

**Intervening to Increase the ID-Checking Behavior of Cashiers:  
Cashier-Focused vs. Customer-Focused Approaches**

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# **Intervening to Increase the ID-Checking Behavior of Cashiers: Cashier-Focused vs. Customer-Focused Approaches**

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## **Abstract**

The present four field studies explored the effectiveness of multiple prevention techniques designed to increase the frequency of cashiers' identification (ID)-checking behaviors from a customer-focused and cashier-focused approach. Studies 1 and 2 examined customer-focused approaches, whereas Study 3 examined a cashier-focused approach. Study 4 examined a combination of the cashier-focused and customer-focused approaches.

From a customer approach, Study 1 investigated the use of four prompts (a no-prompt control, an antecedent only, an antecedent with a positive consequence, and an antecedent with a negative consequence) at encouraging cashiers to ask customers for their ID during a credit purchase. Research assistants (RAs) visited various stores and made credit purchases, while displaying one of the four prompts covering their card's signature line to the cashier during check-out. The results showed RAs were checked for ID the most when using the prompts containing the antecedent and consequence, which was checked for ID significantly more than the no-prompt control.

Study 2 (also a customer approach) attempted to replicate Study 1 in a non-college community. Using a similar methodology as Study 1, the results showed RAs were checked for ID the most when using the prompt with the antecedent and positive consequence, which was checked for ID significantly more than the no-prompt control.

From a cashier approach, Study 3 investigated the use of a goal-setting and prompt intervention led by the restaurant manager to increase the frequency of cashiers' ID-checking behavior. Using an A-B-A (Baseline-Intervention-Withdrawal) reversal design at one of two restaurants, the results showed the intervention restaurant's percentage of ID-checked purchases increased from Baseline to the Intervention phase. But, it decreased

slightly during the Withdrawal phase, showing functional control but also some maintenance over the target behavior. The percentage of ID-checked purchases at the control restaurant was almost nonexistent throughout the study.

Study 4 investigated the impact of using two intervention approaches (i.e., the customer and cashier approach) as opposed to one (i.e., the customer approach) to increase the frequency of cashiers' ID-checking behavior. While the A-B-A phases were occurring in the restaurants used in Study 3, RAs entered the restaurants and displayed an antecedent and positive consequence prompt to the cashiers during a credit purchase. The results of Study 4 partially supported the hypothesis. The cashiers in the intervention restaurant significantly checked more RAs for ID when two intervention approaches were combined than when only one intervention approach was used during Baseline, but not during the Withdrawal phase.

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## **Chapter 1 – Introduction**

Credit-card fraud is a devastating crime affecting millions of Americans each year. It has drained millions of dollars from our economy, and it has caused financial and psychological hardship to its victims. Over the past two decades, this crime has penetrated our society to become a household nightmare for many U.S. residents. Aided by the advances in today's technology, this crime continues to grow, forcing cardholders and credit-card issuers to pay a total of \$500 million a year for fraudulent transactions (Spam Laws, 2012).

With the growing expansion of technology (specifically the use of smartphones to quickly pay without use of the credit card itself), credit-card fraud will likely increase as a serious societal problem. As people lobby for laws to help credit-card fraud and other types of identity-theft victims, interventions are needed to prevent credit-card fraud and protect these individuals. Consumer researchers and law-enforcement professionals (Anderson, Durbin, & Salinger, 2008; Mather, 2006; Sovern, 2004) argue instances of credit-card fraud could be decreased if cashiers would consistently check customers for their identification (ID). The present research studies examined multiple prevention techniques designed to increase the frequency of ID-checking behavior by cashiers.

Studies 1 and 2 used a customer approach to promote cashiers' ID-checking behavior by varying the message on the back of credit or debit cards. Study 3 applied a cashier-based goal-setting and prompt intervention delivered by the restaurant manager to increase the occurrence of cashiers' ID-checking behavior, whereas Study 4 examined the effectiveness of combining a customer-focused and cashier-focused approach. Thus, each field study explored proactive measures individuals and businesses can readily use to increase the occurrence of ID checking and thereby decrease credit-card fraud.

### **1.1 - Credit-Card Fraud**

Credit-card fraud occurs when a thief illegally charges goods and services in another person's name by using a credit card or any similar payment mechanism to make a credit purchase. Credit-card fraud is one of the most frequent types of identity-theft crimes committed. From 2000 to 2010, credit-card fraud was the leading identity-theft category reported to the Federal Trade Commission (FTC). Since 2010, credit-card fraud has been

the second highest identity-theft category reported to the FTC. In 2014, credit-card fraud comprised 17.4% of the 332,646 identity-theft cases reported to the FTC (FTC, 2015). Of the 290,099 identity-theft complaints reported to the FTC in 2013, credit-card fraud made up 16.9% of those cases (FTC, 2015).

However, these statistics underestimate the number of people victimized by credit-card fraud because many cases are not reported. In 2011, the FTC (2013) estimated 35,788 identity-theft victims failed to notify the police department. The number of unreported cases rose in 2012 to an estimated 47,116 identity-theft victims not contacting the police department (FTC, 2013). Because police have so many crimes like murder and property damage to deal with, some have brushed consumers off who tried to report cases of identity theft. However, it is important for consumers to get the police report if they are to clean up their financial reports. Many businesses will not accept a credit card or check from a person who has experienced identity theft because the problem shows up in the databases they check and they deny the customer rather than risk not getting the money. It can take years and thousands of dollars for a consumer to reclaim their identity.

In 2002, Virginia Attorney General Terry Kilgore established an Identity Theft Task Force. One of the outcomes of its work was creation of a standard ID Theft Affidavit (Office of the Attorney General, n.d.) and the Office of the Attorney General provided education to police statewide about the importance of helping consumers get these crimes documented. Likewise, the FTC has an affidavit available to help victims of identity theft participate in the marketplace while the issues are addressed.

Credit-card fraud is considered a silent crime because thieves are able to exploit a victim's identity without their awareness-- another reason credit-card fraud is underreported. In 2012, a victim's identity was misused for an average of 48 days compared to 55 days in 2011 (Identity Theft Assistance Center, 2013; Javelin Strategy & Research, 2013). These numbers are significantly lower than the average number of days in 2010 which was 95 days (Identity Theft Assistance Center, 2013; Javelin Strategy & Research, 2013). This decline in a victim's identity being used over fewer days is attributed to victims becoming more proactive in detecting fraud, such as monitoring bank accounts (Identity Theft Assistance Center, 2013; Javelin Strategy & Research, 2013).

Besides credit-card fraud being a silent crime, thieves also engage in credit-card fraud because it takes limited skills to commit. Lost or stolen credit or debit cards are most commonly used by a credit-card-fraud thief. For example, in 2012, lost or stolen wallets, checkbooks, and credit and debit cards accounted for around 30% of the means identity-theft criminals used to obtain their victims' information (Statistic Brain, 2013).

Although anyone can become a victim of credit-card fraud, individuals ranging from ages 40 to 59 years old made up 50 percent of the documented victims in 2012 (Burnett, 2012). Sadly, older and less-educated individuals are less likely to discover they have been victimized quickly and to report it (U.S. Department of Justice, 2010a). Research suggests the longer it takes to discover the crime and report it to the relevant authorities, the greater the loss and suffering of the victim (U.S. Department of Justice, 2010c).

### **1.1.1 - Impact on Victims**

Since credit-card fraud is not an observable crime like a robbery, most credit-card-fraud victims do not realize they have been victimized. Victims do not usually find out they had been victimized until they: 1) receive a credit-card statement in the mail, 2) are disapproved for a loan, 3) get rejected for a job, or 4) lose their job (ITRC, 2010). By that time, the thief has moved on and assumed someone else's identity, while the victim is left to deal with the damage.

Because of the invested time it takes to resolve a credit-card fraud case, many victims give up attempting to clear their name and assume the personal loss. The estimated time victims spent in 2011 to get back their credit and good name averaged 33 hours, which is equivalent to more than four work days (Rivero, 2012). Some victims need to hire a lawyer to dispute charges they cannot clear from their name, which adds financial costs to the extreme response cost. Then, after investing large amounts of time fixing misinformation on their credit report, some victims still report they are unable to resolve their case. For example, Javelin Strategy & Research (2012) found 9% of victims in 2011 reported their cases were unresolved.

Besides the time and financial burden associated with credit-card fraud, credit-card fraud can also have psychological effects on its victims. The Identity Theft Resource Center, ITRC (2010) found the emotional impact of identity theft on victims to be likened to that felt by victims of more violent crimes, such as rape, violent assault, and repeated

battering. The strongest feelings expressed were rage, betrayal, personal financial fears, a sense of powerlessness, frustration, and exhaustion (ITRC, 2010). Long-term emotional responses include feeling extreme loss, feeling captive and ready to give up, and suicide (ITRC, 2010). Indeed, the symptoms displayed by some of the victims are classic examples of Post Traumatic Stress Disorder (PTSD) and secondary PTSD from secondary wounding (ITRC, 2010).

### **1.1.2 - Impact on Businesses**

Since businesses are forced by the credit-card companies to pay the bill of a credit-card theft, businesses are actually more affected financially by credit-card fraud than cardholders (Ganji & Mannem, 2012). While customers may face inconveniences getting a fraudulent charge reversed, merchants lose the cost of the product sold, pay charge back fees, and risk having their merchant account closed which can mean loss of sales if they cannot accept credit cards (Ganji & Mannem, 2012). According to the Bank Identification Numbers Database (2011), merchants pay more than three times the dollar value of a fraudulent transaction. In 2009, the average loss in goods and services to businesses, as indicated by ITRC (2010) data, was \$29,162 compared to \$58,135 in 2008. This is not taking into account how much money it takes to investigate the crime.

Like many victims, organizations also fail to report incidents of credit-card fraud to the proper authorities and take a financial loss (Lacey & Cuganesan, 2004). They fail to report these crimes because they do not think of them as crimes but as the cost of doing business (U.S. Department of Justice, 2010b). Many employers also fail to report these crimes so they can protect the reputation of their organization (Abagnale, 2007).

Unfortunately, a business's financial loss is often transferred to the consumer in the form of higher prices (Taylor, 2003; U.S. Department of Justice, 2010b).

### **1.1.3 - Impact on Taxpayers**

Besides paying for identity theft through an increase in the cost of goods and services, taxpaying individuals also pick up the bill to investigate and prosecute identity thieves (Abagnale, 2007). The U.S. Government Accounting Office (GAO) found the average financial investigation by the FBI or U.S. Secret Service costs between \$15,000 and \$20,000 (Pastore, 2004). The executive office for U.S. Attorneys estimated the average cost

of prosecuting a white-collar crime case, such as identity theft, was \$11,443 (ITRC, 2007). Together, these numbers indicate a need for cost-effective interventions to prevent credit-card fraud.

#### **1.1.4 - The Stages of Credit-Card Fraud**

Through personal interviews and survey research with victims, credit-card fraud investigators and researchers have categorized three stages in which credit-card fraud occurs: 1) the thief steals information from a potential victim, 2) the thief uses the victim's personal information, and 3) the victim finds out s/he has been victimized.

In Stage 1, the thief steals information from a potential victim. Many books and articles on identity-theft prevention cover this stage. Unfortunately, the preventive measures described do not work for all people, partly because the steps are fallible. Some of the steps fail to take into account: 1) most information on a victim is obtained through a lost or stolen purse or checkbook (Identity Theft Assistance Center, 2013), 2) most thieves have regular access to the victim's house or belongings (since they are usually acquaintances), and 3) people cannot keep track of everything mailed to them that could lead to their identity being stolen, such as personalized checks linked to their credit-card account.

Even after following most of the prevention measures, such as placing fraud alerts on credit files, identity thieves are still able to borrow peoples' names (Sovern, 2004). Although the prevention measures detailed on websites and prevention books are not guaranteed to prevent an individual from becoming a victim of credit-card fraud, they can decrease the odds of reaching Stage 2 of the credit-card-fraud process.

In Stage 2, the thief uses the victim's credit card to obtain goods and services from businesses. The only people who interact with the identity thief at this stage are employees of the business. These employees are the last line of defense to protect the person, whose credit card has been stolen, from becoming a victim of credit-card fraud. According to research by Lacey and Cuganesan (2004), the main prevention control that should be used at this stage is a visual inspection of a person's ID. Unfortunately, cashiers frequently fail to check customers for their ID, even customers they suspect are making illegal purchases (Hearn, 1986). While credit-card-fraud thieves make illegal purchases without being checked for their ID, the victim is left to straighten up all the damage as they move on to Stage 3 of the credit-card-fraud process.

In Stage 3, the victim finds out s/he has been victimized. This stage can occur anytime in the credit-card-fraud process. During this stage, victims try to restore their credit and contact the proper authorities. At this stage, much of the data are collected via surveys. Such research focuses on a victim's demographics, financial loss, repair time, and use of preventive measures (Berg, 2005), among other variables. Data are collected at this stage to convince politicians to pass laws that can protect individuals from identity theft. Also, in this stage, the data and tips for prevention guides, books, and articles are collected to educate consumers.

From its impact on individuals and businesses to the classification into stages, much has been learned about credit-card fraud. Regrettably, credit-card fraud is still a problem, because researchers fail to intervene at the most critical stage of the credit-card-fraud process—the merchant level or Stage 2. Most of the available research has examined the aftermath of credit-card fraud, failing to inform a prevention strategy. To prevent credit-card fraud significantly, credit-card fraud needs to be stopped at Stage 2 of the credit-card-fraud process. Successful intervention at Stage 2 will prevent Stage 3.

## **1.2 - Interventions to Prevent Credit-Card Fraud**

Interventions to decrease the prevalence of credit-card fraud have usually focused on educating consumers. Educating consumers about credit-card fraud has been around for some time, but it has improved significantly over the years due to the wealth of knowledge gained in the identity-theft domain. Education is generally used to: 1) warn people about the dangers of credit-card fraud, 2) clarify misconceptions people have about credit-card fraud, and 3) teach people how to protect themselves.

Educating people about credit-card fraud is important, but this intervention approach is only effective at Stages 1 and 3 of the credit-card-fraud process where individuals learn how to protect themselves and what to do if they get victimized. It does not lend much support to resolving the issues occurring at Stage 2 of the credit-card-fraud process where a thief walks into a store and uses someone's credit card illegally. Although cashiers are educated about credit-card fraud before they start their job, they rarely follow the training procedures to verify someone's identity (Lacey & Cuganesan, 2004). Thus, more than education needs to be implemented at this stage of the credit-card-fraud process.

An intervention that proactively involves cashiers in the checkout process is needed to complement the education cashiers receive during their orientation. If cashiers were proactively involved in the checkout process, the number of credit-card-fraud cases reported could be cut in half, according to Mather (2006). Other researchers (Anderson, Durbin, & Salinger, 2008; Lacey & Cuganesan, 2004) also agree the number of credit-card-fraud cases could be decreased substantially if cashiers would consistently check customers for their ID. Unfortunately, very few studies and interventions have examined ways to get cashiers involved in the check-out process.

### **1.2.1 - Interventions at Stage 2**

Before designing interventions to increase the occurrence of cashiers' ID-checking behavior, Downing and Geller (2009) explored factors contributing to cashiers checking customers for their ID. They asked research assistants (RAs) to record on a standardized check sheet whether cashiers asked for their ID when they made a credit purchase. Of 1,789 credit purchases made in the Blacksburg community, only 102 purchases (5.7%) were checked for ID. When examining the results by store type, cashiers working in retail stores were found to have checked ID during 13.7% of the purchases compared to 3.5% for restaurants, 3.1% for retail and grocery stores, 1.6% for grocery stores, and 1.1% for gas stations.

The researchers found the most significant factor determining whether cashiers checked customers for their ID during a credit purchase was whether the cashier swiped the card (credit or debit) during the transaction. More specifically, they found customers' ID was checked on 8.1% of those purchases when the cashier swiped the card, compared to only 2% of those purchases when the customer swiped the card.

**Customer-focused approach.** In a follow-up study, Downing and Geller (2009) evaluated the effectiveness of a "Please Check Photo ID" prompt placed on the front of a debit or credit card. This prompt intervention was evaluated because it is a recommended prevention strategy suggested by identity-theft professionals and bank specialists to persuade cashiers to safeguard against credit-card fraud.

Similar to their initial study, Downing and Geller (2009) asked RAs to record on a standardized check sheet whether cashiers asked for their ID when they made a credit purchase. After about eight weeks of Baseline, the RAs placed a "CASHIERS: PLEASE

CHECK PHOTO ID” sticker prompt on the front of their card and continued to note the cashiers’ ID-checking behavior. The sticker prompt was removed during the Withdrawal phase.

The “CASHIERS: PLEASE CHECK PHOTO ID” sticker prompt increased the frequency of ID checking by the cashiers only slightly, as 3.6% of 413 credit purchases were checked for ID during Baseline compared to 6.0% of 149 purchases during the Intervention phase and 5.8% of 121 purchases during the Withdrawal phase. Similar to Downing and Geller (2009), customers were checked for their ID more often when cashiers swiped the customers’ cards (7.0% of 386 purchases) than when customers swiped their own card (1.4% of 297 purchases).

Since Downing and Geller (2009) did not find a marked increase in the frequency of ID checked by the cashiers, Downing and Geller (2012) examined the social validity of cashiers checking customers for their ID by asking grocery-store cashiers whether checking customers’ ID is a “hassle” for them. The 17 local cashiers surveyed indicated they did not find it inconvenient for them to check a customer’s ID for a credit purchase. More importantly, the results revealed cashiers indicated it was their responsibility to look out for the safety and security of their customers.

To encourage cashiers to look out for the security of their customers, Downing, Hastings, Fialkow, Holmes, and Adams (2013) applied positive and negative consequences to the prompts to persuade cashiers to check customers for their ID. The positive consequence prompt read “Check my ID to PROMOTE identity security” while the negative consequence prompt read “Check my ID to PREVENT identity theft”. As the RAs paid for their purchases, they handed their credit/debit card to the cashier at eye level to display one of two prompts covering the signature line on the back of their card. While making purchases, the RAs noted the cashiers’ ID-checking behavior on a standardize check sheet.

Downing et al. found 20.7% of 92 credit purchases were checked for ID, which was more than the 9.8% of credit purchases checked for ID when the cashier swiped the card in the Downing and Geller study (2009). In the Downing and Geller study (2009), the message prompt consisted of only an antecedent reminder (“CASHIERS: PLEASE CHECK PHOTO ID”), while the two message prompts used in the Downing et al. (2013) study included both an antecedent and consequence. The only difference between the two consequence

messages was that one was framed with a negative consequence (“Check my ID to PREVENT identity theft”) which resulted in 23.9% of 46 purchases checked for ID, and the other was framed with a positive consequence (“Check my ID to PROMOTE identity security”), which resulted in 17.4% of 46 purchases checked for ID.

Due to differences in methodology, conclusions could not be made across studies as to which message prompt was the most effective at increasing the occurrence of cashiers’ ID-checking behavior. When comparing the Downing and Geller study (2009) and the Downing et al. study (2013), the message prompts placed on the card differed in size, shape (circular versus rectangular), and location on the card (front versus the back). Therefore, a follow-up study to compare the three message prompts with a control prompt is warranted, which is the purpose of Studies 1 and 2 of this research report.

According to a review of behavioral interventions to preserve the environment, Dwyer, Leeming, Cobern, Porter, and Jackson (1993) concluded that antecedents implicating a consequence were more influential than those that did not include a consequence. Geller, Winett, and Everett (1982) arrived at a similar conclusion when examining prompting techniques to increase the frequency of environmentally-responsible behaviors (ERBs). They found antecedents implying consequences were more influential than antecedents alone on increasing ERBs.

Geller (2001) indicated the most influential antecedents (or activators) usually make reference to consequences. According to the A-B-C (Antecedent-Behavior-Consequence) Model, prompts containing an antecedent paired with a consequence are presumably more effective because the prompts direct and motivate behavior, while a prompt containing only an antecedent directs behavior. Thus, the first hypothesis of Study 1 is that the prompts containing the antecedent paired with a consequence will be more effective than the control or the antecedent-only prompt at increasing the occurrence of cashiers’ ID-checking behavior.

A difference in cashiers’ ID-checking behavior is also expected with regard to the prompts containing the antecedent paired with the consequence. According to the literature, an antecedent containing a positive consequence is expected to have a greater impact on

behavior than an antecedent containing a negative consequence. However, recent research (Downing et al., 2013; Drake, 2009) suggests the opposite, because these researchers found negative consequences to be slightly more effective than positive consequences.

Negative consequences specify how to prevent or avoid a loss by complying with the message, whereas positive consequences specify the benefits or gain of complying with the message. Negative consequences, as argued by Geller et al. (1982), are not as effective as positive consequence because they can lead people to feel controlled by external events and activate a perceived need to maintain personal freedom, which can activate psychological reactance (Brehm, 1966).

Such psychological reactance can lead to: 1) ignoring the requested behavior, 2) active resistance to emit the target behavior, or 3) direct countercontrol measures (Geller et al., 1982). On the other hand, positive consequences are more apt to be accepted by the community at large because they seem to preserve one's perception of personal freedom, and are less likely to promote resistance and counteraction (Geller et al., 1982; Skinner, 1971).

The proposed greater impact of positive than negative consequence prompts was supported by Cox and Geller (2010) when comparing the effects of a "Click-It or Ticket" (negative consequence) versus "Please Buckle Up, I Care" (positive consequence) sign to increase safety-belt use. As unbuckled university students left one of two campus parking lots, a RA held up one of two signs and another RA recorded whether the unbuckled driver buckled up. The driver's reactions to the sign, including positive or negative hand gestures and facial expressions, were also recorded. Unbuckled drivers were significantly more likely to buckle up when showed the sign with the positive consequence compared to the sign with the negative consequence. In addition, the negative sign received more negative facial expressions and hand gestures from unbuckled drivers than did the positive sign.

Using the same rationale as Geller et al. (1982), Drake (2009) examined the effectiveness of message prompts containing an antecedent paired with a positive or negative consequence on shoppers' littering behavior (e.g., "Don't litter – Keep our planet beautiful." vs. "The fine for littering in Virginia is \$250 or higher. Don't litter."). As customers entered one of two grocery stores, RAs handed them a handbill containing the store's daily specials, along with an anti-littering message paired with either a positive or

negative consequence printed on the bottom. While one group of RAs handed out handbills, another group of RAs searched the premises of the two stores (including the parking lot) for the littered handbills. Unexpectedly, the handbills containing an antecedent with a negative consequence were littered significantly less often than the handbills containing an antecedent with a positive consequence.

Similar to Drake (2009), Downing et al. (2013) found the antecedent with the negative consequence was slightly more effective than the antecedent with the positive consequence at increasing the frequency of cashiers' ID-checking behavior (i.e., 23.9% vs. 17.4% ID checking for the negative vs. positive consequence, respectively). Thus, the second hypothesis of Study 1 of the research reported here is that the prompt with the negative consequence will be more effective than the prompt with the positive consequence at increasing the frequency of cashiers' ID-checking behavior. The effectiveness of the prompts at prompting cashiers' ID-checking behavior was explored further in Studies 1 and 2.

**Cashier-focused approach.** In an attempt to promote cashiers' ID-checking behavior from the cashier side of the purchasing interaction, Downing and Geller (2012) evaluated a participative goal-setting and feedback intervention at two large grocery stores with an A-B-A (Baseline-Intervention-Withdrawal) reversal design. RAs recorded the ID-checking behavior of the cashiers at the Intervention store and a nonequivalent control store. During the 23-day Intervention phase, the researchers collaborated with the cashiers at the Intervention store to set a 15% ID-checking percentage goal. After setting the 15% ID-checking percentage goal, the first author met with the cashiers every morning to deliver feedback on their previous day's ID-checking performance. The participative goal-setting and feedback intervention was removed during the 15-day Withdrawal phase.

At the Intervention store, the frequency of the cashiers' ID-checking behavior increased from 0.2% at Baseline to 9.7% during the Intervention phase. When the participative goal-setting and feedback intervention was removed, the frequency of the cashiers' ID-checking behavior returned to low Baseline levels (2.3%), demonstrating functional control of the intervention. The ID-checking percentages at the Control store were considerably low throughout the Baseline, Intervention, and Withdrawal phases at the Intervention store (0.3%, 0.4%, and 0.7%, respectively).

Although the cashier-focused intervention evaluated by Downing and Geller (2012) increased the frequency of cashiers' ID-checking behavior significantly, it's possible the cashiers' ID-checking behavior could have been increased further if the store manager had been actively involved in the intervention process. Although the store manager at the Intervention store supported the intervention process, he was absent when the cashiers set the store's ID-checking percentage goal and on days when the cashiers received feedback.

The impact of the store manager's absence was reflected in a post-experiment survey that indicated cashiers' concern about the store manager's lack of interest in the intervention process. If the store manager had been involved in the intervention process, the cashiers would likely have checked more customers for their ID. To empirically test this assumption, Study 3 of the research reported here involved the manager implementing a goal-setting and prompt intervention.

**Goal setting and prompt interventions.** Goal-setting and prompt interventions are an inexpensive, effective way to change behavior. They have been used in organizations to influence various employees' behaviors (Dishman, DeJoy, Wilson, & Vandenberg, 2009; LaFleur & Hyten, 1995; Ralis & O'Brien, 1987). For goal-setting and prompt interventions to be successful, each component must meet specific criteria.

For goal-setting, Locke and Latham (1990) found specific and challenging, yet achievable goals to be more effective and led to improved performance than "do your best" goals. The effect sizes in meta-analyses showing specific, difficult goals are more effective than "do your best" goals ranged from .42 to .80 (Locke & Latham, 1990). Numerous studies have shown that setting a specific, difficult goal leads to significant increases in employee productivity (Locke & Latham, 1984) and organizational profitability (Terpstra & Rozell, 1994).

Effective prompts normally contain consequences. However, if prompts do not contain consequences, Geller et al. (1982) asserted prompts should be: 1) specific, 2) presented close in proximity to the area in which the individuals are expected to respond, and 3) designed to occasion an easily emitted (i.e., convenient) behavior. Numerous behavioral studies (Austin, Alvero, Olson; 1998; Austin, Hatfield, Grindle, & Bailey, 1993; Clayton, Helms, & Simpson, 2006; Clayton & Blaskewicz, 2012; Cox & Geller, 2010) have demonstrated the effectiveness of prompts meeting Geller et al.'s criteria in various

contexts. Prompts have been used in organizations to: 1) improve health (Fanslow, Leland, Craig, & Hahn, 1988), 2) reduce theft (Carter & Holmberg, 1993), and 3) increase organizational profitability (Martinko, White, & Hassell, 1989).

The effectiveness of a goal-setting and prompt intervention was demonstrated by Ralis and O'Brien (1987). They doubled red and white wine sells in a restaurant by implementing a wine-selling goal for the servers per each wine, while prompting the servers' behavior with a checklist written on the meal check. Also, using a goal-setting and prompt intervention package, Dishman, DeJoy, Wilson, and Vandenberg (2009) increased the physical activity of workplace employees by getting the organization's personnel involved in the intervention process.

**Institutionalization.** Recently, interventions have actively involved store personnel in the intervention process. Sigurdsson and Austin (2006) discovered that involving the internal staff (management and/or non-management) in the intervention process can increase the impact and durability of any behavior-change intervention. They used the term "institutionalization" to refer to the involvement of the internal staff in the intervention process.

As outlined by Sigurdsson and Austin, "institutionalization" of an intervention process includes indigenous personnel: 1) developing or co-developing the intervention, 2) implementing some elements of the intervention, 3) delivering consequences to workers as a programmed component of the intervention, or 4) collecting data on performance measures.

Sigurdsson and Austin (2006) found an average effect size increase of 0.52 for comparisons between Baseline and Intervention when one institutionalization element was added to an intervention, and they found an average effect size increase of 0.40 for comparisons between Baseline and Withdrawal when one institutionalization element was added. Overall, Sigurdsson and Austin concluded that adding at least one institutionalization element to an intervention can improve the impact and duration of a behavior-focused intervention.

For example, Cunningham and Austin (2007) had the unit coordinator of a hospital deliver a participative goal-setting and feedback intervention to increase employees' safe handling of sharp instruments in hospital operating rooms (OR). Their results revealed the intervention increased the employees' safe handling of sharp instruments from 32% to 64%

in the inpatient OR and 31% to 70% in the outpatient OR during the intervention. Importantly, the employees' safe handling of sharp instruments showed maintenance or improvement during Withdrawal. Specifically, the safe handling of sharps in the inpatient OR decreased only slightly from 64% to 63%, and in the outpatient OR it increased from 70% to 73%. Thus, Cunningham and Austin (2007) showed by incorporating the unit coordinator into the intervention process, the participative goal-setting and feedback intervention could increase and maintain the desired behavior.

In another example, Ludwig and Geller (1997) collaborated with the managers of two pizza restaurants to increase the frequency of intersection stopping among pizza-delivery drivers. More specifically, the researchers trained the manager at one location to deliver a participative goal-setting and feedback intervention to his employees, while they trained the other manager to assign a goal and give behavioral feedback to his employees. The results revealed the mean intersection-stopping behavior at both restaurants increased from Baseline to Intervention, and decreased only slightly during Withdrawal. Similar to Cunningham and Austin (2007), Ludwig and Geller (1997) showed a goal-setting and feedback intervention, whether using assigned or participative goal setting, can significantly increase and maintain the desired behavior if a member of management is involved in the intervention.

In Study 3 of the research presented here, the manager led a goal-setting and prompt intervention which is more socially valid than the goal-setting and feedback intervention used by Downing and Geller (2012). Whereas Downing and Geller used participative goal-setting, the present study used a goal assigned by the restaurant manager. The research literature has not shown any significant differences in the behavioral impact of assigned goal-setting versus participative goal-setting (Dossett, Latham, & Mitchell, 1979; Latham & Steele, 1983; Latham & Yukl, 1976; Latham, Mitchell, & Dossett, 1978; Ludwig & Geller, 1997) with regard to intervention impact or maintenance of the target behavior.

Also, the type of store setting used in Study 3 has not been targeted previously in an ID-checking study. Specifically, the present study used a restaurant to implement and evaluate the goal-setting and prompt intervention, whereas Downing and Geller (2012) used

a grocery store. As revealed in their assessment study (Downing & Geller, 2009), comparisons of the ID-checking of cashiers in a grocery store and a restaurant revealed no significant difference.

**Customer-focused and cashier-focused approach.** The present study evaluated the impact of an intervention that combined participation from both the customer and the cashier. According to Hearn (1986), merchants, cardholders, and card issuers must work together to foil credit-card fraud by guaranteeing the persons with their hands on the credit cards are the ones who should have them. Similar to Hearn (1986), Prabowo (2011) asserted that multiple preventive approaches are needed to reduce credit-card fraud. One approach is not sufficient for maximum impact.

Study 4 tested these assertions of Hearn (1986) and Prabowo (2011) by combining two intervention approaches designed to increase the probability cashiers will check the ID of customers making a credit purchase. It was hypothesized cashiers will be more likely to check customers for their ID when the two prevention approaches are combined compared to when only one prevention approach is used.

### **1.3 - Overview of the Present Studies**

The current studies explored two prevention techniques (one customer-focused and the other cashier-focused) to increase the frequency of cashiers' ID-checking behavior. Studies 1 and 2 used a customer-focused approach to encourage cashiers' ID-checking behavior by varying the prompts placed on credit and debit cards. Specifically, Study 1 compared the impact of a no-prompt control with three prompt conditions (i.e., an antecedent only, an antecedent with a positive consequence, and an antecedent with a negative consequence) on cashiers' ID-checking behavior in a college community. Study 2 examined the impact of the four prompt conditions in non-college communities.

Study 3 used a cashier-focused approach to promote cashiers' ID-checking behavior by involving the restaurant manager in the intervention process. Specifically, Study 3 investigated the impact of having a manager deliver a goal-setting and prompt intervention on cashiers' ID-checking behavior.

Study 4 combined both the customer-focused and cashier-focused approaches to combat credit-card fraud. Specifically, select customers in Study 4 placed the most successful message from Study 1 over the signature line of their credit or debit card. They

entered two randomly-assigned restaurants (with one of the two restaurants participating in a manager-directed goal-setting and prompt intervention) to determine the relative impact of both the customer-focused (the prompt) and the cashier-focused (the goal-setting and prompt) intervention.

## **Chapter 2 - Study 1: The Customer-Focused Intervention in a College Community**

Study 1 systematically evaluated the impact of adding a consequence to a prompt (i.e., a sticker on a credit or debit card) requesting an ID check. Given the results of Downing and Geller (2009) and Downing et al. (2013), it was hypothesized the message prompts containing both an antecedent and a consequence will be more effective at increasing the frequency of cashiers' ID-checking behavior than a no-prompt control and an antecedent-only prompt. Furthermore, it was hypothesized the antecedent with the negative consequence will be more effective at increasing the frequency of cashiers' ID-checking behavior than the antecedent with the positive consequence.

### **2.1 - Methods**

#### **2.1.1 - Participants and Settings**

The study protocol was performed by 13 research assistants (RAs) posing as customers who were students at a large community located in southwestern Virginia with about 95,000 residents. The RAs included 12 females and one male with a mean age of 20 (SD=1.18). Of the 13 RAs, 11 were White, one was Asian, and one was Hispanic/Latino. The average number of observations made by the RAs was 9.54 (SD=11.49) with a median and mode of four.

The RAs collected data from 124 cashiers (55 females, 67 males, and two cashiers whose gender was not recorded) working in various commodity stores in southwestern Virginia. Of the 124 cashiers, 95 were White, nine cashiers were Black/African American, 11 cashiers were Asian, five cashiers were Hispanic/Latino, three cashiers were White and Hispanic/Latino, and the race of one cashier was not recorded.

#### **2.1.2 - Materials**

**Credit-card datasheet.** The RAs used the credit-card datasheet (shown in Appendix A) to record their observations. Each data sheet consisted of four observations, representing the four conditions: 1) Control, 2) Antecedent Only, 3) Antecedent/Positive Consequence, and 4) Antecedent/Negative Consequence. A total of 24 different data sheets were distributed strategically so the four conditions were ordered in every possible combination.

Each observation session consisted of 16 observation items, separated into three categories: 1) cashier's identifying information, 2) purchase information, and 3) card-identifying information. For the cashier's identifying information, six items (e.g., the cashier's gender, race, and name) were used to identify cashiers, so no cashiers were used more than once. For the purchase information, eight items were used to assess the check-out process, including whether the cashier asked to see an ID and the amount of money charged. For the card-identifying information, two items (i.e., type of card used and whether the card had a picture ID on it) were recorded.

In addition to the 16 observation items for each observation session, the credit-card datasheet also asked the RAs to record their own gender, race, and age.

**Prompts.** The manipulation of the behavioral prompts was conducted by using one of three messages typed in bold, 12-point Arial font. The messages were typed on a .375" x 2.5" orange color-coded label, and placed over the signature line on the back of the RA's credit or debit card. The Antecedent Only message read "Check my ID". The message for the Antecedent/Positive Consequence condition read "Check my ID to PROMOTE identity security," whereas the message for the Antecedent/Negative Consequence condition read "Check my ID to PREVENT identity theft".

For the Control condition, a blank .375" x 2.5" orange color-coded label was used to cover the signature line on the back of the RA's credit or debit card.

## **2.2 - Procedure**

Before participating in this field study, RAs attended a training session in which the author explained the research project and taught the RAs how to follow the protocol and record their observations. The training session was separated into two parts.

First, the RAs were given the rules and guidelines for making observations. Only purchases made in the New River Valley (including Roanoke County) in which they physically interacted with the cashier (no drive-thru or self-check-outs) and the cashier swiped their credit or debit card was included in the study. The RAs were instructed to avoid observing the same cashier more than once and to include only interactions with cashiers who did not know them. Also, they were instructed to avoid observations of credit

purchases that included alcohol or tobacco items because it's the law for cashiers to check for ID on these products. In addition, RAs were instructed to not include purchases at bars because ID-checking behavior is standard practice in these settings.

In the second part of the training session, the RAs were informed about the four conditions in which they would make credit purchases: Control, Antecedent Only, an Antecedent/Positive Consequence, and an Antecedent/Negative Consequence. The RAs were randomly assigned to a condition order, determining their Credit-Card datasheet, by drawing a number out of a bag.

After drawing a number and receiving a datasheet, the RAs were given the prompts. The RAs were informed about the message prompts they would place over the signature line on the back of their card. They were instructed to hand their card to the cashier with the message prompt facing the cashier at eye level when the cashier asked them for method of payment. The RAs were also instructed to have their ID and credit or debit card readily accessible before the check-out process, so they could efficiently perform the desired behaviors for ID checking. While the RAs were being informed about the four conditions, they were never told the purpose of the conditions or the research hypotheses.

During the second part of the training session, the author explained the Credit-Card Datasheet (which the RAs were instructed to complete after they left the store), pinpointing the observations to be recorded. The RAs were also instructed to turn in their purchase receipts with their datasheet for verification and reliability purposes.

After addressing the prompts, the Credit-card datasheet, and the data-collection process, the author answered any questions the RAs had about the data-collection process. After addressing questions, the author thanked the RAs for their research assistance, and the training session ended.

Subsequently, the RAs made observations per each condition in the order given on their data sheets. After the RAs made all four purchases, they met with the author to turn in their receipts and datasheet. The author reviewed each datasheet and receipt to verify the information and record the stores and cashiers observed. This process assured multiple RAs did not use the same cashier. If a RA used a cashier who was already observed, that data was not counted and the RA was instructed to make another observation for that condition.

When a RA completed all four conditions without using any repeat cashiers, s/he was given another datasheet (by drawing another number) with the conditions randomly ordered for conducting the field observations per the four experimental conditions. If an RA drew a number they had drawn previously, s/he kept drawing until picking a different number.

Throughout the study, the author compiled a list of stores and cashiers observed, so the author and RAs knew which cashiers to avoid for their purchases.

### **2.3 - Data Analysis**

To examine whether there was a difference in ID checking between the four prompts, a 4 prompt (blank; antecedent only; antecedent/negative consequence; antecedent/positive consequence) x 2 ID Checked (yes, no) Chi-Square analysis was conducted to determine if there was a significant relationship among the variables. When a significant relationship was detected, the Marascuillo procedure was used to perform pairwise significance testing between each of the four prompts.

A logistic regression was used to examine four factors that could have influenced the frequency of the cashiers' ID-checking behavior. With the personal-service store category serving as the reference group, the store-type variable was dummy coded and entered into the logistic regression in Step 1 because the variable was a factor found to be significant in previous studies (Downing & Geller, 2009; Downing et al., 2013; Downing, Howard, Goodwin, & Geller, in press) pertaining to the frequency of cashiers' ID-checking behavior. This categorical variable was also entered into the logistic regression first to examine its individual impact on the frequency of cashiers' ID-checking behavior.

Subsequently, the three factors pertaining to: 1) the amount of money spent, 2) the number of paying customers in line behind the RA, and 3) the number of cashiers in the store were entered into Step 2 of the regression model as continuous variables in that respective order. They were entered into the model based on their perceived importance of influencing the frequency of cashiers' ID-checking behavior.

Due to the Hispanic race category perfectly discriminating between being checked for ID and not being checked for ID, the cashiers' race variable was not included in the logistic model. However, a Chi-Square analysis was performed to examine a trend in this factor.

## 2.4 - Results

A total of 137 purchases were made by the 13 RAs. Of the 137 purchases made, 13 were discarded because they contained the name or demographic information (if cashier's name was not provided) of a cashier previously used in the study. After discarding the 13 purchases, 124 purchases remained. Of the 124 purchases, 31 (25%) were checked for ID, while 93 (75%) were not checked for ID.

Of the 124 purchases, 60% were made in restaurants, 18% in retail stores, 12% in café stores, and 10% in personal-service stores. The data recorded for the Store Type observations were classified into seven categories: 1) retail store, 2) restaurant, 3) grocery store, 4) retail & grocery store, 5) café, 6) gas station, and 7) personal services.

An observation was classified as a retail store (e.g., Best Buy) if the purchase was made at a store selling: 1) non-food items (e.g., apparel and entertainment items), 2) snack foods (e.g., chips and soft drinks), or 3) services and items for leisure activity (e.g., Barnes & Nobles). An observation was classified as a restaurant (e.g., Wendy's) when the purchase was made at a store that prepared and served hot and cold pre-made or package food. An observation was classified as a grocery store (e.g., Food Lion) if the purchase was made at a store that sold mainly food items (raw and prepared) and household products. An observation was classified as a retail & grocery store (e.g., Wal-Mart) if the purchase was made at a store selling an equal amount of food and non-food items (e.g., apparel and entertainment items). An observation was classified as a café (e.g., Starbucks) if the purchase was made at a store that: 1) specialized mainly in freshly baked cakes, bagels, or pastries or 2) mainly specialized in various types of coffee, teas, and healthy beverages. An observation was classified as a gas station (e.g., Sheetz) if the purchase was made at a store that sold gas along with snack foods. An observation was classified as a personal-service store if the purchase was made at a store providing: 1) one-to-one luxury services (e.g., hair and nail salon) or 2) sold goods and services that cater to the need of the individual (e.g., spa).

Overall, the average number of cashiers in the stores was 1.85 (SD=1.21), and the average number of people in line behind the RAs was 2.11 (SD=3.91). Since the RAs made purchases for each experimental condition, the frequency of the purchases made with each prompt was 25%.

Overall, the average credit purchase amount was \$12.34 (SD=\$9.09). As shown in Table 1, only the purchase amounts were significantly different between the store types. The purchase amounts made in retail and personal-service stores were higher than the amounts made in restaurants and café stores.

A vast majority of the purchases made in personal-service stores were between \$25 and \$30, while the vast majority of the purchases made in retail stores were between \$8 and \$18. Additionally, a vast majority of the purchases made in restaurants were between \$5 and \$15, whereas the vast majority of the purchases made in café stores were between \$5 and \$7.

Table 2 shows the means, standard deviations, and correlations of the continuous factors entered into the logistic regression model. As shown in Table 2, none of the factors had a significant correlation relationship.

**Examining the effectiveness of the prompts.** As shown in Figure 1, cashiers checked RAs for ID the most when the credit/debit card contained the prompt with the antecedent and *positive* consequence as 13 out of 31 RAs (42%) were checked for ID. RAs were checked for ID the second most often when the prompt contained the antecedent with the *negative* consequence as 12 out of 31 RAs (39%) were checked for ID, and less when the prompt mentioned no consequence as 6 out of 31 RAs (19%) were checked for ID. No RAs were checked for ID (0 out of 31) with the blank prompt. A 4 prompt (blank; antecedent only; antecedent/positive consequence; antecedent/negative consequence) x 2 ID Checked (yes; no) Chi-Square test revealed the four prompts differed in being checked for ID,  $\chi^2(3, N=124) = 25.45, p < .05$ .

The Marascuillo procedure results, shown in Table 3, shows the observed difference value and critical range for each prompt comparison along with whether the prompts being compared were statistically different. As shown in Table 3, the Marascuillo procedure revealed a statistical difference was only detected when comparing the blank prompt to the antecedent and consequence prompts. Although a significant difference was not detected when comparing the antecedent-only prompt to the blank prompt, caution must be taken when interpreting the results because the results are approaching significance.

Regarding the hypotheses, the first hypothesis was partially supported as the prompts containing the antecedent and consequence were checked for ID significantly more often than when the blank prompt was used. However, the prompts containing the antecedent and consequence were not checked for ID significantly more than the antecedent-only prompt.

Additionally, the second hypothesis was not supported. The prompt containing the antecedent with the negative consequence was not checked for ID significantly more than the prompt containing the antecedent with the positive consequence.

**Exploratory analysis.** In addition to the analyses examining the effectiveness of the prompts, a logistic regression was performed on the independent variables of store type, amount of money spent, number of paying customers in line behind the RA, and number of cashiers in the store to investigate their influence on cashiers' ID-checking behavior. As shown in Table 4, when the store-type dummy-coded variables were entered into the logistic regression model, the results revealed the type of store the cashiers were employed did not have an influence on the frequency of their ID-checking behavior as Step 1 failed to reach statistical significance,  $\chi^2(3) = 6.11, p > .05$ .

As shown in Table 5, when the remaining factors were entered into the logistic regression model at Step 2, the results showed Step 2 was significant,  $\chi^2(3) = 8.56, p < .05$ , when added to the model. In addition, the variable pertaining to the number of customers in line, Wald = 5.07,  $p < .05$ , was significant.

The overall logistic regression model was significant,  $\chi^2(6) = 14.67, p < .05$ , and explained 17% (Nagelkerke  $R^2$ ) of the variance in the frequency of the cashiers' ID-checking behavior. The factor pertaining to the number of paying customers in line behind the RA was the only factor to reach significance. According to the odds ratio, as the line increases by one person, cashiers are 1.45 times less likely to check a customer's ID.

**Additional exploratory analyses.** A 2 ID checked (yes, no) x 5 cashiers' race (White, Black, Asian, Hispanic/Latino, White and Hispanic/Latino)  $\chi^2$  test was conducted to investigate differences in ID checking due to the race of the cashiers (which was reported by the RAs). The Chi-Square test did not reveal a significant difference in ID checking due to the cashiers' race,  $\chi^2(4, N=124) = 3.72, p > .05$ .

## 2.5 - Discussion

Drawing from previous research conducted by Downing and Geller (2009) and Downing et al. (2013), the present study examined the difference between four prompts at increasing the occurrence of cashiers' ID-checking behavior. As hypothesized, the results showed customers were less likely to be checked for their ID when they used the blank prompt compared to the antecedent and consequence prompts.

Although the blank prompt was expected to be the least checked prompt, it is still disturbing no cashiers took preventive measures to verify the identity of customers in this experimental condition, because a credit/debit card is not valid without a visible signature. Since the signature line was covered, cashiers should have checked customers for their ID. The failure of cashiers to verify the identity of customers using the blank prompt demonstrates the ineptness of the signature verification method, as cautioned by Downing, et al. (in press), in protecting consumers' identity.

The results did not show a statistical difference in cashiers' ID-checking behavior between the antecedent-only prompt and the prompts with the antecedent and consequence. The results suggest using an antecedent and consequence message did not capture cashiers' attention more than the standard antecedent-only message.

It is believed a difference would have been observed between the three prompts had the consequences in the messages applied more to the cashier instead of the customer. For example, the promotion prompt in the study read "Check my ID to promote identity security". The consequence in the message did not associate how complying with the message could benefit or directly affect the cashier. If the prompt read "Check my ID to show you value my safety," the prompt would have been more persuasive because the consequence applies to the cashiers (the target audience). As stated by Geller (2001), an effective activator involves the target audience.

Although the prompt with the antecedent and positive consequence was checked for ID more than the prompt with the antecedent and negative consequence, no differential effects were found between the two prompts. A possible explanation for no difference in ID

checking between the two prompts can be attributed to the tone of the messages. Although the consequences are worded differently (positive and negative), when one reads the prompts, they sound like neutral requests.

Previous studies (Cox & Geller, 2010; Reiter & Samuel, 1980) that found differences between prompts containing positive and negative consequences differed in tone. Normally, the positive consequence prompt sounds like a polite request (or positive), whereas the negative consequence prompt sounds like a demand. For example, in Cox and Geller's (2010) study, the positive sign "Please Buckle Up, I Care" sounds uplifting (positive), whereas "Click It or Ticket" sounds threatening and demanding. When the prompts differ in tone, a difference between them is more likely to be observed than when the tone of the prompts sound similar.

The results also revealed the number of customers in line influenced the frequency of cashiers' ID-checking behavior. It was found that cashiers were less likely to comply with the request of the prompts due to the number of customers in their line. As the line increased by one person, cashiers were 1.45 times less likely to check a customer's ID. This finding is possibly due to cashiers having more time to notice the prompt and check a customer's ID when they are not feeling rushed. When cashiers are not feeling rushed, they have more time to devote to individual customer needs.

The present study is the first of a series of customer-prompting studies (Downing & Geller, 2009; Downing et al., 2013) to show a difference in the frequency of cashiers' ID-checking behavior as a function of the number of customers in line. Previous research found only the type of store the cashier is employed to influence the frequency of cashiers' ID-checking behavior. In the present study, the type of store the cashiers worked did not impact the frequency of their ID-checking behavior.

### **2.5.1 - Limitations of Study 1**

Although a majority of the hypotheses were not supported, a couple of limitations could have impacted the results. One of those factors was the amount of the RAs' credit purchases. If the purchase amounts had been higher, it's possible more cashiers would have checked the prompts for ID because they might have believed the customer's identity was

truly at risk. Therefore, future research should conduct the following study using higher credit purchase amounts to examine if there is a difference in cashiers' ID-checking behavior between the various prompts.

It's also possible the setting of the present study could have impacted the results. The present study took place in a college community, which tends to be more trusting than non-college towns. It is likely the college community atmosphere could have impacted the frequency of cashiers' ID-checking behavior by making them more trusting of their customers. This factor was examined further in Study 2.

## **Chapter 3 - Study 2: The Customer-Focused Intervention in Non-College Communities**

Prior field studies (Downing & Geller, 2009; Downing et al., 2013; Downing et al., in press) investigating the influence of prompts on the frequency of cashiers' ID-checking behavior occurred in a college community. Using the same hypotheses and a similar methodology as Study 1, Study 2 explored the effectiveness of the prompts used in Study 1 on the occurrence of cashiers' ID-checking behavior outside of a college community.

### **3.1 - Methods**

#### **3.1.1 - Participants and Settings**

The study protocol was followed by four RAs posing as customers who were students at a large community located in southwestern Virginia with about 94,392 residents. The RAs included three females and one male with a mean age of 19.25 (SD=1.5). All of the RAs identified as White. The average number of observations made by the RAs was 17 (SD=18.3) with a median of ten.

The RAs collected data from 68 cashiers (43 females and 25 males) working in various commodity stores in non-college communities. Of the 68 cashiers, it was observed that 36 cashiers were White, nine cashiers were Black/African American, 13 cashiers were Asian, and ten cashiers were Hispanic/Latino.

#### **3.1.2 - Materials**

**Credit-card datasheet.** Using the same credit-card datasheet as Study 1, RAs recorded the designated observations and behavior of the cashiers who handled their individual purchases.

**Prompts.** The same behavioral prompts used in Study 1 were used in Study 2 to manipulate cashiers' ID-checking behavior.

### **3.2 - Procedure**

Before collecting data, RAs attended a training session (separated into two parts) similar to Study 1 in which the author explained the research project and taught the RAs how to follow the research protocol and record their observations. In the first part of the

training session, the RAs were educated on the rules and guidelines for making observations. The RAs were given the same rules and guidelines from Study 1, except they were told to conduct the study in a non-college community.

In the second part of the training session, the author explained the data-collection procedure and the research materials to the RAs, along with how to record their observations. The second part of the training session was similar to Study 1. The only difference was the RAs were randomly assigned three credit-card datasheets instead of one by drawing numbers out of a bag. The RAs were given three datasheets to make it convenient for them to have access to additional sheets when they completed one.

After the training session ended, the RAs waited until they went home or on break to make observations per each condition in the order given on their datasheet. The RAs completed one datasheet at a time in the order of the number on the datasheet that had been drawn from the bag. After the RAs completed all four purchases on one datasheet, they used the next datasheet (going in the order drawn from the bag) to start making observations.

When the RAs returned to campus, they met with the author to turn in their receipts and datasheet. The author reviewed each datasheet and receipt to verify the information and make sure the RAs followed the protocol. If an RA did not follow the study's rules and procedures when making an observation, the datasheet containing that observation was excluded from the study. The author compiled a list of stores and cashiers observed, so the author knew which stores and cashiers were visited.

### **3.3 - Data Analysis**

To examine whether there was a difference in ID checking between the four prompts, a 4 prompt (blank; antecedent only; antecedent/positive consequence; antecedent/negative consequence) x 2 ID Checked (yes, no) Chi-Square analysis was conducted to determine if there was a dependency among the variables. When a dependency was detected, the Marascuillo procedure was used to perform pairwise significance testing between each of the four prompts.

A logistic regression was used to investigate three factors (i.e., the amount of money spent, the number of paying customers in line behind the RA, and the number of cashiers in the store) that could have influenced the frequency of cashiers' ID-checking behavior. The

factors pertaining to: 1) the amount of money spent, 2) the number of paying customers in line behind the RA, and 3) the number of cashiers in the store were entered into the regression model as continuous variables.

Since the personal-service category for the store-type variable and the Asian category for the cashiers' race variable provided a way to perfectly discriminate between being checked for ID and not being checked for ID, they were not included in the logistic regression. However, a Chi-Square analysis was used to explore the trends in these two factors.

### **3.4 - Results**

A total of 76 purchases were made by RAs while they were at home or on break. Of the 76 purchases, eight purchases (two sheets) were discarded because a purchase on the sheet violated the research protocol. After discarding the eight purchases, 68 purchases remained. Of these 68 purchases, only 12 (18%) were checked for ID, whereas 56 (82%) were not checked for ID.

Of the 68 purchases, 45% were made in restaurants, 27% in retail stores, 19% in café stores, and 9% in personal-service stores. The data recorded for the Store Type observations were classified into seven categories: 1) retail store, 2) restaurant, 3) grocery store, 4) retail & grocery store, 5) café, 6) gas station, and 7) personal services.

An observation was classified as a retail store (e.g., Best Buy) if the purchase was made at a store selling: 1) non-food items (e.g., apparel and entertainment items), 2) snack foods (e.g., chips and soft drinks), or 3) services and items for leisure activity (e.g., Barnes & Nobles). An observation was classified as a restaurant (e.g., Wendy's) when the purchase was made at a store that prepared and served hot and cold pre-made or package food. An observation was classified as a grocery store (e.g., Food Lion) if the purchase was made at a store that sold mainly food items (raw and prepared) and household products. An observation was classified as a retail & grocery store (e.g., Wal-Mart) if the purchase was made at a store selling an equal amount of food and non-food items (e.g., apparel and entertainment items). An observation was classified as a café (e.g., Starbucks) if the purchase was made at a store that: 1) specialized mainly in freshly baked cakes, bagels, or pastries or 2) mainly specialized in various types of coffee, teas, and healthy beverages. An observation was classified as a gas station (e.g., Sheetz) if the purchase was made at a store

that sold gas along with snack foods. An observation was classified as a personal-service store if the purchase was made at a store providing: 1) one-to-one luxury services (e.g., hair and nail salon) or 2) sold goods and services that cater to the need of the individual (e.g., spa).

Overall, the average number of cashiers in the stores was 1.78 (SD=0.92), and the average number of people in line behind the RAs was 1.27 (SD=2.01). Since the RAs made purchases for each experimental condition, the frequency of the purchases made with each prompt was 25%.

Overall, the average credit purchase amount was \$41.59 (SD=\$90.44). As shown in Table 6, RAs spent an average amount of \$107.05 in retail stores compared to personal-service stores, café stores, and restaurants (\$42.12, \$17.64, and \$13.53, respectively). Also, the RAs range of purchases was the highest in retail stores compared to the other stores.

A vast majority of the purchases made in retail stores were between \$13 and \$70, while the vast majority of the purchases made in personal-service stores were between \$29 and \$54. Additionally, a vast majority of purchases made in restaurants were between \$6 and \$20, whereas the vast majority of purchases made in café stores were between \$5 and \$20.

Table 7 shows the means, standard deviations, and correlations of the factors entered into the logistic regression model. None of the factors had a significant correlation relationship.

**Investigating the impact of the prompts.** As shown in Figure 2, cashiers checked RAs' ID the most when the credit/debit card contained the prompt with the antecedent and *positive* consequence as six out of 17 RAs (35%) were checked for ID. The RAs' ID was checked the same number of times when the credit/debit card contained the antecedent and *negative* consequence prompt (18%) and the no consequence prompt (18%) as three out of 17 RAs (18%) were checked for ID. No RAs were checked for ID with the blank prompt (0 out of 17 purchases). A 4 prompt (blank; antecedent only; antecedent/positive consequence;

antecedent/negative consequence) x 2 ID Checked (yes; no) Chi-Square test of independence showed a significant dependency between the prompt condition and whether the RAs' ID was checked,  $\chi^2(3, N=68) = 9.61, p < .05$ .

As shown in Table 8, the Marascuillo procedure revealed there was only a significant difference detected between the blank prompt and the antecedent/positive consequence prompt. Thus, the first hypothesis was partially supported as no difference was found between the blank prompt and the antecedent/negative consequence prompt. In addition, the prompts containing the antecedent and consequence were not checked for ID significantly more than the antecedent-only prompt.

The second hypothesis was also not supported. The prompt containing the antecedent with the negative consequence was not checked for ID significantly more than the prompt containing the antecedent with the positive consequence.

**Factors influencing cashiers' ID-checking behavior.** In addition to the analyses examining the effectiveness of the prompts, a logistic regression was performed on the independent variables of amount of money spent, number of paying customers in line behind the RA, and number of cashiers in the store to investigate their influence on cashiers' ID-checking behavior. As shown in Table 9, the overall logistic regression model did not reach significance,  $\chi^2(3) = 4.47, p > .05$ . The factors entered into the model also failed to reach statistical significance,  $ps > .05$ .

**Additional analyses.** A 2 ID checked (yes, no) x 4 store type (retail, restaurant, café, personal services)  $\chi^2$  test was conducted to investigate the differences in ID checking by store type. The Chi-Square test revealed a significant difference in ID checking among the various store types,  $\chi^2(3, N=68) = 8.43, p < .05$ . As shown in Figure 3, cashiers working in retail stores checked 39% (7 out of 18 purchases) of customers for ID, more than any other store type. Cashiers in restaurants checked 13% (4 out of 31 purchases) of their customers for ID, whereas cashiers in café stores checked 8% (1 out of 13 purchases) of their customers for ID. No customers were checked for ID in personal-service stores (0 out of 6 purchases).

A 2 ID checked (yes, no) x 4 cashier's race (White, Black, Asian, and Hispanic/Latino)  $\chi^2$  test was conducted to investigate differences in ID checking due to the race of the cashiers (which was reported by the RAs). The Chi-Square test did not reveal a

significant difference in ID checking as a function of the cashiers' race,  $\chi^2 (3, N=68) = 6.85$ ,  $p > .05$ .

### **3.5 - Discussion**

The results of the present study showed only the blank prompt and the antecedent/positive consequence prompt differed in ID checking. Distinct from Study 1, the present study did not find a difference between the blank prompt and the antecedent/negative consequence prompt in regards to ID checking. However, the results showed a trend similar to Study 1 regarding the frequency each prompt was checked for ID. More specifically, the prompt with the antecedent/positive consequence was checked the most for ID, whereas the blank prompt was not checked at all. Similar to Study 1, a difference was not found in ID checking between the antecedent-only prompt and the prompts containing an antecedent and consequence.

Distinct from Study 1, the present study showed the type of store the cashiers worked influenced the frequency of ID checking, which is consistent with previous studies (Downing & Geller, 2009; Downing et al., 2013). Cashiers working in retail stores checked more customers for ID than the other store types. This is most likely due to more expensive purchases being made at retail stores as shown in Table 6.

#### **3.5.1 - Limitations of Study 2**

The present study had limitations that impacted the results, in particular the sample size. If more observations had been made, a significant difference between the prompts might have been observed. Future research should conduct the following study in non-college communities or cities with a larger sample.

Another limitation was some of the purchases took place in the state of Virginia. Accordingly to past research (Downing & Geller, 2009; Wilcox, Downing, Moonan, & Lichtenstein, 2009), towns and cities across the state of Virginia do not significantly differ from each other in ID-checking behavior. Currently Virginia is not perceived as a state with high identity-theft issues to make cashiers more proactive, as it was ranked thirty-first among states in identity-theft complaints in 2014 (FTC, 2015). Future research should examine the effectiveness of the prompts in states other than Virginia.

## **Chapter 4 - Study 3: The Cashier-Focused Intervention**

Addressing the lack of management involvement in the Downing and Geller (2012) study, Study 3 evaluated the effectiveness of a goal-setting and prompt intervention led by the restaurant manager on increasing the frequency of cashiers' ID-checking behavior. It was hypothesized the frequency of cashiers' ID-checking behavior will increase significantly from Baseline to the Intervention phase due to the goal-setting and prompt intervention. But, because of management's involvement, the increase in ID checking should be greater than in the Downing and Geller study. Unlike Downing and Geller, it was hypothesized the frequency of ID checking by the cashiers will decrease only slightly during the Withdrawal phase, due to the continued presence of the restaurant manager.

### **4.1 - Methods**

#### **4.1.1 - Participants and Setting**

The participants in the study were cashiers (n=51) working from 10am until 3pm at one of two restaurants (Restaurant I or Restaurant C) located in a large university community in southwest Virginia. Restaurant I (the Intervention site) contained a total of 30 cashiers (eight males and 22 females), but five of these cashiers (one male and four females) were hired during the Withdrawal phase, so their data were discarded from the data analysis.

Excluding the five cashiers, Restaurant I had a total of 25 cashiers. Of the 25 cashiers, 24 (96%) were White and one (4%) was Black/African American. The cashiers' data discarded from data analysis consisted of four White cashiers (80%) and one Black/African American cashier (20%).

Restaurant C (the Control site) contained a total of 26 cashiers (ten males and 16 females). Of the 26 cashiers in Restaurant C, 24 (92%) were White and two (8%) were Black/African American.

The surrounding community contained a population of roughly 64,000 people, including college students. The two restaurants are located within seven miles of each other and have the same franchise name. According to the respective restaurant manager, the credit-card transactions at Restaurant I make up about 60% of the store's daily business transactions, and the credit-card transactions at Restaurant C make up about 65% of the store's daily business transactions.

#### 4.1.2 - Materials

**Cashier observation datasheet.** The RAs monitored the cashiers' ID-checking behavior in the stores using a Cashier Observation (CO) datasheet to record their observations. The CO datasheet was similar to the data sheet used by Downing and Geller (2012) to note the ID-checking behavior of the cashiers in their study. The CO datasheet (included in Appendix B) contained spaces to record seven specific observations for the cashiers being observed, including: 1) type of payment used by the customer, 2) the gender of the customer, 3) whether the customer's ID was checked, 4) the monetary value of the customer's purchase, 5) the number of people in line while the customer is being checked out, 6) whether the customer is a store rewards member, and 7) the age category of the customer. The CO datasheet also requested the name, gender, and cash register number of the cashier being observed.

**Goal-reminder prompt.** An 11 ½" x 4 ½" sign was used to remind the cashiers of their 50% ID-checking goal. The prompt was typed in a bold, 53-point Calibri font. As shown in Figure 4, the message read "Remember our goal of 50% ID checking of customers using credit and debit cards". Behind the message was an image of credit cards on a table with a receipt and pen lying on top of them.

#### 4.2 - Procedure

The study took place in two restaurants, both from the same fast-food chain. Restaurant I served as the Intervention site, while Restaurant C served as the Control site. The experimental design was an A-B-A (Baseline-Intervention-Withdrawal) reversal design (at Restaurant I) with a nonequivalent control (at Restaurant C).

**Restaurant I (the intervention site).** Before the study began in Restaurant I, the restaurant manager informed the cashiers that students from Virginia Tech (VT) would be coming into the restaurant periodically to observe their interactions with customers. After giving the restaurant manager five days to inform his cashiers about these observations, RAs entered the restaurant to make behavioral observations, signaling the start of Baseline.

*Baseline observations.* During Baseline, RAs recorded the cashiers' ID-checking behavior. They stood in front of the condiment station which was about eight feet from the check-out counter and systematically monitored the ID-checking behavior of the cashiers as they processed customers. When two RAs collected data together (for interobserver

reliability), they only communicated about their observations when deciding which cashier to observe. When the observer(s) were questioned about their actions from customers or cashiers, they stated, “I’m (We’re) observing the checkout interaction between the cashiers and customers”.

The RAs observed the cashiers for five consecutive purchases. As the RAs watched the cashiers checking out a customer, they systematically recorded their observational data on the CO datasheet. Before observing a cashier for five consecutive purchases, the RA recorded the cashier’s gender and name in the heading, along with the cashier’s register number.

For each purchase observed, the RAs recorded: 1) the type of payment used (by circling “CC” for credit or debit-card purchases and “O” for purchases that were not made with a credit or debit card under Payment), 2) the gender of the customer (by circling “M” for male and “F” for female under Gender), 3) whether the customer’s ID was checked by the cashier (by circling “Y” for yes and “N” for no under Checked), 4) the dollar amount of the customer’s purchase, 5) the number of estimated customers in line behind the customer making a purchase, 6) whether the customer was a restaurant rewards member (by circling “Y” for yes and “N” for no under Membership), and 7) the estimated age category of the customer (by circling “1” for Age 18-34, “2” for Age 35-49, “3” for Age 50-65, and “4” for Age 65 and up under Age).

If a customer paid for a purchase using both cash and a credit or debit card, the purchase was noted and excluded from the data set. Purchases made by RAs posing as customers (who informed the RAs they were collecting data) were also noted and excluded from the data set. Also, business purchases, such as tax-exempt or catering purchases, were noted and excluded from the data set.

After observing one cashier for five consecutive purchases, the RAs watched another cashier for five consecutive purchases while noting their gender, name, and register number in the heading. If a cashier closed down or left his or her register while being observed, the RAs noted this and moved on to observe another cashier for five purchases. After monitoring each cashier in the restaurant for five consecutive purchases, the RAs initiated another round of cashier observations. The RAs kept observing the cashiers until the end of

their shift, which lasted one hour. The RAs monitored the ID-checking behavior of the cashiers intermittently from 10am to 3pm on weekdays. RAs collected Baseline data for 24 weekdays.

*Intervention process.* Three days before the intervention process began, the author met with the manager of Restaurant I to discuss the goal-setting and prompt intervention. During this meeting, the author informed the manager of the 50% ID-checking goal for the restaurant. A 50% ID-checking goal was selected by the author because it was seen as a stretch goal compared to the store's Baseline data of 2.4% ID checking.

After explaining the 50% ID-checking goal to the manager, the author rehearsed with the manager how to deliver the goal-setting and prompt intervention to the cashiers, along with answering any questions from the manager. After rehearsing the script, the meeting ended. The author left the store and returned the night before the Intervention phase started and gave the manager the goal-reminder prompts.

After 24 weekdays of Baseline, the manager met with the morning-shift cashiers before the opening of the restaurant to inform them of the restaurant's 50% ID-checking goal by delivering the following script:

"I just want everybody to know that starting today, we, including myself, will start checking customers for their identification (ID) when they use a credit or debit card. We are starting this identification process to protect the security and safety of our customers. Going along with the company's orientation training on customer security, we will check to make sure the name on the customer's credit or debit card matches the name on the customer's ID. We are each responsible for working together to achieve the restaurant's goal of checking at least 50% of the customers for ID. I will post signs to remind everyone of our 50% ID-checking goal. If they don't have an ID on them when you ask, just let them know we will be checking for ID in the future so they are prepared for next time. Does anyone have any questions?"

After addressing any of the cashiers' questions, the store manager dismissed the meeting and proceeded to hang up the goal-reminder prompts beside the cash registers, as shown in Figure 5, to remind the cashiers of the ID-checking goal of 50%. This signaled the

start of the Intervention phase. For the cashiers not at the morning meeting, the manager met with them individually or in groups to deliver the script that informed them about the restaurant's 50% ID-checking goal and showed them the goal-reminder prompts.

Once the cashiers were informed of the restaurant's 50% ID-checking goal, the manager reminded the cashiers of the goal each day they came to work by verbally saying "Remember our goal of 50% ID checking of customers using credit and debit cards." This was the same message located on the prompts. For 30 consecutive weekdays, cashiers were prompted to check customers for ID when beginning their shifts.

*Withdrawal phase.* After 30 weekdays of the Intervention phase, the signs beside the cash registers were removed and the restaurant manager no longer verbally prompted the cashiers daily to check customers for their ID, signaling the start of the Withdrawal phase. If the manager was questioned about checking customers for ID, he stated, "Right now, we are changing the ID-checking process. When I know of the changes, I will let you know. As for right now, please ensure customers' safety according to Panera's policy. The Withdrawal phase lasted for 23 weekdays.

**Restaurant C (the control site).** While collecting data at Restaurant I, RAs also observed cashiers' ID-checking behavior at Restaurant C. Observations at Restaurant C began and ended on the same days they occurred in Restaurant I. Like Restaurant I, the manager of Restaurant C informed his cashiers that students from VT would be observing their interactions with the customers. After giving the manager five days to inform his cashiers about being observed, the RAs entered the restaurant to systematically record cashiers' ID-checking behaviors. They followed the same protocol as the RAs conducting observations in Restaurant I. The RAs conducted observations in Restaurant C for the duration of the three A-B-A phases in Restaurant I.

### **4.3 - Data Analysis**

To determine whether the goal-setting and prompt intervention led by the restaurant manager affected the frequency of the cashiers' ID-checking behavior, a 2 ID Checked (Yes, No) x 2 Restaurant (Restaurant I, Restaurant C) x 3 Phase (Baseline, Intervention, Withdrawal) Chi-Square analysis was used to determine if there was a significant difference among the variables. When a difference was found, a 2 Restaurant (Restaurant I; Restaurant C) x 2 ID Checked (Yes, No) Fisher's exact test was conducted to investigate the

differences between the restaurants during the different phases of the study. The Fisher's exact tests were used because Restaurant C had cell counts less than five for the "Yes" ID-Checked category.

Since only one customer was checked for ID throughout the study for Restaurant C, a 3 Phase (Baseline; Intervention; Withdrawal) x 2 Identification Checked (Yes; No) Chi-Square analysis was used to examine the frequency of the cashiers' ID-checking behavior within Restaurant C because the mixed-effects logistic regression would not converge.

A mixed-effects logistic regression model was conducted to examine the effect of the study's phases and other influential factors on the frequency of cashiers' ID-checking behavior in Restaurant I. The mixed-effects logistic regression model was run on a binary distribution with a logit link controlling for cashier. The cashiers were entered into the model as a random effect with the factors pertaining to: 1) the amount of money spent, 2) the number of paying customers in line behind the customer at the cash register, 3) the manager present in the store, and 4) phase of the study entered into the model along with their interactions as fixed effects. The model convergence criterion was met.

Since none of the interactions and some of the factors entered into the model as fixed effects were not significant, the parsimonious model that contained only the significant factors, which were manager present in the restaurant and phase of the study, was selected. With the Intervention phase serving as the reference group, the phase variable was dummy coded and entered into the model, accompanied by the manager present in the restaurant variable (0= No; 1= Yes) as categorical variables.

#### **4.4 - Results**

Overall, a total of 11,011 purchases were recorded. After excluding 1) payments made without a debit or credit card, 2) purchases made by people using their Panera card, 3) observations of the restaurant manager, and 4) purchases made by RAs posing as customers in Study 4, a total of 3,809 purchases remained (2,599 purchases for Restaurant I and 1,210 purchases for Restaurant C). An additional 48 purchases from the Withdrawal phase of Restaurant I was also discarded because five new employees, who were hired after the Intervention phase ended, were observed by the RAs. After discarding the 48 purchases, a total of 2,551 purchases remained for Restaurant I.

In Restaurant C, a total of 1,210 qualified purchases were made. Most of those purchases (45%) were made during the Withdrawal phase. Twenty-five percent of the purchases were made during Baseline, while 30% of the purchases were made during the Intervention phase. Of the 1,210 purchases made at Restaurant C, only one was checked for ID. The average amount of money spent on a purchase was \$13.05 (SD=8.18), and the average number of customers in line behind the customer at the cash register was 2.55 (SD=4.49). A majority of the customers observed at Restaurant C were females (58%).

In Restaurant I, a total of 2,551 qualified purchases were made. The same amount of purchases were made during the Intervention phase and the Withdrawal phase (35% and 35%, respectively), whereas 30% of the purchases were made during Baseline. Of the 2,551 purchases recorded in Restaurant I, 611 (24%) were checked for ID. The restaurant manager was present in the restaurant for 64% of the total purchases. The cashiers checked 25% of purchases for ID when the manager was present in the restaurant compared to 22% of purchases when the manager was scheduled off. The average amount of money spent in Restaurant I was \$10.87 (SD=6.88), and the average number of customers in line behind the customer at the cash register was 2.42 (SD=2.92). A majority of the customers observed at Restaurant I were females (59%).

#### **4.4.1 - Interobserver Reliability**

Interobserver reliability was calculated for each dependent variable by dividing the number of agreed upon observations made by the two independent observers by the total number of observations and multiplying by 100%.

Reliability data were collected for 4,735 purchases, representing 43% of all purchases collected. Overall, reliability (or percentage agreement) was 97% for the payment method used by the customer, 98% for the customer's gender, 99% for the cashier checking the customer's ID, 93% for the amount spent by the customer, 92% for the number of paying customers in line behind the customer being checked out, 92% for the age category of the customer, and 96% for whether the customer had a Panera card.

#### **4.4.2 - Cashiers' Observed ID-Checking Behavior**

Table 10 shows the weekly sample size of the credit-card purchases observed along with the weekly mean percentage of ID checking among the cashiers of Restaurant I and C. The weekly mean percentage of purchases checked for ID per each restaurant was calculated

by dividing the number of customers' checked for ID for the week per restaurant by the total number of customers observed making a credit purchase that week for each restaurant and multiplying by 100%.

Figure 6 depicts a time-series view of the cashiers' weekly mean ID-checking behavior throughout the study for Restaurant I and Restaurant C. A visual inspection of the time-series graph shows the frequency of the cashiers' ID-checking behavior in Restaurant I started off low with a slight increase before the start of the Intervention phase. During the Intervention phase, the frequency of the cashiers' ID-checking behavior increased markedly. Subsequently, the frequency of the cashiers' ID-checking behavior during the Withdrawal phase was relatively similar to the Intervention phase except for Week 10, which was the week the cashiers' checked the most purchases for ID. The frequency of the cashiers' ID-checking behavior during the Withdrawal phase remained distinctly high compared to their Baseline level.

During the A-B-A phase in Restaurant I, the occurrence of the cashiers' ID-checking behavior in Restaurant C happened only once during Baseline. But, it was nonexistent while the Intervention and Withdrawal phases were occurring in the intervention restaurant.

**Comparing cashiers' ID-checking behavior between stores.** Figure 7 depicts the mean percentage of ID-checked purchases per phase for the cashiers of Restaurant I and C, calculated by dividing the number of customers checked for ID in the phase for each restaurant by the total number of customers making a credit purchase in that phase for each restaurant and multiplying by 100%.

A visual inspection of the graph shows Restaurant I's cashiers overall ID-checking percentage was 2.4 percent (n=748 purchases) at Baseline, whereas Restaurant C's cashiers overall ID-checking percentage was 0.3 percent (n=301 purchases). During the Intervention at Restaurant I, the cashiers' overall ID-checking percentage jumped up to 35.8 percent (n=895 purchases), a 33.4 increase in percentage points from the restaurant's Baseline. The overall ID-checking percentage of Restaurant C's cashiers decreased from 0.3 percent to zero (n=366 purchases). However, during the Withdrawal phase at Restaurant I, the cashiers' overall ID-checking percentage only dropped to 30.6 percent (n=892 purchases).

This slight decrease suggests functional control of the intervention over the cashiers' target behavior but also some maintenance of the target behavior. Restaurant C's cashiers' overall ID-checking percentage remained at zero (n=542 purchases).

The 2 ID Checked (Yes; No) x 2 Restaurant (Restaurant I; Restaurant C) x 3 Phases (Baseline; Intervention; Withdrawal) Chi-Square test demonstrated a significant difference in ID-checking between Phase and Store,  $\chi^2(1, n=3744) = 345.39, p < .01$  (or,  $p < .01$ , Fisher's exact test). Subsequent analysis revealed the frequency of the ID-checking behavior among the cashiers in Restaurant I and C were significantly different from each other at Baseline (2.4% versus 0.3% respectively,  $p = 0.020$ , Fisher's exact test), during the Intervention phase at Restaurant I (35.8% versus 0% respectively,  $p < 0.01$ , Fisher's exact test), and during the Withdrawal phase at Restaurant I (30.6% versus 0% respectively,  $p < 0.01$ , Fisher's exact test).

**Comparing cashiers' ID-checking behavior within the restaurants.** To examine the overall frequency of cashiers' ID-checking behavior within Restaurant C, a 2 ID checked (Yes; No) x 3 Phase of study (Baseline; Intervention; Withdrawal) Chi-Square test was performed. The results revealed no significant difference in the frequency of the cashiers' ID-checking behavior as a function of the three phases that occurred at Restaurant I,  $\chi^2(2, n=1209) = 2.78, p > .05$ .

*Cashiers' ID-checking within Restaurant I.* Figure 8 depicts the mean percentage of ID-checked purchases per phase for each observed cashier working in Restaurant I, calculated by dividing the number of customers checked for ID in the phase by the cashier with the total number of credit purchases handled in that phase by the cashier and multiplying by 100%. Table 12 shows a breakdown of the sample size and percentage of ID-checked purchases per phase for each cashier.

As shown in Figure 8 and Table 11, only three cashiers checked customers for ID during Baseline. The highest percentage of IDs checked by a cashier during Baseline was 21% from Male Cashier #3 as he checked three out of 14 credit purchases for ID.

During the Intervention phase, the majority of the observed cashiers increased the frequency of their ID-checking behavior when compared to Baseline. Most of the cashiers, except three (Male Cashier #3, Male Cashier #7, and Female Cashier #7) checked over 10% of their customers for ID. However, five of the 14 cashiers checked over 50% of their

customers for ID. The highest percentage of IDs checked by a cashier during the Intervention phase was 100% from Female Cashier #16 as she checked 13 out of 13 customers for their ID.

When the intervention was discontinued during the Withdrawal phase, four of the cashiers observed during the Intervention phase decreased their percentage of IDs checked with two of them decreasing to zero. However, two of the cashiers observed during the Intervention phase increased their percentage of IDs checked, while the percentage of IDs checked for four cashiers remained relatively similar to their ID-checking percentages during the Intervention phase. The highest percentage of IDs checked by a cashier during the Withdrawal phase was 100% from Female Cashier #16 as she checked 2 out of 2 customers for ID.

The mixed-effects logistic regression model was significant as Phase,  $F(2, 2499) = 94.36, p < .01$ , and Manager Present in the restaurant,  $F(1, 2499) = 11.94, p < .01$ , were found to have a significant effect on the frequency of cashiers' ID-checking behavior in Restaurant I. A significant difference was found in the frequency of the cashiers' ID-checking behavior between the Intervention phase and Baseline  $t(2499) = -13.65, p < .01$  (95% Confidence Interval = .014 - .041). The odds ratio showed cashiers were 41.67 times more likely to check customers for ID in the Intervention phase compared to Baseline. No difference in the frequency of the cashiers' ID-checking behavior was found between the Intervention phase and the Withdrawal phase,  $t(2499) = -1.23, p > .05$  (95% Confidence Interval = .692 - 1.092).

A significant difference was also found when the restaurant manager was present in the restaurant  $t(2499) = 3.46, p < .01$ . The odds ratio showed cashiers were 1.5 times more likely to check customers for ID when the restaurant manager was working in the restaurant compared to when he was not in the restaurant (95% Confidence Interval = 1.19 - 1.88).

Figure 9 depicts the frequency of the cashiers' ID-checking behavior as a function of the manager working in the restaurant or not (i.e., when he was scheduled off) per phase, calculated by dividing the number of customers checked for ID in the phase for each manager-presence condition (i.e., working in the restaurant or being scheduled off) by the total number of customers making a credit purchase in that phase for each manager-presence condition and multiplying by 100%. As shown in Figure 9, cashiers were significantly more

likely to check customers for ID during Baseline and the Intervention phase when the manager was working in the restaurant compared to when he was scheduled off. However, a significant difference was not found in the frequency of the cashiers' ID-checking behavior during the Withdrawal phase as a function of the manager's presence in the restaurant.

#### **4.5 - Discussion**

By including indigenous personnel in the intervention process as outlined by Sigurdsson and Austin (2006), the results of Study 3 showed the goal-setting and prompt intervention led by the restaurant manager had a significant effect on the frequency of the cashiers' ID-checking behavior. Most importantly, the results demonstrated durability of the intervention during the Withdrawal phase.

As hypothesized, the impact of the intervention was greater than the participative goal-setting and feedback intervention used by Downing and Geller (2012) due to the manager leading the intervention process. Besides prompting the cashiers to check customers' for ID, he also performed the desired behavior as he checked the ID of four of ten customers (40%), displaying partial commitment toward the restaurant reaching its goal and leading his team by example.

As expected, the frequency of the cashiers' ID-checking behavior decreased slightly during the Withdrawal phase, but it did not approximate Baseline levels, likely due to the manager informing the cashiers to look out for the safety of the customers according to restaurant policy, when asked about the store's 50% ID-checking goal. Although a similar message was given by the head researcher in the Downing and Geller study (2012), the frequency of the cashiers' ID-checking behavior returned near Baseline-- opposite to the results of the present study.

Besides showing the importance of management leading the intervention process, the results also showed the manager's presence in the restaurant influenced the frequency of the cashiers' ID-checking behavior. During Baseline and the Intervention phase, cashiers were more likely to check customers for their ID when the manager was in the restaurant working than when he was scheduled off. With the manager prompting cashiers to check customers

for ID during the Intervention phase, it is possible the manager made some cashiers feel more accountable for their ID-checking behavior when he was working in the restaurant since he was present near the cash registers and could have observed their behavior.

No difference was observed between the frequency of the cashiers' ID-checking behavior as a function of the manager's presence in the restaurant during the Withdrawal phase. It's possible the manager's presence near the cash register did not seem to affect the cashiers' ID-checking behavior, perhaps because the cashiers had worked the ID-checking behavior into their check-out routine. This was suggested by the data of the five employees hired during the Withdrawal phase. Although they did not receive the intervention, they were trained by other cashiers to check customers for ID as they collectively checked 22 out of 48 customers (46%) for ID.

#### **4.6 - Significance of Study 3**

By incorporating the restaurant manager in the intervention process, the present study is the first to empirically investigate the effect management can have on the credit-card fraud process. Others (Hearn, 1986; Prabowo (2011) have argued merchants should take ownership and help prevent credit-card fraud, but they do not specify how merchants could take ownership. The present study offers a solution that organizations can readily implement to increase the credit-card security of their customers.

The present study also has real-world implications for increasing the frequency of cashiers' ID-checking behavior. As shown by the results, the intervention was effective, not time consuming, and inexpensive to implement. Most importantly, it can be implemented in any type of store or organization.

The present study is also significant because it contributes to the goal-setting and prompt literature by extending the external validity of the beneficial impact of goal setting and prompting. Many studies have been conducted to improve or increase a target behavior using goal-setting and prompting, but this is the first study to employ goal-setting and prompting in the credit-card-fraud domain.

#### **4.7 - Limitations of Study 3**

Although the intervention increased the occurrence of cashiers' ID-checking behavior, a few factors could have limited the impact of the intervention or confounded the findings. One of those factors was the cashier's familiarity with the store's customers. Like

most restaurants, the restaurant used in the current study had many repeat customers who visited the store daily and thus the cashiers knew them. This could have inhibited the cashiers from asking these customers for their ID, thus lowering the number of purchases checked for ID.

Another factor that could have limited the intervention impact was cashiers performing multiple duties while checking out customers. Normally, a cashier takes a customer order and sends them to the “food pick-up” window for food preparation by the kitchen staff. However, on some orders, like pastries and smoothies, the cashier moves off the register and prepares the customer’s order. When a cashier is tasked with multiple jobs, especially with a line of customers, they are rushed and less likely to check a customer for ID.

Besides cashiers performing multiple duties, another factor that could have influenced the frequency of the cashiers’ ID-checking behavior were sporting events taking place around campus. During Baseline, three sporting events (two track and field events and one swimming and diving competition) occurred on the days when the frequency of the cashiers’ ID-checking behavior in the intervention restaurant increased, which was a couple of weeks before the Intervention phase started. The out-of-town traffic the events brought to town (which was different from the usual customers) could have influenced the occurrence of more ID-checking behavior by the cashiers.

Future research should conduct the present study in another type of store (e.g., a retail store) to examine the generalizability of the intervention. Follow-up research should conduct a longer Withdrawal phase to examine the durability of the intervention. Due to summer break, it was difficult to conduct a long Withdrawal phase to examine the longevity of the intervention in the present study. In addition, it was difficult to assess the maintenance of the intervention after the break because of the high amount of turnover and the restructuring of management and the check-out process in Restaurant I.

Moreover, future research should incorporate a feedback component into the intervention process to examine if the frequency of the cashiers’ ID-checking behavior can be increased. According to numerous research studies (Komaki, Barwick, & Scott, 1978; Locke, Shaw, Sarri, & Latham, 1981; Fellner & Sulzer-Azaroff, 1984; Ralis & O’Brien, 1986), the addition of a feedback component should increase the frequency of the cashiers’

ID-checking behavior compared to using goal setting alone. With a feedback component, cashiers will be more motivated to check customers for ID since they will have a better assessment of their performance in relation to the goal.

## **Chapter 5 - Study 4: The Customer-Focused and Cashier-Focused Interventions Combined**

According to Hearn (1986) and Prabowo (2011), one prevention approach is not sufficient to reduce credit-card. They assert multiple prevention approaches are needed for maximum impact. To empirically test their assumption, Study 4 evaluated the impact of combining two prevention approaches: a customer-focused plus a cashier-focused intervention. It is hypothesized cashiers will be more likely to check customers for their ID when the two prevention approaches are combined compared to when only one prevention approach is used.

### **5.1 - Methods**

#### **5.1.1 - Participants and Setting**

The study protocol was performed by 42 RAs posing as customers who were students or residents in a large community located in southwestern Virginia with about 95,000 residents. The RAs included 27 females and 15 males with a mean age of 21.3 (SD=4.8). Of the 42 RAs, 34 were White, four were African American/Black, two were Hispanic/Latino, one was Asian, and one was White/Asian.

The average number of purchases made by the RAs was 2.57 (SD=1.12) with a median and mode of two during Baseline. During the Intervention phase at Restaurant I, the average number of purchases made by the RAs was 3.86 (SD=1.99) with a median of four and a mode of two. During the Withdrawal phase at Restaurant I, the average number of purchases made by the RAs was 2.87 (SD=1.32) with a median and mode of two.

The RAs collected data from 43 cashiers (26 females and 17 males) working in the restaurants (Restaurant I and Restaurant C) used in Study 3. Of the 43 cashiers, 40 cashiers were White and three cashiers were Black/African American.

#### **5.1.2 - Materials**

**Purchase observational datasheet.** To record their observations, RAs used a Purchase Observational (PO) datasheet (see Appendix C), which is a modified version of the Credit-card datasheet used in Studies 1 and 2. Each datasheet consisted of two observation sites representing the two restaurant conditions of the study: Restaurants I and C. The two restaurant conditions were randomly ordered for each RA.

Each observation session consisted of 14 observation items separated into three categories: 1) cashier's identifying information, 2) purchase information, and 3) card-identifying information. For the cashier's identifying information, four items (i.e., the cashier's gender, race, age, and name) were used to identify the particular cashier. For the purchase information, eight items were used to assess the check-out process, such as whether the cashier asked for ID and the amount of money charged. For the card-identifying information, two items (i.e., type of card and whether the card had a picture ID on it) were used to note the characteristics of the card used to make the purchases.

Besides the 14 observation items for each observation session, the PO datasheet also asked the RAs to record their own gender, race, and age.

**Credit-card prompt.** Since the antecedent/positive consequence prompt from Studies 1 and 2 (which read "Check my ID to PROMOTE identity security") was checked the most for ID, it was used in the present study. The prompt was typed in bold, 12-point Arial font. The message was typed on a .375" x 2.5" orange color-coded label, which was placed over the signature line on the back of the RAs' credit or debit card.

## **5.2 - Procedure**

During the three A-B-A phases in Restaurant I, RAs entered both restaurants (Restaurants I and C) to make a credit purchase and collect data. Before collecting data for this field study, the RAs attended an one-hour training session. During the training session, the author explained the research project to the RAs and taught them how to follow the research protocol and record their observations. The session was separated into two parts.

During the first part of the training session, the RAs were given the guidelines for making observations. They were instructed to make only two purchases for this study. One purchase occurred at the intervention restaurant (Restaurant I), while the other purchase occurred at the control restaurant (Restaurant C). The RAs were instructed to enter the assigned restaurant and make a credit purchase. The RAs collected data on weekdays from 9am to 5pm, and avoided interactions with cashiers who personally knew them.

In the second part of the training session, the RAs were randomly assigned a PO datasheet by drawing a number out of a bag. The PO datasheet had the two restaurants (Restaurant I and Restaurant C) randomly ordered for each RA.

After drawing a number and receiving a PO datasheet, the RAs received the credit-card prompt. The RAs were informed about the credit-card prompt, which they placed on the back of their card over the signature line. They were instructed to hand their card to the cashier with the credit-card prompt facing the cashier at eye level when the cashier asked them for method of payment. They were also instructed to covertly notify the RAs observing the cashiers to not count their purchases as part of Study 3. In addition, these RAs were instructed to have their ID and credit or debit card readily accessible before the check-out process, so they could efficiently perform the desired behaviors for ID checking. While the RAs were being trained, they were not told the purpose or hypotheses of the study.

Also, in the second part of the training session, the author explained the PO datasheet (which the RAs were instructed to complete as soon as they left the restaurant), pinpointing the observations to be recorded. The RAs were also instructed to turn in their purchase receipts with their datasheet for verification and reliability purposes.

After addressing the credit-card prompt, the PO datasheet, and the data-collection process, the author addressed any questions the RAs had about the data-collection process. After addressing questions, the author thanked the RAs for their assistance, and the training session ended.

After the training session, the RAs went into the restaurants as assigned and started making purchases. After the RAs made both purchases, they met with the author to turn in their receipts and PO datasheet. The author reviewed each datasheet and receipt to verify the information. While reviewing the PO datasheet, the author compared: a) the day and time of the purchase, b) the name of the cashier performing the checkout procedure, c) the restaurant site, d) the amount of the RA's purchase, e) the number of customers in line behind the RA, f) whether the RA was checked for ID, and g) the RA's gender and age to the data recorded by the RAs in the restaurants. This process was conducted to help the author make sure the RAs data did not get counted in the data recorded by the RAs in the restaurant (i.e., Study 3).

The author also reviewed the information on each RA's datasheet along with the receipts to assure a RA did not go to the same cashier more than once. If a RA went to the same cashier more than once or did not follow the study's rules and procedures when

making an observation, the datasheet containing that observation was excluded from the study.

When a RA completed all two conditions, s/he was given another datasheet (the datasheet whose number was not picked from the bag) with the conditions randomly ordered for conducting the field observations at the two restaurants. Throughout the study, the author compiled a list of the cashiers observed by the RAs in order to track which cashiers RAs had to individually avoid for subsequent purchases.

### **5.3 - Data Analysis**

A logistic regression was used to examine whether two prevention approaches were better than one at increasing the frequency of cashiers' ID-checking behavior. Three factors pertaining to: 1) the amount of money spent, 2) whether the customer had a store membership card, and 3) the number of paying customers in line were entered into the model as covariates since it was expected these factors might have influenced the frequency of the cashiers' ID-checking behavior. The factors relating to the amount of money spent and the number of paying customers in line were entered into the model as continuous variables, whereas whether the customer had a restaurant membership card was entered into the model as a categorical variable (1= Yes; 0= No).

With the Intervention phase serving as the reference group, the phase of the study variable was dummy coded and entered into the logistic regression model along with the restaurant-site categorical variable (0=Restaurant C; 1= Restaurant C) to detect main effects and interactions among the phase of the study dummy-coded variables and the restaurant-site variable with regard to ID checking.

### **5.4 - Results**

A total of 198 purchases were made by RAs. Of the 198 purchases made, 24 were discarded because a purchase on the PO datasheet violated the research protocol. After discarding the 24 purchases, 174 purchases remained. Of these, 68 purchases (39%) were checked for ID.

Since the RAs had to make purchases in both restaurants, the frequency of the purchases made between the restaurants was 50%. The RAs spent an average amount of \$7.13 (SD=4.02) in the restaurants with 28% of their purchases made with RAs using their

restaurant membership card. The average number of people in line behind the RAs was 2.05 (SD=2.37). Of the purchases made by the RAs, 31% were made during Baseline and the Intervention phase, whereas 38% were made during the Withdrawal phase.

As shown in Table 12, the Baseline phase dummy-coded variable and the Withdrawal phase dummy-coded variable had a significant negative correlation relationship. Additionally, a significant negative correlation was detected between the Withdrawal phase dummy-coded variable and the amount of money spent on a purchase.

A positive correlation was observed between the amount of money spent on a purchase and whether the customer had a store membership. Likewise, the amount of money spent on a purchase and the number of customers in line behind the RA were positively correlated. A positive correlation was also detected between the restaurant site and whether the cashiers checked customers for their ID.

**Effects of combining two prevention approaches.** Figure 10 shows the mean percentage of RAs checked for ID per phase for each restaurant, calculated by dividing the number of RAs checked for ID in the phase for each restaurant by the total number of RAs making a credit purchase in that phase for each restaurant and multiplying by 100%.

As shown in Figure 10 and Table 13, during Baseline when only the sticker prompt was used, the cashiers in Restaurant I checked the ID for 37% of 27 RA purchases, which was relatively similar to the cashiers in Restaurant C that checked the ID for 33% of 27 RA purchases. However, when the restaurant manager implemented the goal-setting and prompt intervention in Restaurant I (which resulted in a combination of two prevention approaches since the RAs were still using the sticker prompts at both restaurants), the cashiers in Restaurant I checked the ID for 74% of 27 RA purchases, which was double the restaurant's percentage points from Baseline.

During the Intervention phase at Restaurant I, the cashiers in Restaurant C checked the ID for 19% of 27 RA purchases. This was a decrease in 14 percentage points from the restaurant's Baseline.

When the manager in Restaurant I discontinued the intervention, the cashiers in Restaurant I checked the ID for 55% of 33 RA purchases, which was relatively less compared to the restaurant's Intervention phase. The cashiers in Restaurant C checked the ID for 18% of 33 RA purchases, which was an increase of two percentage points from the restaurant's Intervention phase.

As shown in Table 14, the overall logistic regression model examining the predictors: 1) the amount of money spent, 2) whether the customer used their store membership card, 3) the number of paying customers in line behind the RA, 4) the restaurant site, 5) the Baseline phase dummy-coded variable, 6) Withdrawal phase dummy-coded variable, and 7) the interactions on the cashier's checking RAs for their ID was significant,  $\chi^2(8) = 30.72, p < .05$ . It explained 22% (Nagelkerke  $R^2$ ) of the variance in the cashiers checking the RAs for ID. The factors pertaining to: 1) the interaction between the Baseline phase dummy-coded variable and restaurant-site variable, Wald = 7.56,  $p < .05$ , and 2) the restaurant-site variable, Wald = 14.77,  $p < .05$ , reached statistical significance.

The interaction between the Baseline phase dummy-coded variable and the restaurant-site variable indicates the cashiers in Restaurant I increased their checking of RAs for ID from Baseline to the Intervention phase, whereas the cashiers in Restaurant C were relatively similar in their checking of RAs for ID from Baseline to the Intervention phase, as shown in Figure 10. This interaction variable partially supports the present study's hypothesis as cashiers were more likely to check RAs for ID when two prevention approaches were combined than when only one prevention approach was used during Baseline. A main effect was found for the restaurant with regard to checking RAs for ID as RAs were 12.94 times more likely to get checked for ID in Restaurant I compared to Restaurant C.

## **5.5 - Discussion**

The present study examined the effectiveness of using two credit-card fraud prevention methods at increasing the frequency of cashiers' ID-checking behavior. The cashiers in Restaurant I increased their checking of RAs' ID from Baseline to the Intervention phase when the sticker prompt used by the customers (the customer-focused approach) and the implementation of the goal-setting and prompt intervention lead by the

restaurant manager (the cashier-focused approach) was combined. As hypothesized, this combination approach resulted in more RAs being checked for ID compared to Restaurant C at the same time period and during Baseline in Restaurant I.

However, the hypothesis was partially supported because a significant difference in ID checking was not detected between the Intervention phase and the Withdrawal phase at Restaurant I. Although a significant difference was not detected, the results were consistent with the maintenance effect found in Study 3. It is possible a difference was not observed due to the manager informing his cashiers to ensure customers' safety according to Panera policy when asked about the store's 50% ID-checking goal. This message from the manager could have influenced cashiers to check RAs and customers for ID during the Withdrawal phase since they were told to ensure customers' ID security.

It's possible the 23 weekdays of Withdrawal were not enough time for the frequency of the cashiers' ID-checking behavior to decrease significantly. A difference could have been observed if the Withdrawal phase had been extended longer or follow-up data were collected a few months later by RAs.

Additionally, the results showed cashiers in Restaurant I were more likely to check RAs for their ID than were cashiers in Restaurant C. This finding is not surprising since Restaurant I was the restaurant that received the intervention.

#### **5.6 - Limitations of Study 4**

A couple of limitations could have impacted the results of the study. One of those factors is the sample size. If more credit-purchase observations were collected, a significant difference might have been detected between the Intervention phase and the Withdrawal phase.

Another possible limitation is the amount of the RAs' purchases. The average amount of money spent by RAs was \$7.13, whereas the average amount of money spent by the customers observed in Study 3 was \$11.17. It's possible if the purchases made by the RAs were higher, cashiers would have checked more RAs for their ID.

Some of the RAs that collected data for the study were repeat customers of the restaurant. Since the RAs were repeat customers, this could have influenced whether the cashiers checked their ID, since the cashiers were familiar with the RAs. Although the cashiers did not know the RAs' names, just being exposed to them repeatedly could have

made cashiers feel comfortable or uncomfortable asking them for ID. Conversely, since they were not strangers, they may have avoided asking them for ID because they were familiar with them.

#### **5.7 - Significance and Future Research of Study 4**

The present field study was the first to empirically investigate from a behavioral science perspective the effectiveness of using multiple intervention approaches to combat credit-card fraud. As asserted by Hearn (1986) and Prabowo (2011), more research is needed to investigate the combination of more prevention techniques.

With technological advances in payment systems (Apple Pay and Square), more research examining the combination of multiple credit-card prevention methods is needed to keep up with how society pays for goods and services electronically. Since businesses are slowly moving away from their cashiers handling a customer's credit card to an updated electronic method, future research should investigate empirically the combination of a technology-prevention method with a cashier-focused prevention method in preventing credit-card fraud.

## Chapter 6 - General Discussion

The four field studies were designed to investigate proactive measures that could be conveniently used to increase the frequency of cashiers checking their customers' ID. Drawing from previous credit-card-fraud research (Downing & Geller, 2009, 2012; Downing et al., 2013; Downing et al., in press), both a customer-focused approach and a cashier-focused approach were examined, in addition to exploring the impact of a combination of both approaches.

Using a customer-focused approach, the results of Studies 1 and 2 showed the message prompts had an overall moderate effect on the frequency of the cashiers' ID-checking behavior. The cashiers in Study 1 checked 25% of the purchases for ID, whereas the cashiers in Study 2 checked 18% of the purchases for ID. In both studies, the antecedent/positive consequence prompt influenced the most ID-checking, whereas the blank prompt was never checked for ID. The impact of the prompts containing the antecedent and consequence did not differ statistically from the antecedent-only prompt but only from the blank prompt. This finding across the two studies leads to the conclusion that any prompt on a credit or debit card that promotes ID checking is better than none.

Study 3, using a cashier-focused approach, showed the importance of getting management involved in the credit-card-fraud prevention process. The results showed cashiers checked 36% of the restaurant's observed customers for ID during the goal-setting and prompt intervention led by the restaurant manager. Thus, Study 3 demonstrated a restaurant can check almost 40% of its customers for ID if management makes ID checking a priority and is committed towards the process.

Examining Studies 1-3, the impact of using a customer-focused approach compared to a cashier-focused approach is noticeable. As shown in Study 4, when only the customer-focused approach was used during Baseline, 33% and 37% of the RAs were checked for ID at Restaurant C and Restaurant I, respectively. Those percentages of purchases checked for ID in the antecedent/positive-consequence prompt condition resemble the percentages from Studies 1 and 2, as cashiers checked 42% and 35% of customers for ID (Studies 1 and 2, respectively) using an antecedent/positive consequence prompt.

When the customer-focused approach was combined with the cashier-focused approach in Study 4, cashiers in Restaurant I checked 74% of RAs for ID, which was higher than the restaurant's Baseline and Withdrawal phase (37% and 55%, respectively), thus demonstrating the value of using multiple intervention approaches to increase the frequency of cashiers' ID-checking behavior.

Overall, the present four field studies contribute to a growing body of literature on credit-card-fraud prevention methods. As outlined by Downing and Geller (2012), the present studies serve as a foundation for future intervention researchers to build upon. According to previous behavior research (Downing & Geller, 2009; Downing & Geller, 2012; Downing et al., 2013; Downing et al., in press), the most cost-effective intervention to increase the frequency of cashiers' ID-checking behavior is the goal-setting and prompt intervention delivered by the restaurant manager in Study 3.

However, future researchers should continue to investigate and improve current credit-card-fraud prevention methods. From a customer-focused approach, future researchers should focus on thoroughly examining environmental factors that contribute to cashiers checking customers for ID when prompted. As shown in Studies 1 and 2, the number of customers in line and the type of store the purchase was made influenced the cashiers' ID-checking behavior, in addition to the prompts. A more in-depth investigation is needed to explore these environmental factors in college and non-college communities with a diverse sample of research assistants (or, customers) making purchases with higher mean amounts than in Studies 1 and 2.

Besides studying the environmental factors that influence cashiers' ID-checking behavior, future researchers should also investigate different credit and debit-card security features to determine which ones are effective at protecting customers' identity. As shown in Studies 1 and 2, the signature verification method was ineffective at prompting cashiers to check customers for their ID.

From a cashier-focused approach, future researchers should investigate the use of a goal-setting and feedback intervention led by management to increase cashiers' ID-checking behavior. In addition, future researchers should investigate the use of an incentive system to

increase the frequency of cashiers' ID-checking behavior. With an incentive system, most cashiers will be motivated to check customers for ID, especially if it leads to a desirable reward.

Future researchers should also investigate the use of incorporating technology in the credit-card-fraud prevention process. For example, since most stores are moving away from cashiers handling a customer's credit or debit card, stores can install a scanner customers can use to scan or swipe their driver's license. The scanner could be used to either: 1) confirm a match between the driver's licenses and credit or debit card used, or 2) when customers scan their driver's license, their driver's license picture appears on the cashier's register screen for ID purposes.

Additionally, a phone application can be used to covertly track the ID-checking behavior of various cashiers in numerous stores. This process will allow researchers to study various factors influencing cashiers' ID-checking behavior from a broad sample of participants from different locations.

Whatever the path future intervention researchers choose to take to prevent the prevalence of credit-card fraud, they must keep up with the advances in technology. Although the present research is novel in the literature, it is quickly becoming outdated by the advances in different payment systems. Only by keeping up with technology, can research in the area of credit-card-fraud prevention eventually influence the use of technology in the payment process and readily inform politicians on the best practices for protecting consumers' identity.

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Table 1

Purchase Characteristics as a function of Store Type

<b>Store Type</b>	<b>Sample Size</b>	<b>Amount of Purchase</b>	<b>Number of Customers in Line</b>	<b>Number of Cashiers in Store</b>
Retail	22	\$15.19 <sup>a</sup> (9.85)	0.77 (1.02)	2.23 (1.15)
Restaurant	74	\$9.86 <sup>b</sup> (5.23)	2.83 (4.81)	1.76 (1.30)
Cafe	15	\$6.86 <sup>b</sup> (3.00)	1.87 (2.03)	1.73 (0.88)
Personal Services	13	\$27.94 <sup>c</sup> (12.05)	0.62 (1.39)	1.92 (1.12)

*Note.* Sample size is equal to 124 for all variables except # of people in line. # of people in line is equal to 122. A significant difference was only detected for amount of purchase,  $F(3, 120) = 28.81, p < .01$ . The Bonferroni post-hoc test was used to perform a pairwise significance testing between each of store type. Stores with different superscripts were statistically different.

Table 2

Summary of Means, Standard Deviations, and Intercorrelations for Potential Factors Influencing Cashiers' ID-Checking Behavior

	<b>Mean</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1. Amount spent	\$12.34	9.09	---			
2. Number of people in line	2.11	3.91	-.11	---		
3. Number of cashiers in store	1.85	1.21	.11	.06	---	
4. ID Checked	.25	.44	-.07 <sup>1</sup>	-.18 <sup>1</sup>	-.07 <sup>1</sup>	---

*Note.* Sample size is equal to 124 for all variables except # of people in line. # of people in line is equal to 122.

<sup>1</sup> denotes a Biserial Correlation.

Table 3

Testing the Differences between the Prompts using the Marascuillo Comparison Procedure

<b>Prompt Comparison</b>	<b>Observed Difference Value</b>	<b>Critical Range</b>	<b>Significant</b>
Blank vs. Check my ID	.194	.197	No
Blank vs. Check my ID to PREVENT identity theft	.387	.250	Yes*
Blank vs. Check my ID to PROMOTE identity security	.419	.250	Yes*
Check my ID vs. Check my ID to PREVENT identity theft	.193	.319	No
Check my ID vs. Check my ID to PROMOTE identity security	.225	.319	No
Check my ID to PREVENT identity theft vs. Check my ID to PROMOTE identity security	.032	.354	No

Note. \*p < .05

Table 4

Step 1 of the Logistic Regression Analysis Examining the Potential Factors Influencing Cashiers' ID-Checking Behavior

Step	Predictor	B	SE (B)	Wald	df	Odds Ratio	$\Delta$ Df	Nagelkerke R <sup>2</sup>	$\Delta$ in model's $\chi^2$
1	Retail Store Dummy Code	2.12	1.13	3.53	1	8.31	3	.07	6.11
	Restaurant Dummy Code	1.23	1.08	1.31	1	3.43			
	Café Store Dummy Code	1.79	1.18	2.32	1	6.00			

Note. N=122.

Table 5

Step 2 of the Logistic Regression Analysis Examining the Potential Factors Influencing Cashiers' ID-Checking Behavior

Step	Predictor	B	SE (B)	Wald	df	Odds Ratio	$\Delta$ df	Nagelkerke R <sup>2</sup>	$\Delta$ in model's $\chi^2$
2	Retail Store Dummy Code	2.12	1.19	3.14	1	8.30	6	.17	8.56*
	Restaurant Dummy Code	1.47	1.21	1.48	1	4.36			
	Café Dummy Code	1.95	1.35	2.08	1	7.00			
	Amount Spent	-.01	.03	.18	1	.99			
	Number of people in line	-.37	.17	5.07*	1	.69			
	Number of cashiers in store	-.10	.25	.17	1	.90			

Note. N=122. \*p < .05.

Table 6

Amount of Money Spent as a Function of Store Types in Non-College Communities

	<b>n</b>	<b>Mean</b>	<b>SD</b>	<b>Minimum Purchase</b>	<b>Maximum Purchase</b>	<b>Range</b>
Retail	18	\$107.05	158.52	\$5.65	\$577.04	\$571.39
Restaurant	31	\$13.53	10.62	\$4.86	\$54.17	\$49.31
Cafe	13	\$17.64	12.77	\$5.00	\$53.55	\$48.55
Personal Services	6	\$42.12	36.20	\$5.00	\$108.00	\$103.00

*Note.* N=68.

Table 7

Summary of Means, Standard Deviations, and Intercorrelations for Potential Factors Influencing Cashiers' ID-Checking Behavior

	<b>Mean</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
1. Amount spent	\$41.59	90.44	---			
2. Number of people in line	1.27	2.01	-.14	---		
3. Number of cashiers in store	1.78	.92	.03	.09	---	
4. ID Checked	.18	.38	-.05 <sup>1</sup>	-.06 <sup>1</sup>	-.20 <sup>1</sup>	---

*Note.* Sample size is equal to 68 for amount of money spent and cashier asked for ID. Sample size is equal to 67 for the number of paying customers in line and the number of cashiers in the store. <sup>1</sup> denotes a Biserial Correlation.

Table 8

Testing the Differences between the Prompts using the Marascuillo Comparison Procedure

<b>Prompt Comparison</b>	<b>Observed Difference Value</b>	<b>Critical Range</b>	<b>Significant</b>
Blank vs. Check my ID	.176	.259	No
Blank vs. Check my ID to PREVENT identity theft	.176	.259	No
Blank vs. Check my ID to PROMOTE identity security	.353	.324	Yes*
Check my ID vs. Check my ID to PREVENT identity theft	0	.366	No
Check my ID vs. Check my ID to PROMOTE identity security	.177	.415	No
Check my ID to PREVENT identity theft vs. Check my ID to PROMOTE identity security	.177	.415	No

Note. \*p < .05.

Table 9

Logistic Regression Analysis of Potential Factors Influencing Cashiers' ID-Checking Behavior in Non-College Communities

Predictor	B	SE (B)	Wald	df	Odds Ratio	$\Delta$ df	Nagelkerke $R^2$
Amount Spent	-.003	.007	.153	1	.997	3	.114
Number of people in line	.022	.202	.012	1	1.023		
Number of cashiers in store	-1.055	.642	2.696	1	.348		

*Note.* N=66.

Table 10

Weekly Sample Size of Credit-Card Purchases and Percentages of ID Checking among Restaurant C’s and Restaurant I’s Cashiers

		Restaurant C		Restaurant I	
		n Size	Percentage of IDs Checked	n Size	Percentage of IDs Checked
Week 1	Baseline	16	0%	151	0%
Week 2		---	---	37	0%
Week 3		55	0%	106	0%
Week 4		112	0%	153	1%
Week 5		4	0%	22	0%
Week 6		64	2%	122	6%
Week 7		51	0%	157	6%
Week 8	Intervention	37	0%	125	18%
Week 9		80	0%	198	30%
Week 10		23	0%	171	61%
Week 11		71	0%	107	37%
Week 12		104	0%	95	18%
Week 13		51	0%	199	38%
Week 14	Withdrawal	85	0%	157	43%
Week 15		114	0%	175	27%
Week 16		105	0%	214	35%
Week 17		156	0%	178	17%
Week 18		84	0%	168	31%

Table 11

Sample Size of Credit-Card Purchases and Percentages of IDs Checked among Individual Cashiers in Restaurant I per Phase

Cashiers	Baseline		Intervention		Withdrawal	
	n Size	Percentage of IDs Checked	n Size	Percentage of IDs Checked	n Size	Percentage of IDs Checked
Female Cashier #1	3	0%	6	83%	9	0%
Female Cashier #2	92	0%	9	89%		
Male Cashier #1 <sup>+</sup>	--	--	9	11%	33	0%
Female Cashier #3 <sup>+</sup>	--	--	127	32%	27	30%
Female Cashier #4	9	0%	--	--	--	--
Male Cashier #2	159	1%	152	47%	129	47%
Male Cashier #3	14	21%	97	4%	82	4%
Male Cashier #4	5	0%	--	--	12	58%
Male Cashier #5 <sup>*</sup>	19	0%	--	--	--	--
Female Cashier #5	90	13%	68	69%	63	81%
Female Cashier #6	37	0%	119	23%	103	24%
Female Cashier #7	41	0%	54	4%	137	25%
Female Cashier #8 <sup>*</sup>	24	0%	--	--	--	--
Male Cashier #6	--	--	8	13%	--	--
Female Cashier #9 <sup>*</sup>	9	0%	--	--	--	--
Female Cashier #10	12	0%	46	61%	50	40%
Female Cashier #11	208	1%	157	36%	241	26%
Female Cashier #12	9	0%	--	--	4	0%
Female Cashier #13	--	--	18	39%	--	--
Male Cashier #7	3	0%	2	0%	--	--
Female Cashier #14 <sup>*</sup>	1	0%	--	--	--	--
Female Cashier #15 <sup>*</sup>	6	0%	--	--	--	--
Female Cashier #16	5	0%	13	100%	2	100%
Female Cashier #17 <sup>*</sup>	1	0%	--	--	--	--

*Note.* \* denotes cashiers who left the restaurant before the Intervention phase. + denotes cashiers hired before the start of the Intervention phase.

Table 12

Summary of Means, Standard Deviations, and Intercorrelations for Potential Factors Influencing Cashiers' Checking of RAs for ID

	<b>Mean</b>	<b>SD</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
1. Amount Spent	\$7.13	4.02	---						
2. Number of people in line	2.05	2.37	.25**	---					
3. Store Membership	.28	.45	.21 <sup>1</sup> **	.09	---				
4. Restaurant Site	.50	.50	.01 <sup>1</sup>	.06 <sup>1</sup>	.00 <sup>+</sup>	---			
5. Baseline Phase Dummy Code	.31	.46	.05 <sup>1</sup>	-.11 <sup>1</sup>	.03 <sup>+</sup>	.00 <sup>+</sup>	---		
6. Withdrawal Phase Dummy Code	.38	.49	-.28 <sup>1</sup> **	.01 <sup>1</sup>	.05 <sup>+</sup>	.00 <sup>+</sup>	-.52 <sup>+</sup> **	---	
7. ID Checked	.39	.49	.04 <sup>1</sup>	.04 <sup>1</sup>	-.07 <sup>+</sup>	.33 <sup>+</sup> **	-.05 <sup>+</sup>	-.04 <sup>+</sup>	---

Note. N= 174. \*\* p < .01. + denotes a Phi Correlation. <sup>1</sup> denotes a Biserial Correlation.

Table 13

Breakdown of the RAs' Credit Purchases as a Function of Restaurant and Phase

	Baseline			Intervention			Withdrawal		
	Purchases made by RAs	Number of RAs' Checked for ID	Percentage of Purchases Checked	Purchases made by RAs	Number of RAs' Checked for ID	Percentage of Purchases Checked	Purchases made by RAs	Number of RAs' Checked for ID	Percentage of Purchases Checked
Restaurant I	27	10	37%	27	20	74%	33	18	55%
Restaurant C	27	9	33%	27	5	19%	33	6	18%

Table 14

Logistic Regression Analysis Examining the Potential Factors Influencing Cashiers Checking of RAs for ID

Predictor	B	SE (B)	Wald	df	Odds Ratio	$\Delta$ df	Nagelkerke R <sup>2</sup>	model's $\chi^2$
Amount Spent	.03	.05	.43	1	1.03	8	.22	30.72*
Number of people in line	.01	.08	.01	1	1.01			
Membership	-.43	.40	1.15	1	.65			
Restaurant Site (RS)	2.56	.67	14.77*	1	12.94			
Baseline Phase Dummy Code (DC)	.89	.66	1.83	1	2.43			
Withdrawal Phase Dummy Code	.11	.69	.03	1	1.12			
Baseline Phase DC x RS	-2.42	.88	7.56*	1	.09			
Withdrawal Phase DC X RS	-.86	.88	.95	1	.42			

Note. N=174. \* denotes  $p < .01$ .

Figure 1. Cashiers' ID-checking as a function of four prompt conditions.

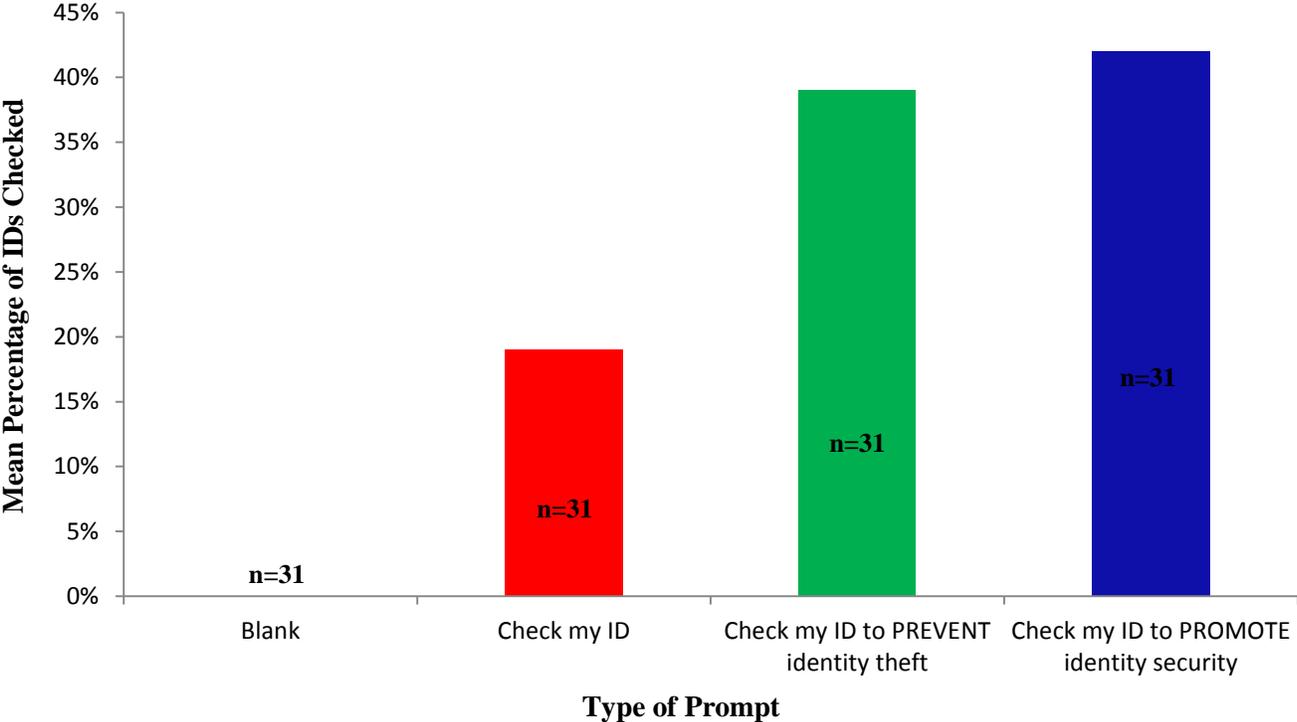


Figure 2. Cashiers' ID-checking as a function of four prompt conditions in non-university communities.

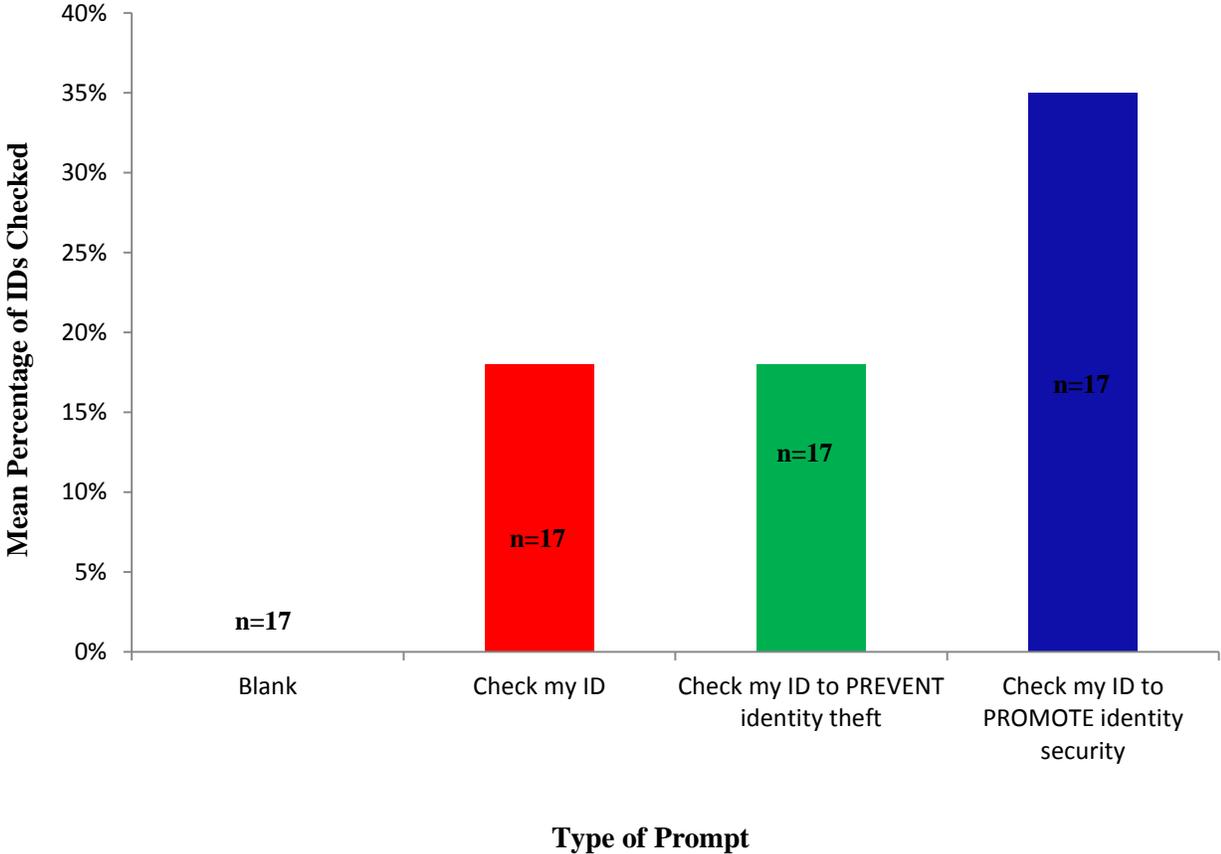


Figure 3. Cashiers' ID-Checking as a function of the type of store.

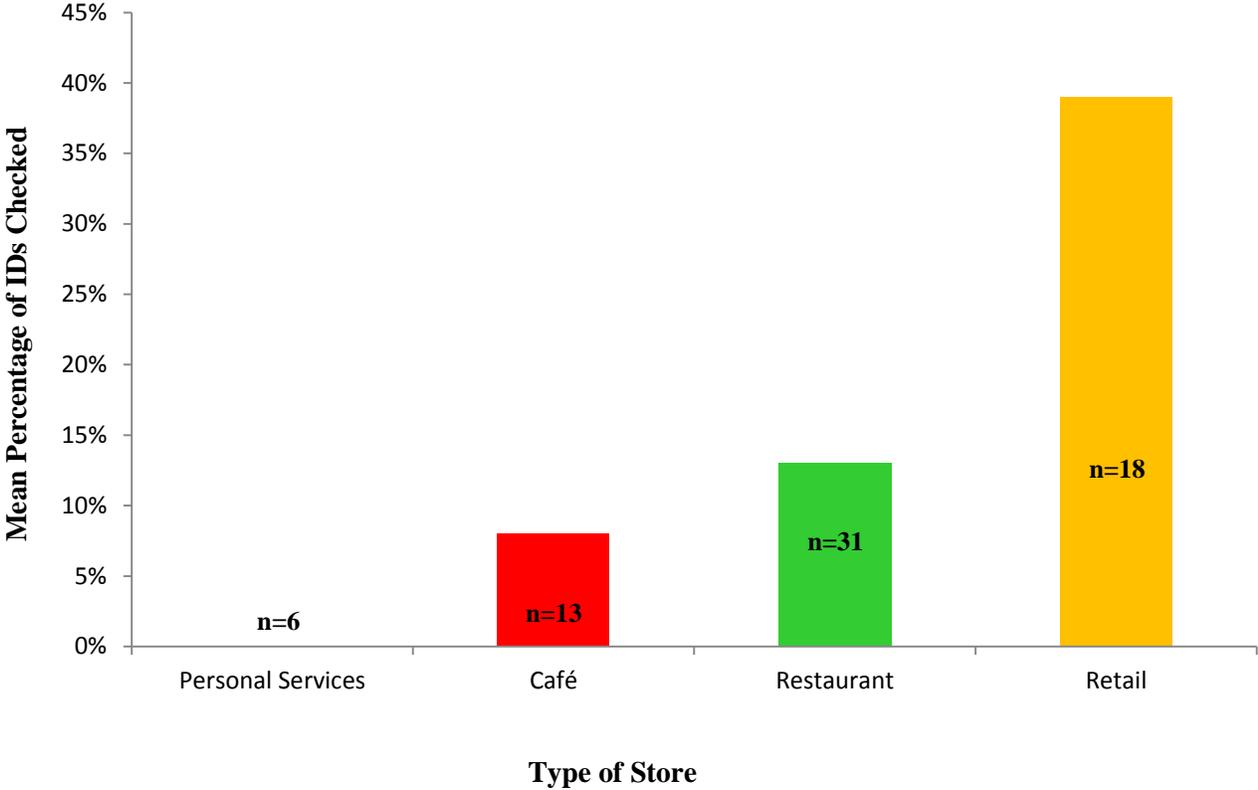


Figure 4. The goal-reminder prompt placed in view of the cashiers at the intervention restaurant.



Figure 5. The location of the goal-reminder prompts in the intervention restaurant.



Figure 6. Weekly mean percentage of ID-checking behavior at Restaurant I and Restaurant C.

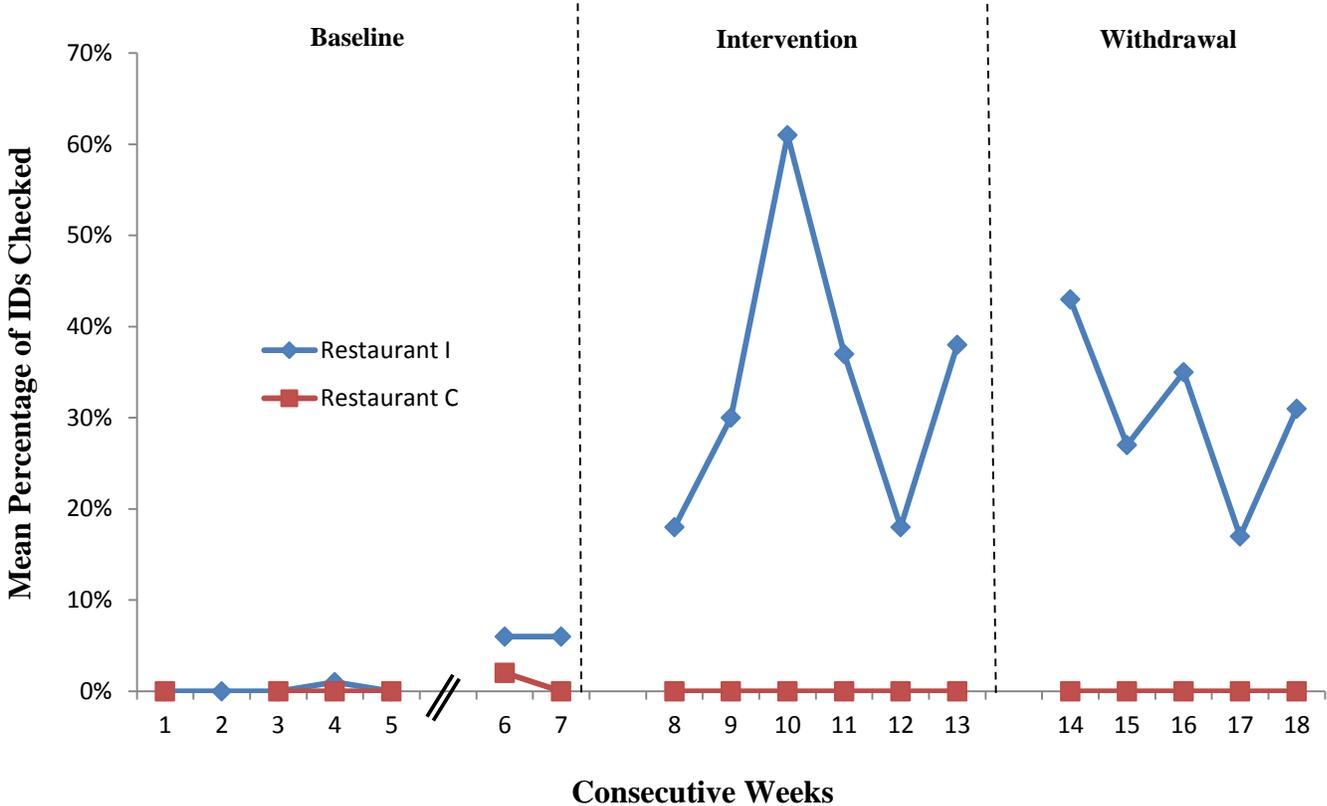


Figure 7. Mean Percentages of IDs checked in Restaurant I and Restaurant C as a function of Phase.

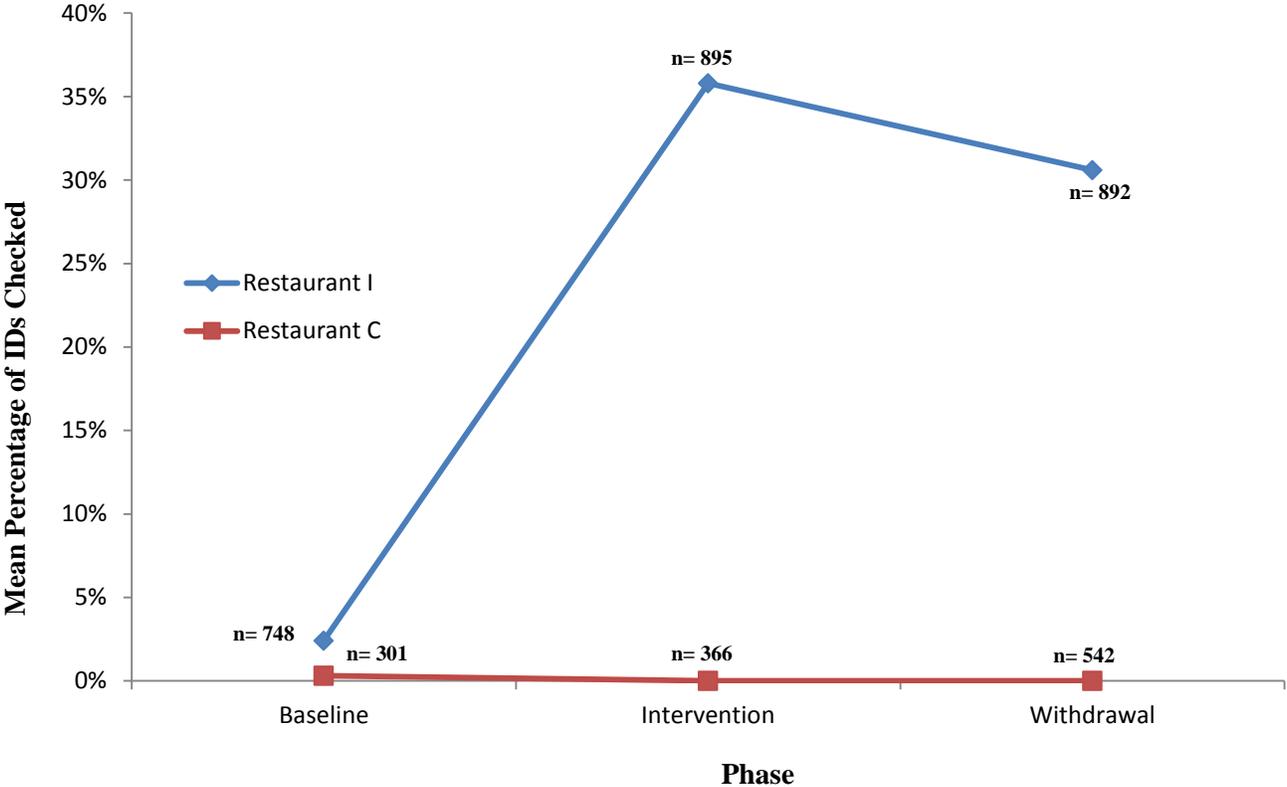


Figure 8. The mean percentage of IDs checked by individual cashiers in Restaurant I as a function of Phase.

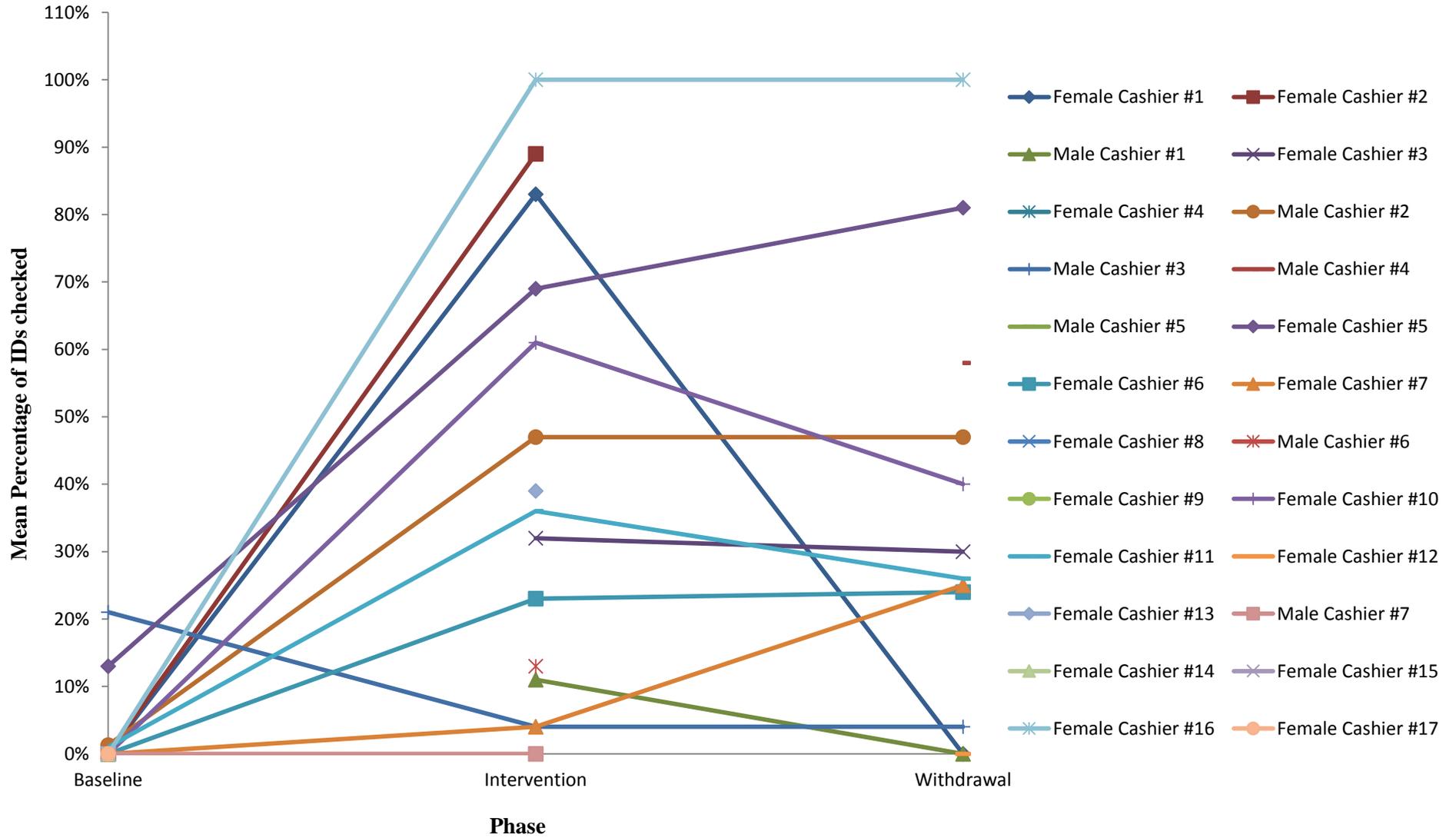


Figure 9. Mean Percentage of IDs checked as a function of the Manager's Presence and Phase.

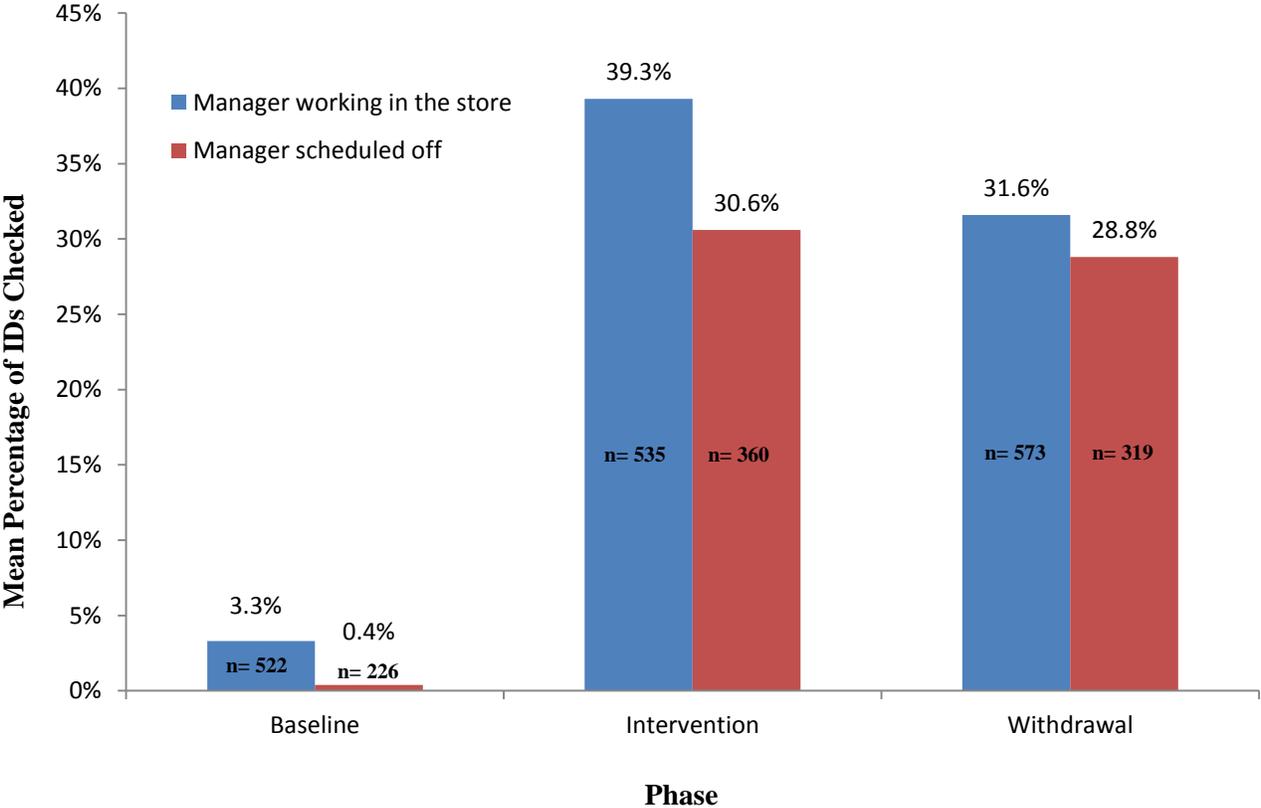
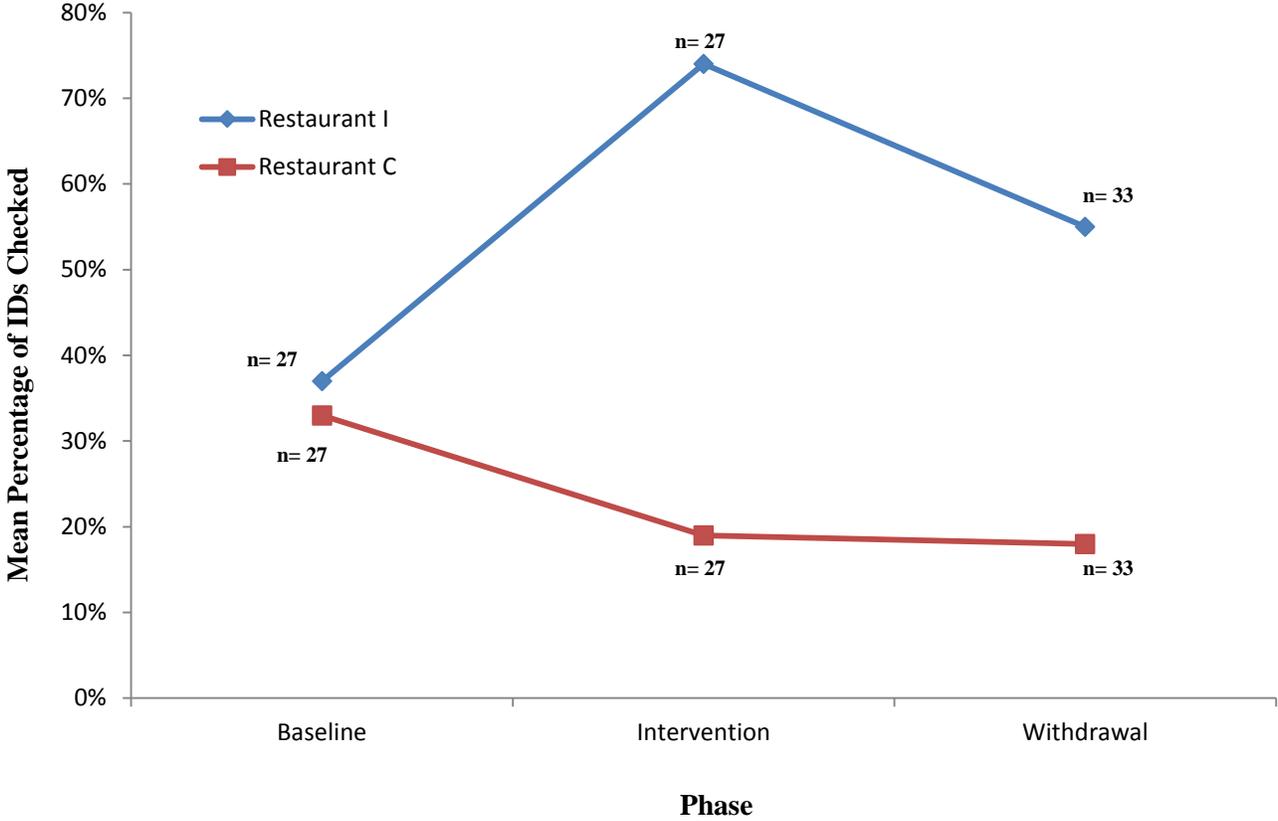


Figure 10. Mean percentage of RAs checked for ID by cashiers as a function of Phase.



Appendix A: Credit-Card Datasheet

Credit-Card Datasheet

- 1. Researcher's Gender: \_\_\_ Male \_\_\_ Female 2. Researcher's Race: \_\_\_ White \_\_\_ Black or African American \_\_\_ Asian \_\_\_ Hispanic or Latino
3. Researcher's Age: \_\_\_ 4. Researcher's Observation #: \_\_\_

Observation #1:

- 1. Store Name/Location: \_\_\_ 2. Store Type: \_\_\_ Retail \_\_\_ Restaurant (Fast Food) \_\_\_ Grocery Store
3. Date: \_\_\_ 4. Time: \_\_\_ \_\_\_ Retail & Grocery \_\_\_ Gas Station \_\_\_ Café \_\_\_ Personal Services
5. Is there a Picture ID on the card? \_\_\_ Yes \_\_\_ No
6. Which card did you use: \_\_\_ Debit Card \_\_\_ Credit Card 7. Cashier's Gender: \_\_\_ Male \_\_\_ Female
8. Cashier's Race: \_\_\_ White \_\_\_ Black or African American \_\_\_ Asian \_\_\_ Hispanic or Latino 9. Age of Cashier: \_\_\_
10. Cashier's Name (if available): \_\_\_ 11. Does the cashier know you? \_\_\_ No \_\_\_ Yes 12. Amount Spent: \_\_\_
13. # of cashiers in store: \_\_\_ 14. # of people in line behind you: \_\_\_ 15. Did the cashier look at the prompt? \_\_\_ No \_\_\_ Yes
16. Did Cashier ask for ID: \_\_\_ No \_\_\_ Yes

Sticker Prompt: Blank

Observation #2:

- 1. Store Name/Location: \_\_\_ 2. Store Type: \_\_\_ Retail \_\_\_ Restaurant (Fast Food) \_\_\_ Grocery Store
3. Date: \_\_\_ 4. Time: \_\_\_ \_\_\_ Retail & Grocery \_\_\_ Gas Station \_\_\_ Café \_\_\_ Personal Services
5. Is there a Picture ID on the card? \_\_\_ Yes \_\_\_ No
6. Which card did you use: \_\_\_ Debit Card \_\_\_ Credit Card 7. Cashier's Gender: \_\_\_ Male \_\_\_ Female
8. Cashier's Race: \_\_\_ White \_\_\_ Black or African American \_\_\_ Asian \_\_\_ Hispanic or Latino 9. Age of Cashier: \_\_\_
10. Cashier's Name (if available): \_\_\_ 11. Does the cashier know you? \_\_\_ No \_\_\_ Yes 12. Amount Spent: \_\_\_
13. # of cashiers in store: \_\_\_ 14. # of people in line behind you: \_\_\_ 15. Did the cashier look at the prompt? \_\_\_ No \_\_\_ Yes
16. Did Cashier ask for ID: \_\_\_ No \_\_\_ Yes

Sticker Prompt: Check my ID

**Observation #3:**

1. Store Name/Location: \_\_\_\_\_
2. Store Type:  Retail  Restaurant (Fast Food)  Grocery Store  
 Retail & Grocery  Gas Station  Café  Personal Services
3. Date: \_\_\_\_\_ 4. Time: \_\_\_\_\_
5. Is there a *Picture ID* on the card?  Yes  No
6. Which card did you use:  Debit Card  Credit Card
7. Cashier's Gender:  Male  Female
8. Cashier's Race:  White  Black or African American  Asian  Hispanic or Latino
9. Age of Cashier: \_\_\_\_\_
10. Cashier's Name (if available): \_\_\_\_\_
11. Does the cashier know you?  No  Yes
12. Amount Spent: \_\_\_\_\_
13. # of cashiers in store: \_\_\_\_\_
14. # of people in line behind you: \_\_\_\_\_
15. Did the cashier look at the prompt?  No  Yes
16. Did Cashier ask for ID:  No  Yes

**Sticker Prompt:** Check my ID to PROMOTE identity security

\_\_\_\_\_

**Observation #4:**

1. Store Name/Location: \_\_\_\_\_
2. Store Type:  Retail  Restaurant (Fast Food)  Grocery Store  
 Retail & Grocery  Gas Station  Café  Personal Services
3. Date: \_\_\_\_\_ 4. Time: \_\_\_\_\_
5. Is there a *Picture ID* on the card?  Yes  No
6. Which card did you use:  Debit Card  Credit Card
7. Cashier's Gender:  Male  Female
8. Cashier's Race:  White  Black or African American  Asian  Hispanic or Latino
9. Age of Cashier: \_\_\_\_\_
10. Cashier's Name (if available): \_\_\_\_\_
11. Does the cashier know you?  No  Yes
12. Amount Spent: \_\_\_\_\_
13. # of cashiers in store: \_\_\_\_\_
14. # of people in line behind you: \_\_\_\_\_
15. Did the cashier look at the prompt?  No  Yes
16. Did Cashier ask for ID:  No  Yes

**Sticker Prompt:** Check my ID to PREVENT identity theft

Appendix B: Cashier Observation Datasheet

**Cashier Observation Datasheet**

Register #:		Cashier's Name:			Gender: M F			
OBS#	Payment	GENDER	CHECKED	AMOUNT	# in line	Membership	AGE	
1	CC O	M F	Y N			Y N	1 2 3 4	
2	CC O	M F	Y N			Y N	1 2 3 4	
3	CC O	M F	Y N			Y N	1 2 3 4	
4	CC O	M F	Y N			Y N	1 2 3 4	
5	CC O	M F	Y N			Y N	1 2 3 4	
Register #:		Cashier's Name:			Gender: M F			
OBS#	Payment	GENDER	CHECKED	AMOUNT	# in line	Membership	AGE	
6	CC O	M F	Y N			Y N	1 2 3 4	
7	CC O	M F	Y N			Y N	1 2 3 4	
8	CC O	M F	Y N			Y N	1 2 3 4	
9	CC O	M F	Y N			Y N	1 2 3 4	
10	CC O	M F	Y N			Y N	1 2 3 4	
Register #:		Cashier's Name:			Gender: M F			
OBS#	Payment	GENDER	CHECKED	AMOUNT	# in line	Membership	AGE	
11	CC O	M F	Y N			Y N	1 2 3 4	
12	CC O	M F	Y N			Y N	1 2 3 4	
13	CC O	M F	Y N			Y N	1 2 3 4	
14	CC O	M F	Y N			Y N	1 2 3 4	
15	CC O	M F	Y N			Y N	1 2 3 4	
Register #:		Cashier's Name:			Gender: M F			
OBS#	Payment	GENDER	CHECKED	AMOUNT	# in line	Membership	AGE	
16	CC O	M F	Y N			Y N	1 2 3 4	
17	CC O	M F	Y N			Y N	1 2 3 4	
18	CC O	M F	Y N			Y N	1 2 3 4	
19	CC O	M F	Y N			Y N	1 2 3 4	
20	CC O	M F	Y N			Y N	1 2 3 4	

**PAYMENT** = CC (Credit Card or Debit Card) O (Other - Cash, Check, Gift Card)  
**GENDER** is the gender of the customer  
**CHECKED** is whether or not the cashier checked the customer's ID  
**AMOUNT** is the total amount of the customer's purchase.  
**# in line** is the total number of people in line behind the customer being observed.  
**MEMBERSHIP** is whether the customer uses a Panera card.  
**AGE** = 1 (18-34) 2 (35-49) 3 (50-65) 4 (65+)

Date: \_\_\_\_\_

Start Time: \_\_\_\_\_

Location: \_\_\_\_\_

Primary DC#: \_\_\_\_\_

Reliability DC: \_\_\_\_\_

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Appendix C: Purchase Observational Datasheet

**Purchase Observational Datasheet**

- 1. Researcher's Gender:  Male  Female
- 2. Researcher's Race:  White  Black or African American  Asian  Hispanic or Latino
- 3. Researcher's Age: \_\_\_\_\_
- 4. Researcher's Observation #: \_\_\_\_\_

**Observation #1:**

- 1. Date: \_\_\_\_\_
- 2. Time: \_\_\_\_\_
- 3. Is there a *Picture ID* on the card?  Yes  No
- 4. Which card did you use:  Debit Card  Credit Card
- 5. Age of Cashier: \_\_\_\_\_
- 6. Cashier's Race:  White  Black or African American  Asian  Hispanic or Latino
- 7. Cashier's Gender:  Male  Female
- 8. Cashier's Name (if available): \_\_\_\_\_
- 9. Does the cashier know you?  No  Yes
- 10. Amount Spent: \_\_\_\_\_
- 11. # of cashiers in store: \_\_\_\_\_
- 12. # of people in line behind you: \_\_\_\_\_
- 13. Did the cashier look at the prompt?  No  Yes
- 14. Did Cashier ask for ID:  No  Yes

**Store: Christiansburg**

**Observation #2:**

- 1. Date: \_\_\_\_\_
- 2. Time: \_\_\_\_\_
- 3. Is there a *Picture ID* on the card?  Yes  No
- 4. Which card did you use:  Debit Card  Credit Card
- 5. Age of Cashier: \_\_\_\_\_
- 6. Cashier's Race:  White  Black or African American  Asian  Hispanic or Latino
- 7. Cashier's Gender:  Male  Female
- 8. Cashier's Name (if available): \_\_\_\_\_
- 9. Does the cashier know you?  No  Yes
- 10. Amount Spent: \_\_\_\_\_
- 11. # of cashiers in store: \_\_\_\_\_
- 12. # of people in line behind you: \_\_\_\_\_
- 13. Did the cashier look at the prompt?  No  Yes
- 14. Did Cashier ask for ID:  No  Yes

**Store: Blacksburg**