase more goods to acquire more of this type of currency. This influences consumers to use the merchant card more than other cards. They also discovered that the effectiveness of reward programs depends on this *fungible* currency and the quantity of rewards that are offered in the rewards program. The basic underlying motives of reward programs for merchant cards are to serve as incentives and goals to the consumer that in turn motivates them to increase their spending with that particular merchant. Assumed in the study, the way in which consumers see and value rewards

that are offered by merchant programs, is a function of the rewards valued by the customer and influenced by the rewards that are offered to them.

There is a cost to businesses when rewards are offered to consumers. Hayashi (2006) found that if rewards are used with a specific card network merchant fees increase and over the years the popularity of reward cards have increased as well as the rewards offered. Network merchants have increased the fees in competitive markets to make a profit because they know that credit cards correlate with a business's sales and profits. The interchange fees, card transaction for the merchant to the bank issuing the payment, have also been increasing. These interchange fees in the United States are among the highest in the world, meaning that consumers in the United States pay higher interest rates as well as the transaction percentage that are charged to businesses. Since the merchant fees are higher, then why are businesses still accepting credit and debit card payments? Because they do not want to lose sales, they are influenced by competition and the pressures that are in the markets and industry.

Acceptance of Alternative Payment Options

Rysman (2007) showed that greater merchant acceptance of credit cards correlated with the usage of that specific credit card. Merchants who accept Mastercard more often than not also accept Visa and vice versa. Consumers were more likely to use either one of these cards, Visa or Mastercard, which was negatively related to the use of Discover and American Express cards. When merchants accepted Discover and American Express, these cards were used with the same frequency as Visa or Mastercard. The study went on to discuss that high income households are more likely to use American Express while low educated and large households are more likely to use Mastercard. When household payment methods were surveyed in Mester (2009), it was found that debit card transactions climbed to 67% in 2007 from 17.6% in 1995.

The transition from cash payments to electronic payments have been influenced by different incentive programs that the network merchants offer (Mantel, 2000). Mantel found that the components for consumer preference were control, convenience, incentives, privacy, and personal involvement. However, consumer preferences varied across bills that were greatly influenced by the individual's financial wealth and resources. A significant impact was found for consumers' payment decisions that are impacted by their financial positions and transaction characteristics.

Pain of Paying

Raghubir and Srivastava (2008) explained how, for the consumer, there is a pain associated with paying for a service. They explain that the immediacy of paying with cash, the more painful it is to part with and the more vivid it becomes. This means it is harder to part with cash because of the impact that it is associated with money. The more delayed the payment is, when paying with a credit card, the less vivid it is along with it being less painful. Raghubir and Srivastava explain this as temporal separation, where it is less painful and reduces the psychological barrier to spend. Temporal separation is a leading factor in higher spending behavior because of the time lapse (Prelec and Loewenstein 1998). The more transparent money is, like cash, the less likely it is that the consumer will spend. The less transparent money is, like credit cards, the more likely it is the consumer will spend. Prelec and Loewenstein said that there was a mental accounting framework that the consumer constructs for preference in payment timing. The consumer realizes that payments can be painful and consumers are motivated to avoid the pain of paying for the service and the pain of payment is diminished if extended over time. This illustrates that by using credit cards, the pain of paying is dulled by the temporal separation because it is extended over time. By using credit cards to pay for services,

the pain of paying is dulled to the consumer because the payment is temporally separated and credit cards allow for making multiple purchases with increased frequency in usage.

Willingness to Pay & Customer Satisfaction

In a study conducted by Homburg, Koschate, and Hoyer (2005), revealed that a strong positive influence of customer satisfaction was found on willingness to pay. Willingness to pay is considered the maximum dollar amount of money that a customer is willing to pay/spend for a product or service. Bolton and Lemon (1999) found that a customer that is satisfied with a service will have higher usage for that service in the future and even higher usage if the customer is more satisfied. Payment equity, adjusting what they control like usage for changes that are made by a business which might be price increases or the levels of customer service, has a strong effect on customer satisfaction. Because of this, payment levels have an effect on payment equity and affect customer satisfaction too. Perceived price unfairness was the only established causal antecedent found by Campbell (1999) when the consumer perceived an increase in relative profit to the business. Campbell also found that reputation moderated the effect of increased relative profit; meaning, if a company or business is perceived well in the public eye as in reputation, then the impact is lessened.

Getting Clients to Pay

Hannah and Risley (1981) demonstrated an increase in client payments by using a “credit criterion” for their intervention clients would be given center credit for paying their first three visits on time. Hannah and Risley conducted their study at a public health care facility that offered psychological services because they observed, during their baseline, that the facility was only collecting about 20% of all payments. They did so by implementing a reversal design and measured by weeks how many times the client paid on time. Once the clients consecutively paid

their first three visits on time they could establish center credit and have the option to pay half of the balance on a monthly basis and the full amount by the third month of service termination.

The baseline average was at a 20% until the intervention was implemented and reached a 96.6% in collecting their client's payments. The study had no impact on administrative costs or on the attendance of the clients. Because of the daycare's policies, the study is not going to give any type of credit to the clients but the study's design will be closely related to Hannah and Risley's in the form of payment measurement.

CHAPTER II

THE BEHAVIORISTIC PERSPECTIVE

The use of credit cards is stronger than cash or checks because they are convenient, cost effective, and provide incentives for their use. As opposed to cash, using credit cards offer incentives for their use by offering consumers flyer miles, cash back, or points as rewards and loyalty programs. For credit cards, loyalty or reward programs reinforce the consumer's spending behavior; increasing the consumer's behavior to spend more to obtain rewards or incentives by rewarding consumers for using their card. Loyalty and reward programs would be considered external incentives because they depend on an individual's performance (Hogarth, Gibbs, Mckenzie, and Marquies, 1991). The more consumers spend the more rewards they get; this is how their performance is measured in order for them to earn rewards. Peterson and Luthans (2006) found financial incentives help the overall business organization and helps maintain turnover, increase profitability, and increase customer service which also helped their consumers. Financial incentives help increase task performance behaviors within a business organization. Incentives also help increase simple behaviors, routine day to day tasks, as opposed to more complex behaviors according to Humphreys and Revelle (1984). In this case, spending behavior was not considered complex but a simple task to complete, which is then influenced by rewards or loyalty programs to increase their spending. Hogarth, Gibbs,

Mckenzie, and Marquies, (1991) point out that simple tasks such as routine, day to day occurrences, are improved by incentives than more complex tasks such as complex arithmetic. Checks also have been on a decline because of their cost to consumers and, as they do not offer any type of incentive or rewards program for using them, they are less often used. Because of their cost, checks have become aversive to consumers, especially the younger population as revealed by the fact that they use more credit and debit cards than the older population (Schuh, Scott, and Stavins, 2008). From the perspective of payments being painful to consumers, this would be considered negative reinforcement because consumers still spend money which means it is reinforcing to them. Negative reinforcement is the removal, reduction, postponement, or prevention of stimulation (Iwata, 1984). In this case, spending is reinforcing even though money is being taken away for exchange of goods or services. When consumers spend, it is the removal and reduction in their money that is being exchanged for a service or product because of ongoing stimulation that produces spending behavior. Hineline (1984) acknowledges negative reinforcement as a class or set of behaviors that are strengthened through the removal, reduction, or prevention of an event or events. This has been seen by the director because, during baseline, clients would have their relatives pick up their children to avoid paying or being confronted with paying from the director which is negative reinforcement of avoidance behavior. They would either forget to go to the bank and get cash or forget to bring in their check book. Money is considered to be a conditioned response, it does not become reinforcing until it is exchanged for goods or services; considered a generalized reinforcer for the exchange of many things (Skinner, 1986). In the same manner, credit and debit cards are also considered a reinforcer but the difference between them is what type of value do these reinforcers have on consumer payment methods?

A study by Feinberg (1986) described results indicating that credit cards influence spending behaviors by eliciting them. In Feinberg's opinion, consumers spend more because credit cards become conditioned through association of learning through social context instead of the pain of paying theory. It is suggested that some purchases can be under the influence of stimulus control from the spending situation. For instance, participants that were given a simulation buying task estimated that they would spend more in the presence of a credit card stimuli than in the cash condition. In every product that was presented to them: a dress, tent, sweater, lamp, electronic typewriter, and chess set; they would spend more in the credit card condition than in the cash condition. This is said because of the association that credit cards have with spending that will eventually develop into elicit spending responses. The association with credit cards however, must be a positive one in order to elicit the spending response. Some associations are learned through social imitation. This type of learning by imitation described by Bandura et. al. (1961) is learned from models in the environment. In the study, subjects reproduced aggression that nearly resembled same sex models. Social imitation may decrease acquisition time of newly developed behaviors without the use of successive approximations as described by behaviorist. Lie, Hunt, Peters, Velu, and Harper (2010) showed that if a negative credit card effect is developed then it would lead to a reduction in spending. In the same study, in the other group, positive conditioning increased spending behavior because of the association that was made with the credit card. Because purchasing products and services are easy and are a form of instant gratification, credit card logos are said to become second order conditioning stimuli that were once a neutral stimuli. Because they were paired with instant gratification with the philosophy of buy now pay later, it is accessible to purchase the desires and wants of material objects. A similar study was conducted by Moore and Taylor (2011) that had the same findings

but with debit cards. They found that debit card logos elicited an increase willingness to pay in consumers that were in the debit card condition versus the cash condition. Another study by McCall and Belmont (1996) demonstrates how prompting customers with a credit card logo increased tipping at a restaurant by an average of 4.29%. The independent variable in this study was the use of the credit card logo on a tip tray. The credit card cue was a discriminative stimulus, S^D , because in the presence of the cue customers tipped more. However the study lacked the conceptual understanding of the mere exposure effect. The mere exposure effect is a condition by which makes the stimulus accessible to an individual's perception (Zajonc, 1968). When customers receive their payment on the tray, they are not consciously aware of the logos that are presented to them on it. If they are aware or notice the logos, they do not stare at them longer than five or more seconds. The study by Zajonc (1968), repeated mere exposures to a subject influences their attitude positively to the stimuli. One of the experiments conducted was on exposure and its impact on attitudinal relationships. For this experiment, subjects were presented with art pieces or music pieces of a certain style and artist; when they were asked to pick a piece of music or a certain painting a couple of days later they picked the one that was of the same style or artist. Conditioned reinforcement works by pairing a stimulus with a reward that will eventually strengthen the organism's behavior. If the stimulus is paired with something aversive or noxious, then it will strengthen its avoidance reaction. The mere exposure effect, if there is an absence of reward or punishment it will result in enhancing and influencing the subject's attitude for that stimulus. An example of this is if you were to go to a restaurant and before you open the door to enter, you are exposed to the logos of the different credit cards accepted. After opening the doors, you once again are exposed to the cashier counter where again is the exposure of the different networks that are accepted. How does the mere exposure

effect work from a behavior standpoint? Zajonc (2001) explains that the unconditioned stimulus in the mere exposure effect is the absence of aversive events. Zajonc suggests that the enhancement of positive affect, preference, is influenced through the benign experience of the repetition that is administered. Preference is influenced by inherited properties, classical or operant conditioning, imitation, conformity pressures, rational choice in economics, and through repeated exposure. Zajonc describes how the unconditioned stimulus is the contiguous of exposures to the stimulus which are the presentations of the conditioned stimulus being repeated exposure. The conditioned response in turn is the preference that the subject exerts. Because of the absence or lack of aversive events as the unconditioned stimulus, it leaves the response condition not attached to any object in the present environment and becomes more positive to the individual and their overall state.

Having restricted access to positive reinforcement can influence noncompliant behaviors (Call, Wacker, Ringdahl, Copper-Brown, and Boelter, 2004). Positive reinforcement can also reduce problem behaviors. The restriction of positive reinforcement, in the previous study, is the demonstration of not having a more convenient way to pay in the form of accepting credit and debit cards which in turn has caused noncompliant behaviors in the clients by not paying on time and abiding by the daycare policies. The study will investigate the use of positive reinforcement in a form of an alternative payment method, being more convenient, would in fact reduce problematic behaviors. Approaching this situation from the antecedent side as opposed to the consequence side is more appropriate because we are implementing a form of positive reinforcement and are within the ethical guidelines of the Applied Behavior Analysis code of ethics. By antecedent, refers to the event that precedes the behavior. The daycare would be providing the clients with an opportunity that is highly reinforcing to pay on time instead of

giving them a late fee in the form of negative punishment, taking away more money, than the service itself. The reason that this alternative payment method would be positive reinforcing instead of negative reinforcing as described in the pain of paying section is because we want the clients to increase their behavior of paying on time by adding an additional payment option for them.

CHAPTER III

METHOD

A behavioral analytic approach will be taken to try to study this problem. An AB design will be used. There was one daycare from the Rio Grande Valley that contributed to this study. This daycare is considered to be a group daycare home, which can only hold up to 12 children at a time depending on age and teacher ratios, because of this it only has 7-8 parents (clients) that pay for its services at any one time. For the purpose of the study, government-funded payments through C.C.S., Child Care Services will not be measured for this study, only co pay's and private pays. IRB approval was obtained and consent and authorization from the director was obtained for the study and no alteration was conducted to its policies, e.g., changing payment periods or in regards to fees and services.

The intervention consisted of installing a credit and debit card payment option for the clients to give them an additional payment option along with accepting cash and checks. The director was instructed to set up an account with intuit.com that provides this service to small businesses and approval was obtained from this company to accept credit and debit card payments. The requirements to obtain approval from Intuit were to have a current bank account, internet connection, and a computer for processing payments; the daycare had and was approved. In order to obtain approval, Intuit also asked additional questions; volume of payments, frequency of payments, and services that are provided by the business. Baseline data was gathered from the previous months that the alternative payment option was not available. This

was obtained through a receipt book that was kept for book keeping from the daycare owner. No names of clients were provided, the only information that was gathered were the percentages of clients that paid on time during that pay period. Once the percentages were gathered, they were then inputted into an excel spreadsheet for further analysis and for the creation of graphs.

Clients were given a one week notice prior to implementing the intervention for the following pay period that was posted on the bulletin so that all could see; and they were also given a verbal notice the Friday before the intervention that the daycare will be accepting credit and debit card payments. The daycare owner made all clients aware of the additional payment method prior to the intervention. The policies of the daycare were followed in regards to late payments and on-time payments. For instance, the daycare provided that the clients pay at or before a certain time during the day and would count a payment late if the clients were to pay after the specific time that was identified in the policy or contract. All clients paid with debit as opposed to credit cards.

CHAPTER IV

RESULTS

The pay period after the intervention was implemented showed a dramatic increase of 83.33% on-time payments as compared to the average payment behavior of 38.66% during the weeks of baseline. The second pay period showed an increase of 85.71% in on-time payments. Figure 1 shows little consistency in regards to baseline steady state behavior, traditionally, but actually does show steady state behavior because a pattern emerges when the pay periods are overlapped on the figure; this is considered to be a cycle. For instance, on two different baseline periods no clients paid on time resulting in a 0% but in the next pay period it increased at or almost to 50%. The cycle can be seen on figure 2 of the following page. The reason that this pattern emerges is because of the contract that the clients have with the daycare. For the purposes of the study, the measuring of pay periods was done weekly. We can see this on the figure because the figure displays up and down “v” shaped lines. On the fifth week of baseline, a new client came in and it can be observed on the figure and table.

Figure 1 Baseline on-time payments

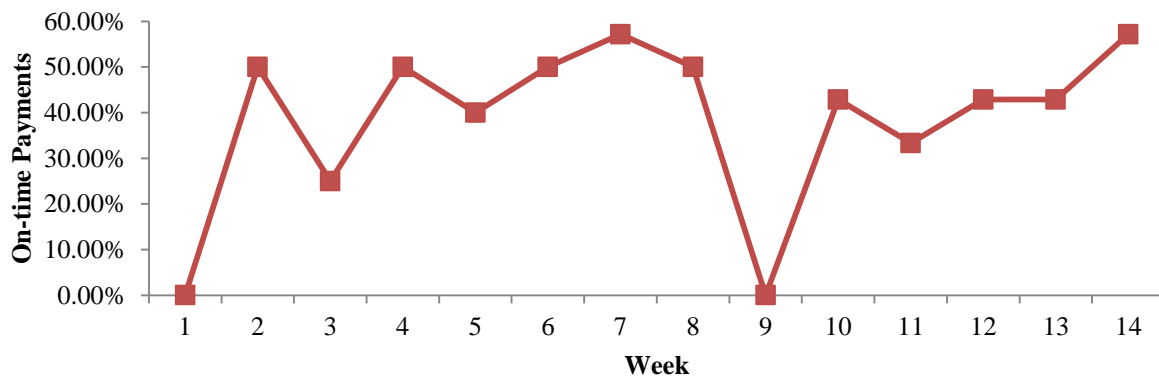
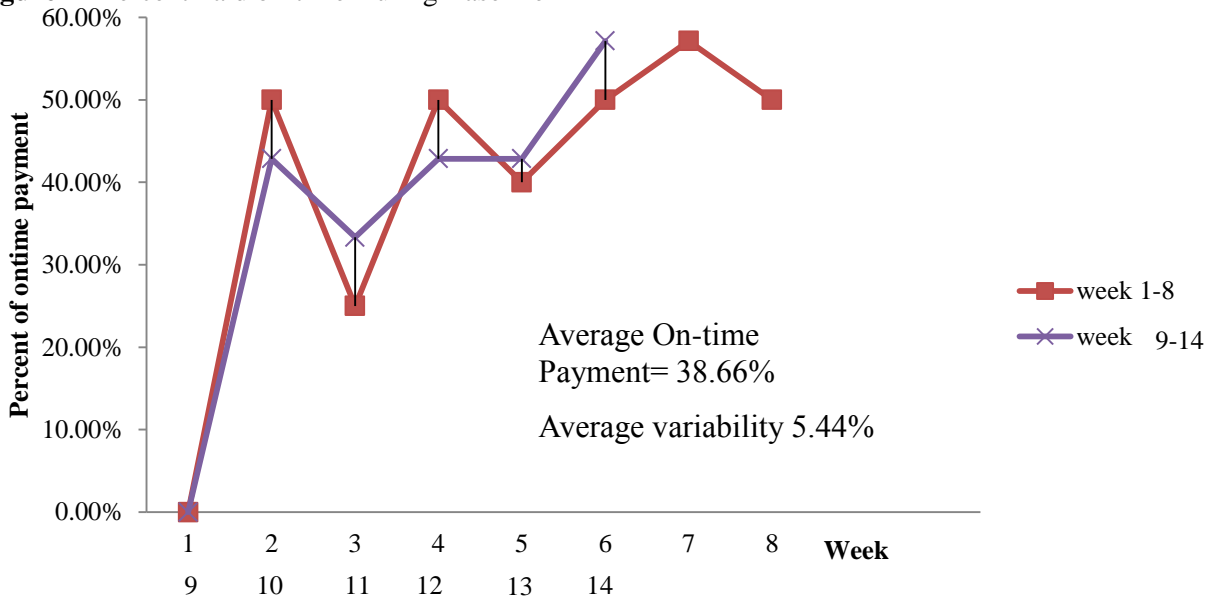


Figure 1 shows the baseline data for the first 14 weeks. As a result, there seems to be a pattern of not paying on time. For instance, the pattern that is seen on this figure starts with the first week and continues up to the eighth week. The next weeks, nine through 13, shows an almost identical replication of the first part of the baseline which can be seen on figure 2.

Figure 2 Percent Paid on-time During Baseline



Another visible characteristic on figure 2 is the uptrend that the data displays in the pattern. It does not show a very strong upward trend but a very slight upward trend. One of the reasons that this might have occurred is because of the new client that the daycare obtained that was described in the previous section. As a result, the client has consistently paid on time and has slightly skewed the remaining part of the baseline data. The average on time payment during baseline was a 38.66% for weeks 1-14. The highest paid on-time week during baseline was during week seven and week 14 when there was a 57.14% paid on-time. The lowest paid-on-time weeks were one and nine where there was a 0%. Figure 2 shows the average variability being 5.44%, or the difference between the patterned points on the figure. The table on the next page shows the score values in percentages from weeks 1 through 18.

Table 1 Percentage of On-Time Payment Scores for Baseline and Intervention

Week	Percent Paid On-Time	Week	Percent Paid On-Time
1	0.00%	10	42.86%
2	50.00%	11	33.33%
3	25.00%	12	42.86%
4	50.00%	13	42.86%
5	40.00%	14	57.14%
6	50.00%	15	83.33%
7	57.14%	16	85.71%
8	50.00%	17	85.71%
9	0.00%	18	100%

The average on-time payment during baseline was 38.66% while in the intervention phase it reached an 88.69%. The range during baseline was a low of 0.00% and a high of 57.14%. The range during intervention was a low of 83.33% and a high of a 100%. Baseline data was taken for 14 weeks while the intervention was taken for four weeks; the month's average for baseline was a 39%, 29%, and a 43.81% while the intervention's month's average was an 88.69%. The mean difference between baseline and intervention was a 50.03% displaying a significant increase between the baseline and intervention means.

Table 2 Descriptive Statistics

	range low	range high	mean	mode	median
Baseline	0.00%	57.14%	38.66%	50%	42.86%
Intervention	83.33%	100%	88.69%	85.71%	85.71%
	mean difference		50.03%		

Figure 3 Baseline Intervention

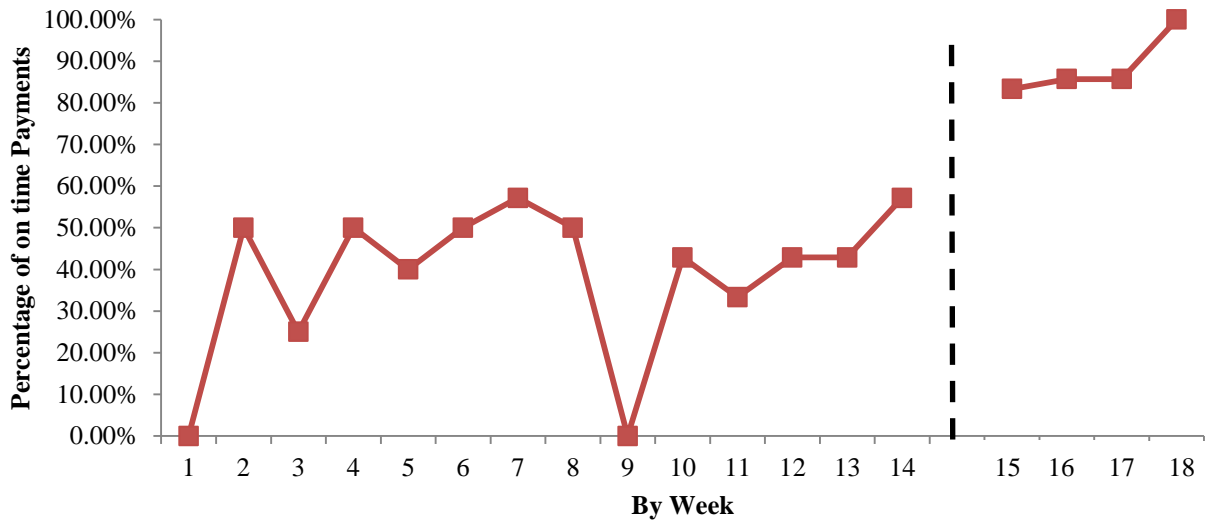
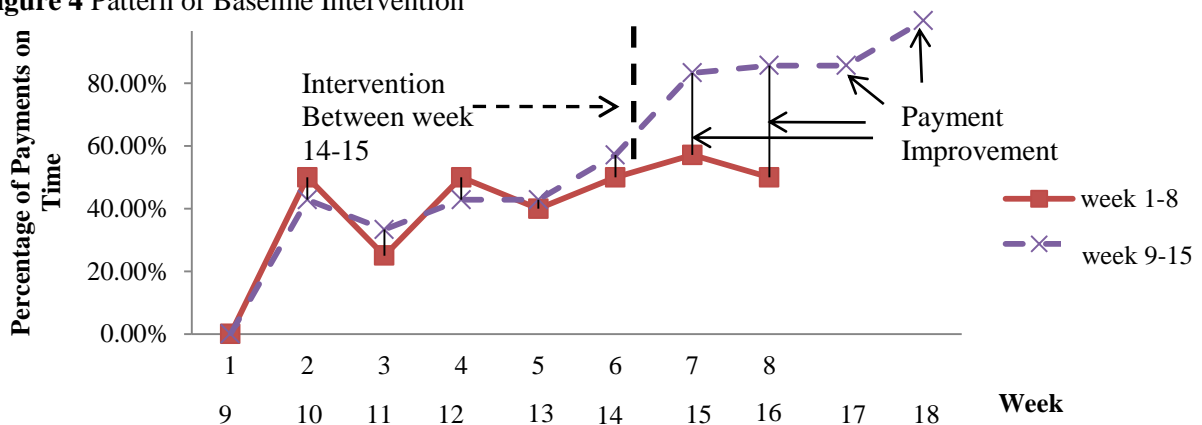


Figure 3 shows where the intervention was implemented, during week 14 and 15 separated by a dashed line. After the intervention there is a visible increase to an 83.33% of on-time payments in week 15, then an 85.71% in week 16 and 17, and in week 18 100%. During its first week during the intervention phase it improved from the average pay on-time of 38.66% during the baseline. From the baseline to the intervention the only thing that was manipulated was the addition of an alternative payment option, the pay periods or days did not change nor was there an increase in rates or reduction in rates for daycare services.

Figure 4 Pattern of Baseline Intervention



Here we can see the pattern that was emerging between week 1 and 8 and an almost identical pattern in week 9 through week 14 and into the intervention phase. The pattern during baseline shows little variability indicating that there is a pattern which shows steady state behavior during baseline. This figure shows an improvement over week 15 and week 16 where they do not follow the original pattern set in week 1 through 8. Here we can also see the increase that it had from week 7 and compare it to week 15 where it shows a 26.19% increase. For week 8 and 16 it showed an even larger increase of 35.71% difference between the two. There are only a few points of variability that are showing between the weeks indicating an almost identical pattern with the exception of the intervention weeks 15, 16, 17, and 18. The following table shows the variability between the weeks along with an average variability of 12.55% for weeks 1 through 6 and 9 through 14 with 38.69% variability during the implementation of the intervention in weeks 7-8, 15-16, and 17-18.

Table 3 Table Showing Variability

Week	Percent paid on time	Week	Percent paid on time	Variability	Week	Percent paid on time	Variability
1	0.00%	9	0.00%	0.00%	17	85.71%	57.14%
2	50.00%	10	42.86%	7.14%	18	100%	35.71%
3	25.00%	11	33.33%	8.33%			
4	50.00%	12	42.86%	7.14%			
5	40.00%	13	42.86%	2.86%			
6	50.00%	14	57.14%	7.14%			
7	57.14%	15	83.33%	26.19%			
8	50.00%	16	85.71%	35.71%			

12.55% average variability between week 1-5 & 9-13

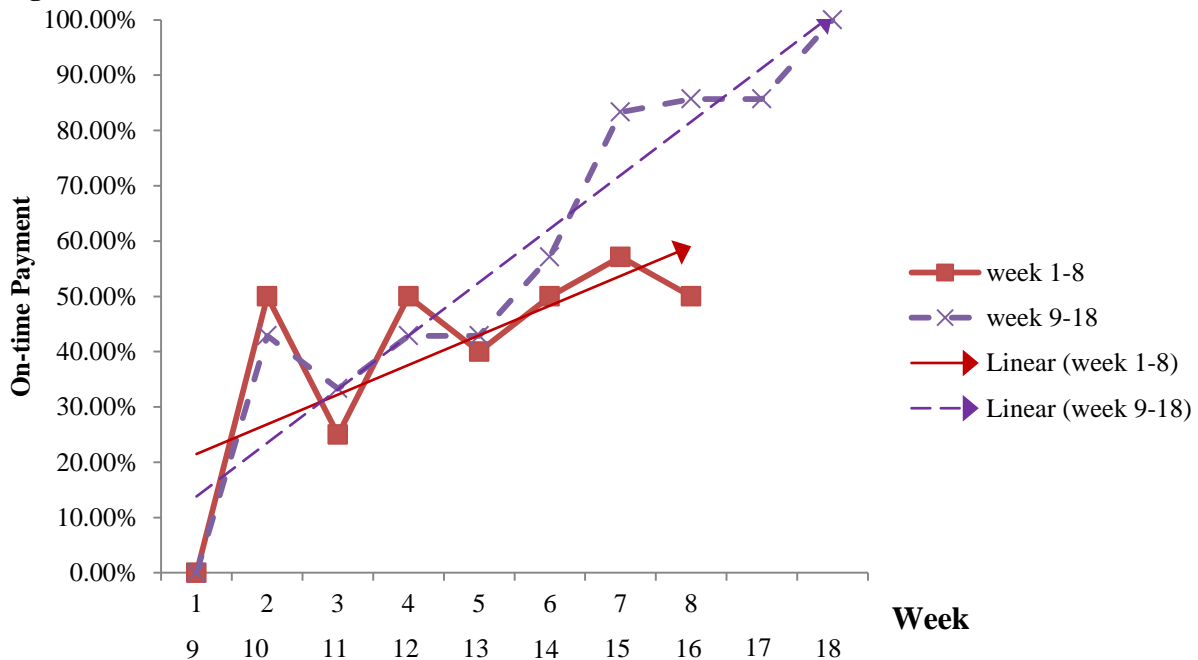
38.69% average variability for intervention

Note. For weeks 17 and 18 variability was obtained by averaging the two previous weeks and subtracting the percent by the average of those weeks

This table above is the data that was inputted for the graph that is on page 21 where you can see the variability or the difference between the two weeks from the pattern. The increase in

variability is suggested that the alternative payment method influenced the increase, if it didn't then the probability is likely that the intervention weeks would have followed very closely the baseline weeks. However, the upward trend can be seen in this table and in the previous page's figure that it started in week 14 and increased further during the intervention weeks. There is also a comparison between the two sets of points on the visibility of trend lines that can be seen on the following figure, figure 5.

Figure 5 Differences in Trend Lines



Both lines show an increase, however the line for weeks 9-18 show a higher slope indicating a higher increase of paying on time due to the intervention. The linear lines were inputted using Microsoft excel to display the trend line differences with the baseline and the intervention data. Figure 5 shows a significant increase starting in week 15, the start of the intervention, and continuing to week 18. The study stopped collecting data on week 18, four weeks into the study because of time restraints and because the intervention showed steady state behavior; however, the daycare center kept the intervention, the alternative payment method, going because of the

results that were obtained. The higher sloped line shows a higher trend line because of the intervention as compared to the other line. The results do not show a 100% across the intervention consistently because one or two clients did not pay on time. That would be because week 17 follows the pattern of weeks 1 and 9, being at 0.00%. This is considerably good compared to the pattern shown by weeks 1 and 9.

CHAPTER V

DISCUSSION

The study is beneficial and builds upon the existing literature on alternative payment methods and behavior analysis to eliminate a chronic problem for small businesses. It provides evidence that small business owners may benefit from having a credit and debit card payment option that would free up their time to alternative activities. The pain of paying according to Raghubir and Srivastava (2008) is lessened and dulled shown in the data by showing the percentage of on time payments; however included in the data shows how cash was more of an aversive stimulus making clients avoid paying as opposed to exhibiting physical or emotional pain. This supports Grusec (1968) where subjects favored more delayed rewards and immediate punishments as opposed to instant rewards and delayed punishments. The difference between immediacy and delayed, and the magnitude that it has, was influenced by the immediate and delay in rewards and punishers. This would support Rachlin's (1974) study by his description of self-control, where self-control is the decisions between choices arriving at different times. If you take away the temporal separation then self-control will go away too. This can be seen in the current study where the daycare clients elicited preference and usage of debit cards over credit cards displaying self-control. They chose a more immediate punishment, taking away of their money (decrease in money) as in a debit than a delayed punishment, the amount of credit card interest if they would have paid with a credit card. We cannot say that the influence of loyalty or reward programs promoted the clients to pay using a particular merchant card because

we did not survey them or included it as one of our measures but does pose a question of whether clients used the cards primarily for this reason as the literature might suggest or other influences. The study also benefited the daycare as a business because they cut their financial stress by not paying late fees of their own because of lack of payments from the clients. Even though Intuit was charging a monthly fee, it was still profitable to the daycare because it did not surpass the accumulation of late fees having to be paid, trips to the bank to deposit checks or cash, and was also time effective giving more time for the daycare owner and its employees. As a result, the clients also benefited because they did not have to pay late fees to the daycare saving them money. Another interesting finding was how in different instances indicated by the daycare owner how the alternative payment would prompt other clients to pay them; this might be along what Feinberg said for higher order conditioning. The owner indicated that during the time a client was waiting for their payment to clear and waiting for their receipt; other clients that were dropping off their child would be reminded by the procedure and give their payment. This is speculated because there was no data collected on this but would also make for a great study to see what type of prompting level would be needed to have on-time payments or to see what type of prompts are more effective in obtaining them.

The following model gives an explanation for the behavior of the clients. This model is an update version of Rachlin's (1974) model of self-control; but in this study it is updated and used to explain why the clients chose debit cards when they had an opportunity to pay with credit cards. One explanation for the clients choosing debit cards to credit cards is because they are exhibiting self-control by picking the immediate punishment as opposed to the delayed punishment. Cash, the immediate punishment, is the final payment that debit cards provide by an immediate debit or withdrawal from the client's bank account. The delayed punishment

would be the interest rate that the client might acquire if they used their credit card. Since the client paid with a debit card and not a credit card they do not acquire any interest making it less of a punishment than the debit card.

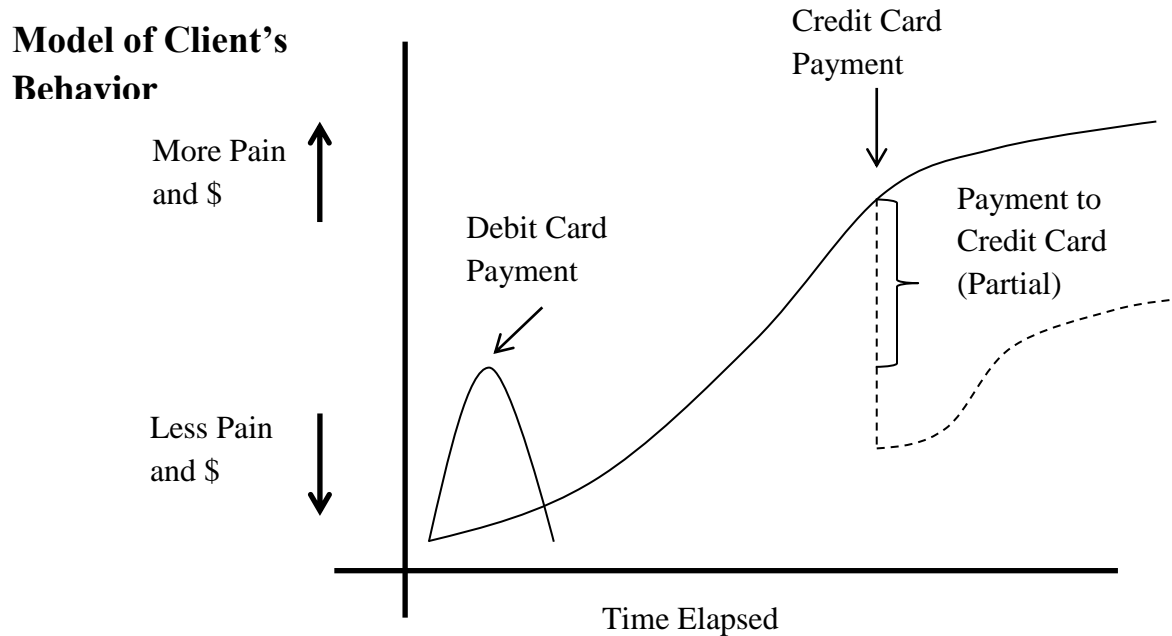


Figure 6 Model of Client's Behavior

One of the reasons for the increases is how paying the daycare became less aversive because the clients did not have to go to the bank and get cash or forget to bring their check book. The increase also provides evidence for the credit card option being more convenient and more reinforcing than the two original payment methods of cash and check. One of the reasons that cash was aversive was because it was less transparent than debit cards making the impact of the separation immediate, money being taken away. Because the daycare is taking money away from them, it is considered negative punishment. An example of negative punishment is paying a speeding ticket where the city takes away your money for speeding. The intervention data shows little variability indicating that there is a steady state behavior taking place and also shows a small trend moving upward. The data provides evidence that the clients had the means to pay,

the money available to pay, but did not have a convenient way to pay, the acceptance of debit and credit cards. This supports the willingness to pay model, where clients were willing to pay for the daycare service but needed a more convenient way to pay for the service.

Why did the daycare stop trying to collect on-time payments from their clients? Why did they consider it a norm of the industry? They were experiencing personal learned helplessness. Abramson, Seligman, and Teasdale (1978) describe two modified types of learned helplessness in humans; universal helplessness, an example of this would be an incurable disease, and personal helplessness, in which individuals think and believe they cannot solve solvable problems. Getting clients to pay on time is a solvable problem which can be fixed, but this is what the daycare owner was experiencing and might explain why the other daycares chose not to participate in this study.

Limitations

One of the limitations of the study was that it was not a multiple baseline or a reversal design. A reversal design would be inappropriate because that might cause financial stress and problems for the clients and the daycare. One of the ways that it would have caused financial stress to the clients would be in the form of late fees issued by the daycare. It would cause financial stress to the director by having the possibility of clients paying late and in return causing them to pay their bills late. This design could have been stronger if there were multiple participants in the study however, other daycare owners were approached but rejected to participate in the study and because of the time restraint and the time it took to acquire the intuit service no other daycares were approached. Another limitation of the study was the duration of the intervention. Ideally, a longer intervention would have been better fit but it did show steady state behavior. There was also a lack of steady state behavior in the baseline however; it did

show a pattern emerging in the second half of the baseline and an almost identical replication of the first eight weeks. The antecedent, if followed as in this study an alternative payment method, would be positive reinforcing as opposed to a consequence, late fees, which is a form of negative punishment to the clients.

Future Research

For future research, a multiple baseline across participants should be used to provide further evidence or lack thereof to see if having an additional payment method is beneficial for clients paying on time. Also, an investigation of credit card as a processing method to be taken away and revert to checks or cash to see what would happen to clients paying on time and to the business. Although this would not be an effective business practice it can be completed using college students and through a simulation. Since e-payments or electronic payments are being more mainstreamed, a study showing automatic payments and internet payments and how they compare to clients paying on time would be next to investigate. Demographics and private pays versus co payers should be investigated to see if patterns emerge from the data or to help daycare owners see the results and patterns of the two for future enrollment. An area of research to be studied further would be antecedent manipulations versus consequent manipulations in the form of late fees for this industry. Does providing a certain dollar amount in late fees get clients to pay on time versus alternative payment options? During this study, it was not observed whether clients paid using their debit cards versus their credit cards. For future studies, it would be appropriate to see what clients pay with, debit or credit cards, to see what they are using more of to pay for their child care services.

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BIOGRAPHICAL SKETCH

Ruben James Nieto will complete his Master's degree in Experimental Psychology with a concentration in Applied Behavior Analysis at the University of Texas Pan American in December 2011. His undergraduate work was at the University of Texas Pan American where he received his Bachelor's degree in Psychology in August of 2009. Ruben has had practicum experience in Autism, bio feedback, and in the business sector where he worked for three years at a trade school. His residence is in the Rio Grande Valley.