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Abstract

Previous research has shown that some scheduling methods, including clockwise, counterclockwise and rapidly rotating formats, can have a negative effect on employee sleep patterns, health outcomes, and work performance. These same negative effects can also diminish job performance, organizational commitment, and have been shown to have a negative impact on organizational citizenship behaviors. Computer generated scheduling, which uses many of the aforementioned scheduling practices, is a relatively new tool used by organizations to create employee schedules. A total of 204 participants currently employed in a retail environment completed a survey assessing employee job satisfaction, organizational commitment, and organizational citizenship behaviors. Of those that completed the survey, 101 participants completed the computer generated scheduling version and 103 completed the manually generated version. Results indicated that there were no significant differences between computer generated scheduling programs and non-computer generated scheduling programs in overall job satisfaction, organizational commitment, and organizational citizenship behaviors. Supplemental analysis of five job satisfaction facets also revealed no significant differences between employees whose schedules were generated utilizing a computer based program and those whose employer manually generated their schedules.
Chapter 1

Review of the Literature

Competition between retail organizations is very competitive, and organizations are always looking for ways to cut costs and increase margins. By far the largest expenditure in retail organizations are labor costs. According to a Bureau of Labor Statistics 2015 news release, the average employer spends $33.37 per hour for each employee in the private sector. This figure appears to be consistent with current retail employee wages. These costs include employee wages and salaries as well as employee benefits and are calculated as an average across all U.S. private sector jobs. When state and local government expenditures are included, the average increases to $44.66 per hour. When taken as a whole, these labor expenditures can cost a retail organization between 10 and 15% of total revenue. Hiring the correct number of employees and utilizing the workforce efficiently can mean the difference between a profitable year, one in which an organization breaks even, or reports a loss in revenue.

In addition to labor costs, costs associated with employee scheduling and time spent by management teams generating schedules add to these same overhead costs. In a medium to large retail organization, management teams may spend as much as 40 hours a week manually generating employee schedules (Kronos Incorporated, 2013). One approach used by retail organizations to manage its workforce and reduce overhead costs associated with manually generating employee schedules is to use a computer program that can efficiently
create employee schedules to meet the demands of the organization and its customers. However, in doing so, the scheduling program may fail to take into account the needs of the employee. Utilizing multiple scheduling patterns such as rapidly rotating, forward and backward rotating approaches, the program randomly places employees into available shifts without taking into consideration employee preferences, number of consecutive days worked, or the previous day’s schedule. This random scheduling approach may leave employees feeling both demoralized and dehumanized. Therefore, the purpose of this study is to examine the effect of CGS on employee behaviors and outcomes, in particular, job satisfaction, organizational citizenship behaviors, and organizational commitment.

**Computer Generated Scheduling**

Computer generated scheduling (CGS) is a relatively new approach used by organizations to efficiently manage its workforce. Using proprietary algorithms, CGS generates employee schedules utilizing the previous year’s sales, employee availability, customer flow patterns, and current trends (Kronos Incorporated, 2013). Using these data, the CGS program randomly assigns employees’ four to eight hour shifts as well as random days off. Employee days off may or may not be consecutive and an employee may work between one to 10 consecutive days between scheduled days off. By scheduling more employees during high traffic or increased production periods and fewer during slow or low production periods, the CGS program efficiently manages human capital to meet the needs of the organization and its customers. In doing so, it reduces overhead costs associated with employee wages, manager workloads, and administrative costs which directly impact organizational revenue.
The advantages of CGS are that it can effectively schedule employees to meet the demands of both the organization and its customers as well as reducing overhead costs associated with employee scheduling. The CGS program can generate an employee schedule in a fraction of the time than it does to generate them manually and requires no managerial oversight (Kronos Incorporated, 2013), allowing management teams to oversee the day-to-day business needs of the organization and, in some instances, it may allow an organization to reduce the number of managers on staff. Another key advantage of CGS is that it reduces perceived bias related to manually generated schedules (Kronos Incorporated, 2013). Perceived biases might include offering better shifts to friends and those with more seniority. Finally, because CGS is a computer program, employee schedules can be accessed online instead of manually printing and posting schedules. This saves administrative time as well as costs associated with office supplies. By posting schedules online, employees can access their schedule at work, home, or by mobile phone. Furthermore, employee access to the electronic schedules may reduce tardiness and absenteeism related to employee scheduling mistakes, such as failing to get their schedule or reading or copying their schedule incorrectly.

One disadvantage of CGS is that it randomly places employees into available shifts without taking into consideration previous days scheduled or employees’ preferred schedules. For the purposes of this study, preferred schedules will be defined as an ideal schedule or time of day that best meets the needs of the employee and the organization. For example, an employee may prefer to work one schedule over another. In order to receive the maximum number of hours however, employees may opt for open availability, which means that an employee is available to work any hours assigned. Although this approach may help
the employee to meet his or her financial needs, the end result is a schedule that is unpredictable (i.e., a schedule that may be different from the previous week’s schedule and may consist of both opening and closing shift, split days off, and both full and partial shifts). Since there is no consistency in scheduling from daily or weekly, an employee cannot plan doctors’ visits, family activities, or arrange other necessary appointments without requesting a specific day off. However, employees may get the requested day off in addition to their two scheduled days off thereby creating a financial shortfall for an employee who may be living paycheck to paycheck. The alternative is to request vacation days or personal time to attend school functions, plan doctors’ visits, and conduct other family obligations. A family with more than one child or those with chronically ill family members will utilize all available vacation and personal time in a relatively short period. It is this conflict between meeting family obligations while maintaining sufficient income that is the basis for work-family conflict (Van Amelsvoort et al., 2004). This perceived injustice between family obligations and work commitment may then, in turn, have an adverse impact on employee affective commitment and ultimately employee organizational commitment (OC; Fischer & Smith, 2006).

Another disadvantage is that CGS combines a number of schedule rotation patterns without regard to employee work-life balance and adequate rest periods between shifts. It is the combination of forward (clockwise rotation), backward (counterclockwise rotation) and rapidly rotating schedules in conjunction with random days off that make CGS unique. This constant scheduling change has been linked to marital instability (Beauregard & Henry, 2009; Duxbury, Higgins & Lee, 1994; Galambos & Walters, 1992; Strazdins, Clements, Korda, Broom, & D’Souza, 2006), an inability to recover physically and mentally which has
been linked to biological disruptions to physiological processes and impairment of physical health and psychological well-being (Jansen, et al., 2003). Furthermore, these same scheduling patterns have been linked to sleep disruptions which have been connected to an increase in coronary heart disease, weight gain, and diabetes (Harma, 2006; Hennig, Kieferdorf, Moritz, Huwe, & Netter, 1998; Kawachi et al., 1995), and an increase in work and non-work related accidents (Burch, Yost, Johnson, & Allen, 2005; Folkard & Tucker, 2003; Levin, Oler & Whiteside, 1985). As can be seen below, the primary cause of these problems can be attributed to the mixing of multiple rotating scheduling patterns.

**Scheduling patterns.** As described by van Amelsvoort (2004), a *counterclockwise* or *backward rotation* is one that rotates from overnights to evenings to mornings shifts. This pattern is often utilized in manufacturing, retail, and health industries that operate around the clock. Although each industry’s exact schedule might vary, one possible schedule might be overnight shifts (10 pm to 6 am), evening shifts (2 pm to 10 pm), and morning shifts (6 am to 2 pm). When this pattern is utilized in a shiftwork environment, employees will often work two weeks of one shift, such as the morning shift, before rotating to the next shift, such as the overnight shift for two weeks. Finally, the employee will rotate from the overnight shift to evening shift for two weeks before starting the rotation again. Employees working this type of schedule will often continue to rotate in this direction until they transfer to another position or leave the organization. This non-fixed work schedule leads to a low degree of routine in which employees are in a constant changing and adapting mode (Jamal, 1981). Furthermore, Jansen et al. (2003) found a link between non-fixed work schedules and a need for recovery from work. That is, when schedules rotate counterclockwise, employees require additional time off between shift changes to recover and adjust to new sleep patterns. Even
with this additional time for recovery, counterclockwise rotational shifts have been linked to negative health outcomes. Research studies conducted by Jamal (2004); van Amelsvoort, Jansen, Swaen, van den Brandt, and Kent (2004); and Swanberg, McKechnie, Ojha, and James (2011), have shown a connection between counterclockwise rotations and negative employee physiological and psychological health outcomes which adversely impact employee productivity. Furthermore, Jamal (2004) found that over a prolonged period, these negative health outcomes can lead to employee burnout, job dissatisfaction, and employee turnover.

*Clockwise or forward rotating schedule*, as described by van Amelsvoort (2004), is one that rotates from mornings to evenings to overnights. A typical schedule would be two weeks of a morning shift (i.e., 6 am to 2 pm), two weeks of an evening shift (i.e., 2 pm to 10 pm), and then two weeks of an overnight shift (i.e., 10 pm to 6 am). This forward rotation allows for additional time off between schedule changes and has been shown to mitigate some of the negative health outcomes of shiftwork (Fenwick & Tausig, 2001). For example, in a standard or fixed work schedule, an employee would have 16 hours off from the end of one shift to the start of the next. In a forward rotation, an employee might have 24 hours off from the end of one shift until the start of the next. In comparison, an employee working a counterclockwise rotation might only have 8 hours off before starting the next shift. As is often the case, organizations that utilize a rotating shift format schedule the shift change to coincide with an employee’s scheduled days off. In such cases, an employee who works a counterclockwise rotation would only have 56 hours off before returning to work. In comparison, an employee working a fixed schedule would have 64 hours off before returning
to work, whereas those working a forward rotation would have 72 hours off before returning to work.

*Rapidly-rotating scheduling* is defined as one that rapidly rotates either forward or backward (but not both) within the same week (Boquet et al., 2002). An example of a rapidly-rotating schedule is one used by the Federal Aviation Administration (FAA). The FAA employs a rapidly rotating 2-2-1 scheduling program for its Air Traffic Controllers. A clockwise 2-2-1 schedule requires employees to work two early morning shifts (6 am to 2 pm), followed by two day shifts (2 pm to 10 pm), and finally, one overnight shift (10 pm to 6 am) within the same week. A counterclockwise schedule would be the reverse starting with day shifts and ending with an overnight shift (Boquet et al., 2002). Research conducted by Boquet et al. (2002) has shown that rapidly-rotating schedules, regardless of whether the shift is rotating clockwise or counterclockwise, has an adverse effect on employee sleep patterns. When employees work overnight shifts, they are forced to sleep during the day when melatonin levels are low. This makes it more difficult to get deep sleep or prolonged rest which can leave employees fatigued and irritable (Barton, 1993; Boquet et al., 2002). The accumulative effect of sleep deficiency has been shown to have a negative impact on employee performance (Rosekind et al., 2010). This same accumulative effect has been directly linked to an increase in employee cortisol levels as well as a decrease in melatonin levels (Boquest et al., 2002). One way to possibly mitigate the effect of rapidly rotating schedules is to end the work week on the overnight shift thereby allowing employees additional rest time before starting the following week’s schedule.
The Effect of Shiftwork on Sleep Patterns

Research has shown that there is a correlation between rotating shift work and disrupted sleep schedules (Folkard & Tucker, 2003; Jamal, 1981; Rosekind et al., 2010; van Amelsvoort et al., 2004). Individuals who work rotating shifts sleep fewer total hours, tend to have more awakenings during sleep, and often require additional naps to recover from rotating schedules (Rosekind et al., 2010).

In a study conducted by van Amelsvoort et al. (2004), the authors used data from participants in three forward-rotating shiftwork schedules and three backward-rotating shiftwork schedules. All participants were part of a previous study conducted by the Maastricht cohort (2000; as cited by van Amelvoort et al., 2004). Amelsvoort et al. found that a backward-rotating schedule was related to an increased need for recovery and negatively impacted the general health of participants compared to a forward-rotating schedule. That is, forward-rotating schedules allowed employees more time off between schedule changes which reduced the adverse impact associated with backward- or counterclockwise-rotating schedules.

In a study to assess the impact of sleep disturbances on work performance, productivity, and safety outcomes, Rosekind et al. (2010) surveyed 4188 employees of four U.S. corporations to determine if irregular work hours (those consisting of clockwise and counterclockwise shift patterns) negatively affected employee sleep patterns. The participants were divided into two groups; those who worked fixed schedules and those who worked irregular schedules. Based on their responses to the survey, the participants were then placed into one of four sleep quality groups; insomnia, insufficient sleep syndrome (ISS), at-risk, and good sleep. Rosekind et al. found a strong correlation between irregular work schedules,
defined as forward or backward rotational shifts, and disruptions in sleep patterns.
Furthermore, Rosekind et al. concluded that loss of sleep led to a decrease in productivity. In
addition, those who worked clockwise or counterclockwise rotations reported significantly
less sleep, more awakenings during sleep sessions, and inferior sleep quality scores than did
those working fixed schedules (Rosekind et al., 2010). Finally, more individuals from the
rotating schedule work group were found to have significantly more insomnia and ISS, and
fewer participants in this group were in the good-sleep category, compared to those in the
fixed schedule group (Rosekind et al., 2010). The research also showed that participants who
worked clockwise and counterclockwise rotations and were in the insomnia group reported
significantly greater instances of fatigue, lower motivation, reported more instances of
memory loss, and displayed poor decision making abilities compared to those who were not
in the insomnia group.

Rosekind et al. (2010) also indicated that those individuals working rotating shifts
found it more difficult to concentrate and had reduced social functioning and interpersonal
communication. Rosekind et al. also found that those working rotating shifts had an
incremental decrease in productivity over time, with time management receiving the poorest
scores. Finally, individuals who were in the insomnia and ISS groups reported more
instances of injury at home, nodding off at work or while driving, and unintentionally
sleeping while on the job (Rosekind et al., 2010).

The research conducted by Rosekind et al. (2010) clearly shows a connection
between clockwise and counterclockwise rotating schedules and their impact on sleep
patterns and the need for recovery. In addition, Rosekind et al. found a relation between poor
sleep patterns and employee performance, productivity, and safety outcomes. Finally,
research by Fenwick and Tausig (2001) and van Amelsvoort et al. (2004) has shown a connection between poor sleep patterns and negative health outcomes and their negative effect on marital stability. When taken together, the negative outcomes associated with disrupted sleep patterns may have an adverse effect on employee family life which in turn may lead to work-family conflict.

**Work-Family Conflict**

Rotating work schedules may negatively impact an employee’s home life and create work-family conflict. Van Amelsvoort et al. (2004) define work-family conflict as the inability to combine work and family roles successfully. When employees work a fixed schedule, they have 16 hours between the end of their last shift and the start of the next shift. This time period is often used to obtain quality sleep, participate in leisure activities or to meet family obligations. In contrast, when employees work a counterclockwise schedule, their off-work time is often compressed, and employees often have less than 16 hours between shifts. In fact, in some instances, the time between shifts may be as short as 8 hours. Hence, counterclockwise rotations reduce the number of available hours for leisure time and may restrict the ability of employees to attend school functions, maintain intimate relationships, and meet the demands of everyday life. Additionally, counterclockwise rotations negatively affect the quality and duration of sleep leaving the employee feeling fatigued and irritable (van Amelsvoort et al., 2010).

When employees experience conflict at home, they often perform poorly at work (Fenwick & Tausig, 2001). These same family conflicts can increase stress and have been known to cause depression in some participants. Furthermore, women who work both clockwise and counterclockwise rotating shifts often experience role strain between work and
the demands of home life (Fenwick & Tausig, 2010). Role strain, according to Fenwick and Tausig (2010), is the conflict one feels between the demands of home life and the demands of work. For women, role strain may be the demands of taking care of the needs of children, planning family activities, and maintaining the home while meeting the demands of work. For men, role strain may be the demands of taking on nontraditional male roles while having ones spouse gone long hours (Giacalone & Greenberg, 1997). Role strain for both men and women may lead to increased levels of stress over time. Often this stress builds or intensifies until the individual feels a need to release that pressure (Giacalone & Greenberg, 1997). This release, which Giacalone and Greenberg (1997) referred to as the cooling off period, may lead to a reduction in stress levels and a return to some level of routine. This heating up and cooling off process is often reoccurring as an individual deals with the day-to-day demands of work and home. This process, which Gaicalone and Greenberg (1997) referred to as the Thermodynamics of Revenge, may eventually come to a breaking point at which time the individual seeks some form of retribution for the perceived injustice. One approach to possibly mitigate the negative effects of work-family conflict may be to increase control over one’s schedule.

Fenwick and Tausig (2010) investigated the effects of perceived control over one’s schedule and the positive effect it may have on the work-family interaction. Fenwick and Tausig examined the effect of both fixed and irregular work schedules and found that a lack of balance, work-home conflict, dissatisfaction, days sick, and minor physical problems were significantly and negatively correlated with perceived control over one’s schedule. Fenwick and Tausig defined irregular work schedules as those outside the “normal” Monday through Friday 9 a.m. to 5 p.m. shift, which include both forward and backward rotating shifts as well
as weekend shifts. Furthermore, Swanberg et al. (2011) found that if workers had little control over their schedule, they were more likely to experience work-family conflict which, if left unchecked, could result in higher rates of turnover in low level positions. In contrast, if employees perceived they had some level of control over scheduling assignments, they were more likely to have higher levels of work engagement and were less likely to leave their organization. Thus, one way to combat the negative effects of irregular work schedules may be to allow employees some control over their schedule, such as allowing employees to choose a preferred schedule over all others being offered.

Interestingly, gender may play a role in how individual employees experience and react to work-family conflict. Galambos and Walters (1992) investigated the effect of counterclockwise and clockwise rotations on raising children and navigating conflicting schedules between adults, and found that gender roles played a significant role in how employees perceived role strain and anxiety. That is, when males were required to take on the traditional female role at home, they experienced higher levels of anxiety and depression than did females. On the other hand, when females were required to undertake a traditional male role, they were more likely to experience role strain than did males. Galambos and Walters concluded that additional domestic responsibilities not usually required of males and worry associated with their wives being gone long hours may have played a role in increased anxiety and depression experienced by males. These findings indicate that family conflict may be highly linked to female work roles and may have a negative impact on both males and females which in turn may negatively impact other members of the family. Powell and Greenhaus (2010) concluded that women experienced role strain when the demands of family life were in direct conflict with work roles. This was particularly true of women who worked
salaried positions where schedules can often be longer than 40 hours a week (Powell & Greenhaus, 2010). Because gender roles, work roles, and family roles have begun to evolve, there seems to be a shift in how men perceive work-family conflict and how they deal with the stressful interaction (Powell & Greenhaus, 2010). Research conducted by Colombo (2008) found that men who worked and participated in child rearing still experienced role strain and ultimately increased levels of stress. However, Colombo (2010) also found that men who were stay-at-home fathers, where their wives worked, were less concerned with gender roles and therefore more adaptive to their role and less stressed about wives work hours.

Work-family conflict not only impacts employee anxiety and depression levels but has also been shown to have an adverse effect on employee sleep quality (Beauregard & Henry, 2009). Taken as a whole, work-family conflict can decrease employee job performance (Beauregard & Henry, 2009) and has been shown to negatively impact employee Job Satisfaction (JS) (Scandura & Lankau, 1997). In addition, work-family conflict has been shown to have an adverse effect on organizational citizenship behaviors (OCBs), which Fox et al. (2012) describe as helpful behaviors that benefit the organization and that are outside the employee’s job description. Finally, work-family conflict has been shown to weaken employee OC (Jamal, 1981). Meyer and Allen (1991) defined OC as an individual’s psychological attachment to the organization. Furthermore, Meyer and Allen concluded that OC was comprised of three individual components; affective, continuance, and normative commitment. Affective commitment, according to Meyer and Allen, could be defined as an individual’s emotional attachment to the job. When individuals experience affective commitment, they identify with the organizations goals and values and generally want to be
there (Meyer & Allen, 1991). Meyer and Allen (1991) went on to define continuance commitment as an individual’s need to stay with the organization. That is, when individuals weigh the pros and cons of leaving the organization and concludes that they will lose more than they gain by doing so. Finally, Meyer and Allen defined normative commitment as an individual’s sense of obligation to the organization. When an individual’s experience normative commitment they feel as if they have to stay because the organization cannot get along without them or perhaps they feel a sense of loyalty to the organization (Meyer & Allen (1991). Jamal (1981) concluded that when employee’s OC was weakened they were more likely to have an increase in instances of tardiness and absenteeism, and were more likely to be at risk for turnover.

**Employee-Related Outcomes of CGS**

Despite the use of CGS to help managers create employee scheduling, there may be unintended effects on, JS, OC, and OCBs. Before examining those potential employee-related outcomes of CGS, it may be beneficial to examine the goals and perceived benefits of CGS programs. As previously stated, CGS programs utilize proprietary algorithms to create employee schedules that best meet the demands of the organization and its customers. Its intent is to accomplish two goals, to utilize management time efficiently and to align its workforce with the organization’s mission to serve its customer base effectively. It accomplishes this by employing both rapidly rotating and forward and backward rotational methods. What makes CGS unique is that it can employ all these rotational methods within a given week. That is, an employee’s weekly schedule can contain rapidly rotating forward and rapidly rotating backward shifts within the same week. To make matters worse, an employee’s days off can also be random (the two days off that are rarely the same), split (the
two days off are split up where one or more work days separate the two days off), and/or rotating (where the two consecutive days off rotate forward or backward from week to week). Finally, because the CGS program randomly places employees into open shifts, employee’s schedules vary from week to week. For example, an employee may start the week with two forward rotating shifts followed by a day off, then three rapidly rotating backward shifts followed by a day off. The next week’s random schedule could then be any number of combinations containing some form of rotational shifts.

The issue for CGS programs is that rotational shifts have been negatively associated with a host of employee attitudes and behaviors. Jamal (1981) investigated the connection between shift schedules (fixed and rotating) and employee JS, social participation, OC, anticipated turnover, absenteeism, and tardiness. Jamal found that fixed shifts positively correlated with employee JS, OC, and social participation, and negatively correlated with turnover, absenteeism, and tardiness. Jamal (1981) also found that rotating schedules negatively correlated with employee JS, OC, and social participation, and positively correlated with turnover, absenteeism, and tardiness.

Another potential outcome of rotating schedules may be a decrease in (OCBs). Although not required, these behaviors can help the organization to be more effective and ultimately more competitive (Fox et al., 2012). When OCBs are diminished, employees may be less helpful to one another and less supportive to upper management (Organ, 1997). Lowery et al. (2002) found that when JS was high, employees were more likely to participate in OCBs, whereas Wang (2015) found that OC was positively related to OCBs. Given the relationship between rotating schedules and lower OC and JS (Jamal, 1981), as well as the
positive relationship between JS and OCBs (Lowery et al., 2002), it may be the case that rotating schedules may also have a negative relationship with OCBs.

CGS utilizes a unique scheduling matrix that attempts to meet the needs of both the organization and its customers. That is, CGS attempts to schedule more employees during high traffic or increased production periods and fewer during slow or low production periods. However, CGS fails to take into consideration the individual needs of the employee. As previously stated, schedules often contain forward and backward rotational as well as rapidly rotating shifts within the same week. In addition, employee days off might also be random, split, and/or rotating. To make matters worse, employee schedules are often only produced a week or two in advance. This leaves little to no time to plan doctor visits, attend children school functions, or meet other family obligations. Finally, because CGS schedules change from week to week, employees are in a constant changing and adapting mode. Considering CGS utilizes both rapidly rotating as well as forward and backward rotational shift scheduling patterns within a given week, one could conclude that CGS may be related to the same negative outcomes as rapidly-rotating and forward- and backward-rotational schedules namely, lower JS, OC and OCBs.
Chapter II

Rationale and Hypotheses

Irregular work schedules lead to a low degree of routine in which employees are in a constant changing and adapting mode (Jamal, 1981). This low degree of routine has been directly linked to a need for recovery (Jensen et al., 2003). That is, when employees work irregular shifts, they require additional time off to recover and adjust their sleep patterns. Rosekind et al. (2010) concluded that employees working backward or counterclockwise rotational schedules were less likely to have this additional time off and that those working these schedules were more likely to experience the negative outcomes associated with lost sleep. That is, when employees were sleep deprived, they produced less, had lower levels of work performance, and had poorer safety outcomes (Rosekind et al., 2010). Boquet et al. (2002) asserted that rapidly rotating schedules produced the same results with regard to lost sleep, regardless of the direction of rotation. Furthermore, Jamal (2004) postulated that over a prolonged period, these negative health outcomes could lead to employee burnout and ultimately employee job dissatisfaction. Since CGS utilizes rapidly rotating as well as forward and backward rotational scheduling methods, one could conclude that CGS may also lead to burnout and ultimately lower JS. Therefore, the following is hypothesized:
Hypothesis 1: Employees who have work schedules produced by a CGS program will have lower levels of job satisfaction than those who have work schedules that are manually generated by supervisors.

Research by Lowery et al. (2002) asserted that JS is directly linked to OCBs. That is, when JS was high employees were more likely to participate in OCBs. Since schedules consisting of rapidly rotating and forward and backward rotational schedules have been linked to work-family conflict and ultimately job dissatisfaction, Galambos and Walters (1992), and CGS employs all of these scheduling methods, one might conclude that CGS may be negatively related to OCBs. Thus, the following is hypothesized:

Hypothesis 2: Employees who have work schedules produced by a CGS program will participate in fewer OCBs than employees who have schedules that are manually generated by supervisors.

Fenwick and Tausig (2001) concluded that when married couples worked irregular schedules, they had more difficulty meeting family obligations. This led to higher levels of stress and depression among men and higher levels of role strain among women. In addition, work-family conflict may have an adverse impact on employee job performance (Beauregard & Henry, 2009), employee JS (Scandura & Lankau, 1997), and employee OC (Jamal, 1981). As previously stated, CGS programs produce irregular schedules utilizing rapidly rotating as well as forward and backward rotational methods which have been shown to have adverse effects on employee health and marital stability both of which have been shown to have an adverse effect on employee OC (Fenwick and Tausig, 2001). Therefore the following is hypothesized:
Hypothesis 3a: Employees who have work schedules produced by a CGS program will have lower levels of Affective Commitment than employees who have schedules that are manually generated by supervisors.

Hypothesis 3b: Employees who have work schedules produced by a CGS program will have lower levels of Continuance Commitment than employees who have schedules that are manually generated by supervisors.

Hypothesis 3c: Employees who have work schedules produced by a CGS program will have lower levels of Normative Commitment than employees who have schedules that are manually generated by supervisors.
Chapter III

Method

Participants

The sample was collected utilizing Amazon’s Mechanical Turk (MTurk). MTurk is a crowdsourcing internet site that, among other services, hosts surveys for research purposes. The subject pool consisted of retail employees residing within the United States. Only those participants with at least a 90% HIT rate and those who reported a current status as employed within a retail environment were eligible to participate. For the purposes of this study, a total of 128 participants or 64 per group were needed in order to achieve a statistical power of .80 with a medium effect size and alpha equal to .05 (Cohen, 1992). In all, 250 participants attempted the survey and 30 were eliminated for failing to complete all 124 questions. Of those that remained, 16 were eliminated for failing to answer all three quality check questions correctly. In all but two instances, those that failed the quality check questions responded to each of the remaining questions in the same survey using the same response. In all, 204 participants completed the survey, with 101 participants completing the computer generated scheduling version and 103 completing the manually generated version. A total of 99 males (49%) and 105 females (51%) participants completed the survey. Participants’ ages ranged from 18 to 60+ years. See Table 1 for frequencies and percentages of all demographic variables.
Table 1

Frequencies and Percentages for Demographic Variables

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</table>

<table>
<thead>
<tr>
<th>Race</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>American Indian or other Native American</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Asian, Asian American or Pacific Islander</td>
<td>15</td>
<td>7.5%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>12</td>
<td>5.9%</td>
</tr>
<tr>
<td>White (Non-Hispanic)</td>
<td>166</td>
<td>81.4%</td>
</tr>
<tr>
<td>Mexican or Mexican American</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Puerto Rican</td>
<td>0</td>
<td>0.0%</td>
</tr>
<tr>
<td>Other Hispanic or Latino</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>Multiracial</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Tenure with the Organization</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-12 months</td>
<td>22</td>
<td>10.8%</td>
</tr>
<tr>
<td>1-5 years</td>
<td>129</td>
<td>63.2%</td>
</tr>
<tr>
<td>6-10 years</td>
<td>41</td>
<td>20.1%</td>
</tr>
<tr>
<td>11-15 years</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>16-20 years</td>
<td>2</td>
<td>1.0%</td>
</tr>
<tr>
<td>21-25 years</td>
<td>2</td>
<td>1.0%</td>
</tr>
<tr>
<td>26-30 years</td>
<td>3</td>
<td>1.5%</td>
</tr>
<tr>
<td>31+ years</td>
<td>1</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Size of the Organization</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-100 employees</td>
<td>105</td>
<td>51.5%</td>
</tr>
<tr>
<td>101-200 employees</td>
<td>34</td>
<td>16.7%</td>
</tr>
<tr>
<td>201-300 employees</td>
<td>20</td>
<td>9.8%</td>
</tr>
<tr>
<td>301-400 employees</td>
<td>8</td>
<td>3.9%</td>
</tr>
<tr>
<td>401-500 employees</td>
<td>4</td>
<td>2.0%</td>
</tr>
<tr>
<td>500+ employees</td>
<td>33</td>
<td>16.2%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Employment Status</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full-time</td>
<td>144</td>
<td>70.6%</td>
</tr>
<tr>
<td>Part-time</td>
<td>58</td>
<td>28.4%</td>
</tr>
<tr>
<td>Contract worker</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Seasonal or temporary worker</td>
<td>1</td>
<td>0.5%</td>
</tr>
</tbody>
</table>
Table 1 continued

<table>
<thead>
<tr>
<th>Educational Background</th>
<th>N</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High school graduate, diploma or equivalent</td>
<td>15</td>
<td>7.4%</td>
</tr>
<tr>
<td>Some college credit, no degree</td>
<td>57</td>
<td>27.9%</td>
</tr>
<tr>
<td>Trade/technical/vocational training</td>
<td>5</td>
<td>2.5%</td>
</tr>
<tr>
<td>Associates Degree</td>
<td>33</td>
<td>16.2%</td>
</tr>
<tr>
<td>Bachelor’s Degree</td>
<td>76</td>
<td>37.3%</td>
</tr>
<tr>
<td>Master’s Degree</td>
<td>18</td>
<td>8.8%</td>
</tr>
</tbody>
</table>
Measures

**Job satisfaction.** JS was measured using the revised Job Descriptive Index (JDI; Smith et al., 2009). The JDI is a multi-faceted JS measure (see Appendix A) consisting of 72 items that are distributed across five facets in the following manner: employee satisfaction with the job itself (18 items), current pay (9 items), opportunity for promotion (9 items), satisfaction with one’s supervisor (18 items), and satisfaction with coworkers (18 items; Smith et al., 2009). The JDI utilizes a list of short phrases and adjectives containing five words or less, and reading difficulty is low. Participants answered (Y) for yes, (N) for no, or (?) for cannot decide, on each of the 72 items. Yes and No answers were scored as a “3” or “0” depending on positive or negative wording and Cannot Decide answers were scored as a “1”, regardless of the positive or negative wording. Subscale scores were generated by summing all items within each facet with current pay and opportunity for promotion scores doubled so that each facet ranges from 0 to 54.

Reliability estimates for the 1997 version of the JDI have a Cronbach’s alpha that ranged from .86 to .91 across the five facets (Smith et al., 2009). These alpha scores were based on data collected from 1600 individuals participating in a JS survey that used the JDI measure. Since the 1985 and 1997 versions of the JDI are very similar, data from the 1985 version was used to establish validity for both versions of the JDI (Smith et al., 2009). Using the data from 795 participants, Balzer, Smith, and Kravitz (1990) examined how the JDI items and facets were functioning, including correlations with other JS measures, factor analyses, and item response theory models. The authors concluded that there was strong evidence of construct validity because the JDI was shown to correlate with other JS measures and other job attitudes and behaviors (Balzer et al., 1990). For this study, alpha’s ranged
from .88 to .94 across the five facets. (See Table 2 for complete results). An overall score for
the JDI was calculated to compare job satisfaction between groups.

**Organizational citizenship behaviors.** Organizational citizenship behaviors was measured using the 20-item Organizational Citizenship Behavior Checklist (OCB-C), which was first developed as a 42-item instrument generated to assess the frequency of OCBs executed by employees of an organization (Fox & Spector, 2011). Later revisions reduced the 42-item scale to 36-items and then later to a 20-item measure (see Appendix A). For the purpose of this study the researcher utilized the 20-item version of the measure and will calculate an overall score for OCBs. Dalal (2005) and Spector, Bauer, and Fox (2010) argued that the OCB-C was originally designed to reduce overlap with measures that assess counterproductive behaviors, a limitation of some prior scales. An interesting aspect of the OCB-C is that scores can be calculated as an overall score or two subsets that assess and generate scores for OCBs that benefit the organization (OCBO) or OCBs that benefit the coworker (OCBP; Fox & Spector, 2011). The OCB-C uses a 5-point Likert-type scale ranging from (1) *never* to (5) *every day*. Scores were calculated by summing responses of all items. Higher scores reflect more incidents of OCBs. Subscale scores are calculated by summing the item scores of each subscale.

The OCB-C is a causal indicator scale containing items are not all equivalent assessments of an underlying construct. Under such circumstances, items are not necessarily expected to be highly correlated and internal consistent reliability is not usually a good indicator of reliability (Fox & Spector, 2011). However, internal consistency reliability was found to be .97 for the total assessment, .92 for OCBO, and .91 for OCBP for the 42-item scale (Fox & Spector, 2011). In addition, Fox, Spector, Goh, Bruursema, and Kessler (2009)
### Table 2

**Correlational Matrix for Key Study Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDI</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.97)</td>
</tr>
<tr>
<td>OCB</td>
<td>.15*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.91)</td>
</tr>
<tr>
<td>OC</td>
<td>.60**</td>
<td>.27**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.88)</td>
</tr>
<tr>
<td>JDI People</td>
<td>.80**</td>
<td>.07</td>
<td>.35**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.92)</td>
</tr>
<tr>
<td>JDI Work</td>
<td>.82**</td>
<td>.23**</td>
<td>.61**</td>
<td>.51**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.93)</td>
</tr>
<tr>
<td>JDI Pay</td>
<td>.67**</td>
<td>.45**</td>
<td>.36**</td>
<td>.46**</td>
<td>.45**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.94)</td>
</tr>
<tr>
<td>JDI Opportunities</td>
<td>.74**</td>
<td>.50**</td>
<td>.38**</td>
<td>.58**</td>
<td>.54**</td>
<td>.50**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(.94)</td>
</tr>
<tr>
<td>JDI Supervision</td>
<td>.82**</td>
<td>.39**</td>
<td>.72**</td>
<td>.51**</td>
<td>.37**</td>
<td>.47**</td>
<td>.39**</td>
<td></td>
<td></td>
<td></td>
<td>(.92)</td>
</tr>
<tr>
<td>Affective Commitment</td>
<td>.72**</td>
<td>.25**</td>
<td>.84**</td>
<td>.46**</td>
<td>.70**</td>
<td>.51**</td>
<td>.60**</td>
<td>.51**</td>
<td></td>
<td></td>
<td>(.88)</td>
</tr>
<tr>
<td>Continuance Commitment</td>
<td>-.03</td>
<td>-.02</td>
<td>.48**</td>
<td>-.07</td>
<td>-.002</td>
<td>.02</td>
<td>.005</td>
<td>-.07</td>
<td>.03</td>
<td></td>
<td>(.80)</td>
</tr>
<tr>
<td>Normative Commitment</td>
<td>.61**</td>
<td>.36**</td>
<td>.90**</td>
<td>.35**</td>
<td>.63**</td>
<td>.45**</td>
<td>.49**</td>
<td>.40**</td>
<td>.80**</td>
<td>.17*</td>
<td>(.90)</td>
</tr>
</tbody>
</table>

*Note: Coefficient alphas are in parentheses along the diagonal.

* p < .05, ** p < .01
reported Cronbach’s alpha for the 20-item version of the OCB-C to be .89 and .94 for two independent self-report samples and .94 for coworker samples (as cited by Fox and Spector, 2011). The Cronbach’s alpha for the sample used in this study was .91.

**Organizational commitment.** Organizational commitment was measured using the Affective, Continuance, and Normative Commitment Scales (see Appendix A; (Meyer, Allen, & Smith, 1990). The Affective, Continuance, and Normative Commitment Scales consist of a total of 18-items distributed across the three scales with each of the three scales consisting of six-items (Meyer et al., 1990). The Affective, Continuance, and Normative Commitment Scales use a 7-point Likert-type scale ranging from (1) *strongly disagree* to (7) *strongly agree*. Subscale scores were calculated by summing all item scores for that subscale. Reliability estimates for the 1990 version of the Affective, Continuance and Normative Commitment Scales have a Cronbach’s alpha that ranged from .75 to .87 for the three scales (Meyer et al., 1990). The Cronbach’s alpha for this study ranged from .80 to .90.

**Demographics.** Participant demographic information that was collected included gender, age, tenure with the organization, race, and educational background (see Appendix B). This information was used to assess the demographic makeup of the population.

**Procedure**

IRB approval was obtained through Xavier University’s IRB (see Appendix C). The data were collected utilizing Amazon’s MTurk.

Prior to receiving the survey, participants were given information about the nature of the survey and then were asked the two qualifying questions. If they responded “yes” to both questions, they were given directions for taking the survey. They were also asked to read and electronically sign an informed consent form (see Appendix D). The JDI was the first
measure given, followed by the OCB-C measures, and finally the Affective, Continuance, and Normative Commitment Scales (Allen & Meyer, 1990) (see Appendix A). One quality check question was inserted in the middle of each of the three measures with each quality check question asking for a different response.

The survey consisted of 124 questions, including three quality check items, one being placed in the middle each of the three measures, and took approximately 40 minutes to complete. An example of a quality check item was, “Please select 7 on this item.” If a participant failed to answer any of the three quality check questions correctly, their answers were excluded from the final analysis of the data and they were not compensated for their participation. The survey was posted in two versions with each containing the same measures and demographic information and quality check questions. However, one version asked for participants who worked in a retail environment where schedules were manually generated by a supervisor or other support staff (non-CGS). The second survey version asked for participants who worked in a retail environment where work schedules were computer generated using a software program (CGS). Finally, both survey versions also consisted of two qualifying questions. The first question asked if the participants were currently working in a retail organization, which is any business that sells goods or services to the general public. The second question was either: “Does your employer manually generate employee schedules? That is, does the manager have complete autonomy over which employee works each available shift?” for the non-CGS version of the survey, or “Does your employer utilize a computer-based program that auto generates the week’s schedule? That is, does the program generate a random schedule regardless of seniority, work experiences, or previous days shift?” for the CGS version of the survey. If the participant did not answer “yes” to both
questions on their version of the survey, they were exited from the survey, and they were not compensated for their participation. All participants who completed the survey correctly, answered all three quality check questions, and answered yes to the two qualifying questions received compensation in the amount of $0.75. After completing all questions the participants were asked to provide some basic demographic information.
Chapter IV

Results

An independent samples $t$-test was conducted to test Hypothesis 1, which examined if employees whose employer utilized a manually generated scheduling format reported higher levels of JS than those whose employer utilized a CGS program. This hypothesis was not supported, $t(202) = 0.70, p = .49$ (for a complete list of descriptive statistics see Table 3). In all, 204 participants completed the survey with 101 participants completing the computer generated scheduling version and 103 completing the manually generated version.

An independent samples $t$-test was conducted to test Hypothesis 2 to assess whether participants whose schedules were manually generated demonstrated higher levels of OCBs than those whose schedules were generated using a CGS program. This hypothesis was not supported, $t(195) = -0.95, p = .34$. Finally, an independent samples $t$-test was conducted to test Hypothesis 3a in order to examine whether participants whose schedules were manually generated by their employer had higher levels of Affective Commitment than those whose employers who utilized a CGS program to generate their schedules. This hypothesis was not supported, $t(201) = .62, p = 0.54$. An independent samples $t$-test was conducted to test Hypothesis 3b in order to examine whether participants whose schedules were manually generated by their employer had higher levels of Continuance Commitment than those whose employers who utilized a CGS program to generate their schedules. This hypothesis was not supported, $t(202) = 0.25, p = 0.80$. An independent samples $t$-test was conducted to test
Table 3

Descriptive Statistics for Key Variables

<table>
<thead>
<tr>
<th>Item</th>
<th>Range</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>JDI</td>
<td>0.0 - 270</td>
<td>128.76</td>
<td>53.17</td>
</tr>
<tr>
<td>OCB</td>
<td>20.0 - 100</td>
<td>57.34</td>
<td>12.94</td>
</tr>
<tr>
<td>OC</td>
<td>18.0 - 126</td>
<td>68.38</td>
<td>19.48</td>
</tr>
<tr>
<td>JDI People</td>
<td>0.0 – 54</td>
<td>39.31</td>
<td>14.61</td>
</tr>
<tr>
<td>JDI Work</td>
<td>0.0 – 54</td>
<td>26.89</td>
<td>16.57</td>
</tr>
<tr>
<td>JDI Pay</td>
<td>0.0 – 54</td>
<td>11.31</td>
<td>10.46</td>
</tr>
<tr>
<td>JDI Opportunities</td>
<td>0.0 – 54</td>
<td>10.77</td>
<td>10.38</td>
</tr>
<tr>
<td>JDI Supervision</td>
<td>0.0 – 54</td>
<td>37.83</td>
<td>15.05</td>
</tr>
<tr>
<td>Affective Commitment</td>
<td>6.0 - 42</td>
<td>21.68</td>
<td>9.19</td>
</tr>
<tr>
<td>Continuance Commitment</td>
<td>6.0 - 42</td>
<td>21.77</td>
<td>6.56</td>
</tr>
<tr>
<td>Normative Commitment</td>
<td>6.0 - 42</td>
<td>20.50</td>
<td>9.05</td>
</tr>
</tbody>
</table>

Note: All measures contained multiple items which were summed separately

Range = the possible range of scores.
Hypothesis 3c in order to examine whether participants whose schedules were manually generated by their employer had higher levels of Normative Commitment than those whose employers who utilized a CGS program to generate their schedules. This hypothesis was not supported, $t(202) = 1.19, p = .24$.

**Supplemental Analysis**

An independent samples $t$-test was conducted on each of the five facets of the JDI to determine if there were any significant differences between employees whose schedules were created using CGS and those whose schedules were created using a non-CGS process. The JDI Coworker facet did not produce any significant results $t(202) = -0.43, p = .67$. The JDI Work Itself facet showed no significant difference between the two groups $t(202) = 1.04, p = .30$. Analysis of the JDI Pay facet produced similar results, $t(202) = 0.57, p = .57$. The JDI Opportunities for Promotion facet also produced non-significant results $t(202) = 1.00, p = .32$. Finally, the JDI Supervision facet showed no significant difference between the two groups $t(202) = 0.59, p = .55$.

An independent samples $t$-test was also conducted on the five facets of the JDI to determine if full-time status played a key role in the findings, since full-time employees comprised more than 70% of the total population of this study. There was no significant difference between the CGS and non-CGS groups among full-time status employees in any of the five facets. The JDI Coworker facet did not produce significant results $t(142) = -0.41, p = .68$. The JDI Work Itself facet showed no significant difference between the two groups $t(142) = -0.01, p = .97$. Analysis of the JDI Pay facet produced similar non-significant results, $t(142) = 0.87, p = 0.39$. The JDI Opportunities for Promotion facet also produced
non-significant results $t(142) = 0.74, p = .46$. Finally, the JDI Supervision facet showed no significant difference between the two groups $t(142) = 0.46, p = .65$.

Finally, an additional supplemental analysis was conducted on the OCB and OC measures to determine if full-time status played a role in the findings. There was no significant different between the two groups screening for just full-time status on the OCB measure, $t(142) = -0.32, p = .75$. Finally, a supplemental analysis was conducted on each of the OC facets (Affective, Continuance, and Normative Commitment) for full-time status employees only. The Affective Commitment facet did not produce significant results $t(142) = 0.82, p = .78$. Analysis of the Continuance Commitment facet failed to produce significant results as well $t(142) = 0.37, p = .71$. Finally, statistical analysis of the Normative Commitment facets showed no significant difference between the two groups $t(142) = 0.72, p = .20$. 
Chapter V
Discussion

This study was conducted to examine the impact of employer scheduling practices on employee JS, OC and OCBs. Specifically, this study examined the impact that computer generated scheduling (CGS) had on employee behaviors and outcomes. It was believed that the use of CGS would lead to lower levels of employee JS and OC, and a decrease in the instances of employee OCBs. The results of this study did not support these hypotheses.

Previous research by Jamal (2004), Swanberg, McKechnie, Ojha, and James (2011), and van Amelsvoort et al. (2004) had shown a connection between irregular work schedules and negative employee physiological and psychological health outcomes. According to Jamal (2004), these negative health outcomes can be directly linked to employee burnout, turnover, and employee JS. Since CGS utilizes many of these same irregular scheduling formats, it was theorized that it would have the same negative effects and therefore produce the same negative outcomes in employee attitudes and behaviors.

Hypothesis 1 examined the relationship between CGS and employee JS. The findings of this study did not show that there was any significant relationship between CGS and employee JS. A supplemental analysis of the five facets of the JDI was conducted to determine if there were any significant differences in the five JS facets between those whose schedules were constructed using a CGS program and those whose schedules were manually
generated. Although there were some small differences, there were no significant differences between any of the JS facets and type of employer schedule method used.

One possible explanation for the non-significant results might be that in many retail organizations, full-time has been reclassified to mean something less than 40 hours. In some instances, full-time employees may work as little as 32 hours per week. Even if their schedules contained forward and backward rotational shifts, the additional time off might provide them with enough additional rest to counteract the negative effects associated with this type of schedule. A second possible explanation could be that CGS is a relatively new tool so the full impact, with regard to negative health outcomes, may take years to manifest itself. Therefore, future researchers may want to revisit the association between CGS and poor JS at a later date. Additionally, the retail industry has a tremendous amount of turnover so perhaps the most dissatisfied employees self-select out leaving only those who are better able to adapt to the difficult working conditions. Finally, it may also be the case that those employees that did stay with the organization migrated into a position that provided them with a more stable work schedule. Positions like receiving clerk, claims associate, or audit personnel tend to have set schedules with stable days off. If this is the case these employees would be insulated from the negative effects of CGS. Indeed, this group of participants’ mean on the JDI scale fell just below the midpoint, $M = 128.76$. This may indicate that, as a group, retail employee have lower levels of job satisfaction than employees in other industries. It could be that these finding are linked to the high turnover, inconsistent scheduling or general instability of the industry. Perhaps future research should investigate an individual’s desire for stability and CGS’s impact on it. Specifically, future research could investigate an individual’s desire for stability with regard to a stable paycheck and/or
insurance coverage, and whether that desire supersede ones need for a consistent schedule or, will an individual’s desire for a stable or consistent schedule cause an individual to leave an organization that utilizes a CGS program.

Jamal (1981) examined how employee JS impacted OCBs. His research found a direct and positive relationship between employee JS and OCBs, which Fox et al. (2012) describe as helpful behaviors that support the goals of the organization but that are outside the job parameters. Jamal’s (1981) research was supported in a study conducted by Lowery et al. (2002) who found that higher levels of JS were significantly correlated with higher instances of OCBs. Hence, Hypothesis 2 examined the link between CGS and OCBs and theorized that since JS was related to OCBs and since lower levels of JS were linked to irregular work schedules (which were associated with CGS), that CGS should produce lower instances of OCBs. The findings of this study did not support that hypothesis as there was no significant relationship between CGS and OCBs; therefore, Hypothesis 2 was not supported.

A possible explanation for these non-significant results might be that the environment itself has a greater impact on employee behaviors then does scheduling methods. Since most retail positions are considered entry level, employees are often paid a wage that is at or just above minimum wage. Additionally, the retail industry is notorious for its high turnover as well as its unconventional hours, those outside the normal 9 to 5 shifts. The combination of low pay, poor hours and high turnover may have led to employees feeling unsupported and devalued by the organization and therefore less likely to participate in OCBs (Cho & Johanson, 2008), regardless of the type of scheduling method used. The results of the analysis indicated that this group of participants fell just below the midpoint on the OCB scale, $M = 57.34$. This may be an indicator that this group of participants felt devalued by
their employer and therefore were displaying indifference toward the organizations since OCB’s directly benefit the company (Fox et al., 2012).

Fischer and Smith (2006) examined the stress employees felt when they attempted to divide their time between obligations at home and work demands. This stress manifested itself as work-family conflict which Fischer and Smith (2006) found had a direct and negative impact on employee OC. Van Amelsvoort et al. (2004) investigated employee work-family conflict and its connection to irregular work schedules and found that there was a significant correlation between irregular work schedules and employee work-family conflict. Furthermore, a later study conducted by Van Amelsvoort et al. (2010) showed a connection between irregular work schedules and poor sleep quality. This poor sleep quality was directly linked to poor work performance and an increase in employee stress which often manifested itself as work-family conflict (Fenwick & Tausig, 2001). Therefore, Hypothesis 3a hypothesized that participants whose schedules were manually generated by their employer would have higher levels of Affective Commitment than those whose employers who utilized a CGS program to generate their schedules. The findings of this study did not support this hypothesis as there was no significant relationship between CGS and Affective Commitment. Instead, the results of this analysis indicated that this group of participants fell just above the midpoint on the Affective Commitment scale, \( M = 21.68 \). This might be an indicator that employees, as a group, felt less attached to the organization regardless of the scheduling method used.

An independent samples \( t \)-test was conducted to test Hypothesis 3b in order to examine whether participants whose schedules were manually generated by their employer would have higher levels of Continuance Commitment than those whose employers who
utilized a CGS program to generate their schedules. The results of this analysis did not support that hypothesis as there was no significant relationship between CGS and Continuance Commitment. The results of this study indicated that this group of participants scores were just above the midpoint on the Continuance Commitment scale, $M = 21.77$. This may be an indicator that employees felt that staying with the organization may have only been slightly more advantageous than leaving it.

Hypothesis 3c examined whether participants whose schedules were manually generated by their employer would have higher levels of Normative Commitment than those whose employers who utilized a CGS program to generate their schedules. The findings of this study did not support this hypothesis. The results of this analysis indicated that this group of participants fell just above the midpoint on the Normative Commitment scale, $M = 20.50$. This may indicate the employee’s level of loyalty to the organization may only play a small role in their decision to stay with or leave the organization.

One possible explanation for the non-significant findings may be that the retail environment is notorious for high turnover. A 2015 Bureau of Labor Statistics Economic News Release rated the retail industry as having one of the highest turnover rates in its report. At an average 4.5% turnover from July through November of 2015, the retail industry ranked in the top five in turnover rates of the 15 industries listed. Therefore, the level of OC may be diminished, regardless of scheduling method, because employees may feel devalued in this high turnover environment.

A second possible explanation may be that regardless of scheduling method, those that left the organization quickly may not experience the full effect of the CGS program and
therefore had the same JS, OC, and OCB outcomes as those who worked in a non-CGS environment.

Limitations

There are potential limitations of this study that should be considered when interpreting the results. One limitation might be the way the size of the organization was classified. The first grouping consisted of organizations that employed 1 to 100 employees. This would have included small retail stores with five or less employees and those with as many as 100 employees. This may not have been an adequate grouping as businesses with larger employee populations have to contend with far more scheduling variables than do those who are scheduling only a few employees. Future research may want to use smaller increments when categorizing the number of employees in the organization.

A second limitation may be that some of the retail organizations included in this study were open 24 hours a day and others may have had more restricted hours. The more hours a retail organization is open the more scheduling variables they have to contend with. In a large retail organization, open 24 hour a day, there may be an infinite number of scheduling combinations to contend with. In comparison, a small retail organization may have as few as two different scheduling options. Future research may want to categorize the organizations by the number of hours each is open.

Finally, one last potential limitation is that the survey was administered via MTurk. MTurk is a crowdsourcing internet site that, among other services, hosts surveys for research purposes. Although the survey sight provided this study with a large pool of participants in a very short period of time there remain the potential for nonqualified participants to respond to the study. Even though participants were informed that the survey was for "current retail
employees” some MTurk workers may not have been qualified to participate. To reduce the potential for unqualified participants taking the survey, each participant was asked if they currently worked in a retail organization at the beginning of the survey. Those who answer “no” were thanked for their participation and then exited from the survey. Although this mechanism may not have stopped all nonqualified participants from taking the survey it did reduce the number of participants that did not qualify from taking it. In all, 16 participants exited the survey after answering “No” to this qualifying question. The only way to have been assured that all participants were current retail workers would have been to conduct this study in an actual retail environment. Future research should be conducted in an actual retail environment and the findings of that study compared to those found here.

**Conclusion**

This study examined the effect of scheduling practices, in particular CGS, on employee JS, OC, and OCBs. The results showed that computer generated scheduling programs had no greater impact on employee perceptions of JS, OC, or OCBs than did non-CGS scheduling practices. A supplemental analysis was conducted on the five facets of the JDI, but no significant difference were found between CGS and non-CGS processes with regard to JS, OC, and OCBs.

As previously stated one possible explanation for the non-significant findings maybe be related to the structure of the environment itself. In some retail organizations it is now an accepted practice to classify full-time as something less than 40 hours a week and in some cases full-time employees may work as few 32 hours a week. Even if employee schedules contained forward and backward rotational shifts the additional time off might provide them with enough additional rest to counteract the negative effects associated with this type of
schedule. Furthermore, since no significant correlation between CGS and JS was found it is reasonable to conclude that the correlation between OC and OCBs might also be non-significant. Finally, it is possible that the JS instrument used in this study failed to focus on the true impact of CGS. Perhaps a better way to approach this study would have been to focus on the impact of CGS on employee work-life balance. The overall findings of this study suggest that computer generated scheduling programs had no greater impact on employee JS, OC, and OCBs than did manually generated scheduling methods.

The practical implications of these findings are that implementing a CGS program could be a great cost and time saving tool for retail organizations. It can accomplish this by reducing the number of labor hours spent manually generating employee schedules that meet the demands of the organization and its customers.
Chapter VI

Summary

Organizational scheduling practices can have a deep and profound effect on employee physiological and psychological health outcomes. When an organization employs irregular scheduling practice these negative health outcomes manifest themselves in ways that can negatively and directly impact work performance, Organizational Commitment (OC), Organizational Citizenship Behaviors (OCB), and employees personal lives (Jamal, 1981; Fenwick and Tausig, 2001; van Amelsvoort et al., 2004; Rosekind et al, 2010). Jamal, (1981) defined irregular work schedules as nontraditional schedules, those outside the normal 9 am to 5 pm shifts and traditional Monday through Friday schedule. Irregular work schedules, also known as shiftwork, counterclockwise and clockwise rotational schedules or rapidly rotating schedules, are used in many industries to staff its workforce outside normal working hours.

When an organization employs irregular work schedules it can have a deep and lasting effect on employee physiological and psychological health outcomes (Fenwick and Tausig, 2001; van Amelsvoort et al., 2004; Rosekind et al., 2010) which can in turn negatively impact employee JS (Jamal, 1981). Computer generated scheduling (CGS) utilizes a variety of irregular scheduling practices to create employees schedules. Therefore, the following was hypothesized:
Hypothesis 1: Employees who have work schedules produced by a CGS program will have lower levels of job satisfaction than those who have work schedules that are manually generated by supervisors.

Job satisfaction has been linked to other employee behaviors such as OCBs. Lowery et al. (2002) asserted that JS was directly linked to OCBs. That is, when JS was high, employees were more likely to participate in OCBs, which are defined as helpful behaviors that benefit the organization and that are outside the employee’s job description (Fox et al., 2012). These behaviors benefit the organization by protecting its image or reputation in the community or may manifest itself as helping behaviors where employees helps one another achieve individual goals (Fox et al., 2012). Furthermore, OCB’s have been positively linked with other employee behaviors such as OC (Wang, 2015). OC, which Meyer and Allen, (1991) define as an individual’s psychological attachment to the organization, can led to increased occurrences of OCB’s (Wang, 2015). Given the relationship between irregular schedules and OCBs it may be the case that irregular schedules may have a negative impact on OCBs. Thus the following is hypothesized:

Hypothesis 2: Employees who have work schedules produced by a CGS program will participate in fewer OCBs than employees who have schedules that are manually generated by supervisors.

Research by Fenwick and Tausig, (2001) concluded that irregular schedules led to higher levels of marital stress and therefore higher levels of marital instability. It is this conflict between meeting family obligations while maintaining sufficient income that is the basis for work-family conflict (Van Amelsvoort et al., 2004). This perceived injustice between family obligations and work commitment may then, in turn, have an adverse impact
on employee OC (Fischer & Smith, 2006). Meyer and Allen, (1991) concluded that OC could be broken down into three individual components, Affective, Continuance, and Normative commitment. Affective Commitment, according to Meyer and Allen, is when an individual strongly identifies with the organization and “desires” to stay with the organization based on this attachment. In contrast, Continuance Commitment, according to Meyer and Allen, (1991), is an individual’s “need” to stay with the organization because the perceived benefit of leaving does not outweigh the cost of leaving. Finally, Meyer and Allen hypothesized that Normative Commitment is when an individual stays with the organization because they felt an “obligation” or loyalty to the organization. As previously stated, CGS programs utilizing a variety of irregular scheduling methods which have been shown to have an adverse effects on employee health and marital stability, both of which have been shown to have an adverse effect on employee OC. Therefore the following is hypothesized:

Hypothesis 3a: Employees who have work schedules produced by a CGS program will have lower levels of Affective Commitment than employee’s who have schedules that are manually generated by supervisors.

Hypothesis 3b: Employees who have work schedules produced by a CGS program will have lower levels of Continuance Commitment than employee’s who have schedules that are manually generated by supervisors.

Hypothesis 3c: Employees who have work schedules produced by a CGS program will have lower levels of Normative Commitment than employee’s who have schedules that are manually generated by supervisors.
Methods

Participants and Setting

The sample was taken utilizing Amazon’s Mechanical Turk (MTurk), which is a crowdsourcing site that, among other services, hosts surveys for research purposes. The subject pool consisted of retail employees residing within the U.S. Only participants with at least a 90% HIT rate and those employed within a retail environment were eligible to participate. A total of 204 participants completed the survey, 101 participants completed the CGS version and 103 completed the non-CGS version, of those. There were 99 males (49%) and 105 females (51%) participants, their ages ranged from 18 to 60+ years (See Table 1 for frequencies and percentages of all demographic variables).

Measures

Job satisfaction. JS was measured using the revised Job Descriptive Index (JDI; Smith et al., 2009). The JDI is a multi-faceted JS measure consisting of 72 items distributed across five facets (Smith et al., 2009). The JDI is constructed utilizing a list of short phrases and adjectives containing five words or less. Participants answer (Y) for yes, (N) for no and (?) for cannot decide. Yes and No answers are scored as a “3” or “0” depending on positive or negative wording and Cannot Decide answers are scored as a “1.” Scores were generated by summing all items within each facet, scores are doubled on the two facets with half as many questions.

Organizational citizenship behaviors. Organizational citizenship behaviors (OCBs) was measured using the 20-item Organizational Citizenship Behavior Checklist (OCB-C; Fox & Spector, 2011). The OCB-C uses a 5-point scale ranging from (1) never to (5) every
day. Scores are calculated by summing responses of all items, higher scores reflect more incidents of OCBs.

**Organizational commitment (OC).** Organizational commitment was measured using the Affective, Continuance, and Normative Commitment Scales (Meyer, Allen, & Smith, 1990). The Affective, Continuance, and Normative Commitment Scales consist of 18-items distributed across the three scales with each containing six items (Meyer et al., 1990). The Affective, Continuance, and Normative Commitment Scales use a 7-point scale ranging from (1) *strongly disagree* to (7) *strongly agree*, scores were generated by summing all items within each facet.

**Procedure**

After receiving IRB approval, the researcher posted the survey in two versions. The first survey, sought individual whose current employer utilized a CGS program to generate employee schedules. The second survey, sought individuals whose current employer manually generated employee schedules. The participants were offered $0.75 for completing the survey. Controls were set on MTurk so that only those whose HIT rate was 90% and those who reside within the U.S. could see and participate in the survey. After reading the opening statement, posted on MTurk, those that wished to participate were directed to a survey link. When participants clicked the link they were directed to either the CGS version or the non-CGS version of the survey. The participants were then asked two qualifying questions. The first, asked if they were currently employed in a retail organizations. The second, asked if their employer utilized a computer based program to generate employee schedules, for the CGS version, or if their employee manually generated their schedules, for the non-CGS version. After responding they proceeded to the consent form which they had to
electronically sign. Next, the participants were directed to the survey which consisted of 124 questions, including three quality check items, and which took approximately 40 minutes to complete. Upon completion, the participants were asked to fill out some basic demographic information. Once they completed the survey they were given a completion code which they copied and pasted on their MTurk completion page and submitted it for payment. Once this was received, the researcher ensured all quality check questions were answered accurately, and if so, the participants were paid $0.75 for their participation.

**Results**

An independent samples *t*-test was conducted to test Hypothesis 1, which examined if employees whose employer utilized a manually generated scheduling format reported higher levels of JS than those whose employer utilized a CGS program. There was no significant findings thus hypothesis 1 was not supported, *t*(202) = .70, *p* = .49.

An independent samples *t*-test was conducted to test Hypothesis 2 to assess whether participants whose schedules were manually generated demonstrated higher levels of OCBs than those whose schedules were generated using a CGS program. There was no significant findings thus hypothesis 2 was not supported, *t*(195) = -.954, *p* = .34.

An independent samples *t*-test was conducted to test Hypothesis 3a in order to examine whether participants whose schedules were manually generated by their employer had higher levels of Affective Commitment than those generated utilizing a CGS program. There was no significant findings thus hypothesis 3a was not supported, *t*(202) = .62, *p* = .54.

An independent samples *t*-test was conducted to test Hypothesis 3b in order to examine whether participants whose schedules were manually generated by their employer had higher levels of Continuance Commitment than those generated utilizing a CGS.
program. There was no significant findings thus hypothesis 3b was not supported, \( t(202) = .25, p = .80 \).

An independent samples \( t \)-test was conducted to test Hypothesis 3c in order to examine whether participants whose schedules were manually generated by their employer had higher levels of Normative Commitment than those generated utilizing a CGS program. There was no significant findings thus hypothesis 3c was not supported, \( t(202) = 1.19, p = .24 \).

**Supplemental Analysis**

An independent samples \( t \)-test was conducted on each of the five facets of the JDI to determine if there were any significant difference between CGS and non-CGS organizations. There were no significant findings across all five facets. An additional independent samples \( t \)-test was conducted on the five facets of the JDI to determine if full-time status play a key role in the findings, since full-time employees comprised more than 70% of the total population of this study. There was no significant difference between the two groups, CGS and non-CGS, in any of the five facets. A supplemental analysis was conducted on the OCB measure to determine if full-time status played a role in the findings. There was no significant different between the two groups screening for just full-time status. Finally, a supplemental analysis was conducted on each of the OC facets, Affective, Continuance, and Normative Commitment. There were no significant findings across all three facets.

**Discussion**

Hypotheses 1 examined the relationship between CGS and employee JS. The findings of this study did not identify any significant relationship between CGS and employee JS. A supplemental analysis of the five facets of the JDI was conducted to determine if any of the
facets showed any significant relationship between CGS and employee JS, none were significant.

One possible explanation for the non-significant results might be that in many retail organizations, full-time has been reclassified to mean something less than 40 hours. In some instances, full-time employees may work as little as 32 hours per week. Even if employee schedules contained forward and backward rotational shifts, the additional time off might provide them with enough additional rest to counteract the negative effects associated with this type of schedule. A second possible explanation could be that CGS is a relatively new tool so the full impact, with regard to negative health outcomes, may take years to manifest itself.

Hypothesis 2 examined the link between CGS and OCB’s and theorized that since JS was directly linked to OCB’s and lower levels of JS were linked to irregular work schedules which CGS produces, than CGS should produce lower instances of OCB’s. The results of this study found no significant relationship between CGS and OCB’s and therefore hypothesis 2 was not supported.

A possible explanation for these non-significant results might be that the environment itself has a greater impact on employee behaviors then does scheduling methods. Since most retail positions are considered entry level, employees are often paid a wage that is at or just above minimum wage. Additionally, the retail industry is notorious for its high turnover as well as its unconventional hours, those outside the normal 9 to 5 shifts. The combination of low pay, poor hours and high turnover may led to employees feeling unsupported and devalued by the organization and therefore will be less likely to participate in OCBs (Cho & Johanson, 2008), regardless of the type of scheduling method used.
Hypothesis 3a examined the impact of CGS on employee Affective Commitment. The results of this study did not find a significant relationship between employee Affective Commitment and CGS. The results of this analysis indicated that this group of participants fell just above the midpoint on the Affective Commitment scale. This might be an indicator that employees, as a group, may only feel slightly attached to the organization regardless of the scheduling method used.

Hypothesis 3b examined the impact of CGS on employee Continuance Commitment. The results of this study did not find a significant relationship between employee Continuance Commitment and CGS. The results of this study indicated that this group of participants scores were just above the midpoint on the Continuance Commitment scale, M = 21.77. This may be an indicator that employees feel that staying with the organization may be only slightly more advantageous than leaving it.

Hypothesis 3c examined the impact of CGS on employee Normative Commitment. The results of this study did not find a significant relationship between employee Normative Commitment and CGS. The results of this analysis indicated that this group of participants fell just above the midpoint on the Normative Commitment scale, M = 20.50. This may indicate the employee’s level of loyalty to the organization has been directly affected by the organization treatment of its employees and may only play a small role in their decision to stay with the organization.

One possible explanation for the non-significant findings may be that the retail environment is notorious for high turnover. A 2015 Bureau of Labor Statistics, Economic News Release, rated the retail industry as having one of the highest turnover rates in its report. At an average 4.5% turnover from July through November of 2015, the retail industry
ranked in the top five in turnover rates of the 15 industries listed. Therefore, the level of OC may be diminished, regardless of scheduling method, because employees feel devalued in this high turnover environment.

**Limitations**

There are potential limitations of this study that should be considered when interpreting the results. One limitation might be the way in which the demographic information was designed. To be more direct the way in which the size of the organization were classified. The first grouping consisted of organizations that employed 1 to 100 employees. This included small retail stores with five or less employees and those with as many as 100. This may not have been a fair comparison as organizations with large employee populations have to contend with far more scheduling variables than do those with five or less employees.

A second limitation may be that some of the retail organizations included in this study were open 24 hours a day and others may have had more restricted hours. The more hours a retail organizations is open the more scheduling variables they have to contend with. In a large retail organization, open 24 hour a day, there may be an infinite number of scheduling combinations to contend with. In comparison, a small retail organization may have as few as two different scheduling options.

Finally, one last potential limitation is that the survey was administered via MTurk. Although the survey sight provided this study with a large pool of participants there remains the potential for nonqualified participants to respond to the study, even though participants were informed that the survey was for “current retail employees” only. To reduce the potential for unqualified participants taking the survey, each participant was asked if they
currently worked in a retail organization at the beginning of the survey. Those who answer “no” were thanked for their participation and then exited from the survey. Although this mechanism may not have stopped all nonqualified participants from taking the survey it did reduce the number of participants that did not qualify from taking it. The only way to have been assured that all participants were current retail workers would have been to conduct this study in an actual retail environment.

Conclusion

This study examined the effect of scheduling practices on employee JS, OC, and OCBs. The results showed that CGS programs had no greater impact on employee perceptions of JS, OC, or OCBs than did non-CGS scheduling practices. A supplemental analysis was conducted on all three measures but no significant differences were found between CGS and non-CGS processes with regard to JS, OC, and OCBs.

As previously stated one possible explanation for the non-significant findings maybe be related to the structure of the environment itself. In some retail organizations it is now an accepted practice to classify full-time as something less than 40 hours a week. Even if employee schedules contained forward and backward rotational shifts the additional time off might provide them with enough additional rest to counteract the negative effects associated with this type of schedule. It is possible that the JS instrument used in this study failed to focus on the true impact of CGS. Perhaps, investigating the impact of CGS on employee work-life balance would have produced different results. The overall findings of this study suggest that CGS programs had no greater impact on employee JS, OC, and OCBs than did non-CGS methods. The practical implications of these findings are that implementing a CGS program could be a great cost and time saving tool for retail organizations.
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Appendix A

Measures

The Job Descriptive Index (JDI) 2009 Revision is protected by copyright so it is not reproduced in this document. This measure is available through Bowling Green State University at https://www.bgsu.edu/arts-and-sciences/psychology/services/job-descriptive-index.html.

The Organizational Citizenship Behavior Checklist (OCB-C) is protected by copyright so it is not reproduced in this document. This measure is available through the University of South Florida at http://shell.cas.usf.edu/~pspector/scales/ocbcpage.html.

The TCM Employee Commitment Survey is protected by copyright so it is not reproduced in this document. This measure is made available in the following reference:

Appendix B

Demographic Questionnaire

1. Gender:
   - Male
   - Female
   - Prefer not to respond

2. Age:
   - 18-20 years old
   - 21-25 years old
   - 26-30 years old
   - 31-35 years old
   - 36-40 years old
   - 41-45 years old
   - 46-50 years old
   - 51-55 years old
   - 56-60 years old
   - 60+ years old

3. Tenure with the current organization:
   - 0-12 months
   - 1-5 years
   - 6-10 years
   - 11-15 years
   - 16-20 years
   - 21-25 years
   - 26-30 years
   - 31+ years

4. Race:
   - American Indian or other Native American
   - Asian, Asian American, or Pacific Islander
   - Black or African American
   - White (non-Hispanic)
☐ Mexican or Mexican American
☐ Puerto Rican
☐ Other Hispanic or Latino
☐ Multiracial
☐ Other
☐ I prefer not to respond

Educational Background:

☐ Some high school, no diploma
☐ High school graduate, diploma or the equivalent (for example: GED)
☐ Some college credit, no degree
☐ Trade/technical/vocational training
☐ Associate degree
☐ Bachelor’s degree
☐ Master’s degree
☐ Professional degree
☐ Doctorate degree

Organization Size (How many employees are currently employed at your location?):

☐ 1-100 employees
☐ 101-200 employees
☐ 201-300 employees
☐ 301-400 employees
☐ 401-500 employees
☐ 500+ employees

Current employment status:

☐ Full-time
☐ Part-time
☐ Contract worker
☐ Seasonal or temporary worker
November 10, 2015

Charles H. Cooper
2843 Losantiville Terrace #5
Cincinnati, OH 45213

Re: Protocol #15-014, *The Effects of Computer Generated Scheduling on Employee Behaviors and Outcomes*

Dear Mr. Cooper:

The IRB has reviewed the materials regarding your study, referenced above, and has determined that it meets the criteria for the Exempt from Review category under Federal Regulation 45CFR46. Your protocol is approved as exempt research, and therefore requires no further oversight by the IRB. We appreciate your thorough treatment of the issues raised.

If you wish to modify your study, including the addition of data collection sites, it will be necessary to obtain IRB approval prior to implementing the modification. If any adverse events occur, please notify the IRB immediately.

Please contact our office if you have any questions. We wish you success with your project!

Sincerely,

[Signature]

Morell E. Mullins, Jr., Ph.D.
Chair, Institutional Review Board
Xavier University

MEM/sb
Appendix D

Informed Consent Form

You are being given the opportunity to volunteer to participate in a project conducted by Chuck Cooper through Xavier University. If you wish to participate in the project, please mark “I Agree” in the space provided below.

The purpose of this survey is to gain a better understanding of scheduling practices and their effect on employee attitudes and behaviors. You were selected as a participant because you are currently employed in a retail organization that (manually generates its employees’ schedules. That is, the supervisor or the individual creating the employee work schedules has complete autonomy over which employee works each available shift) or (utilizes a computer based program that auto generates employee's schedules. That is, the program generates a random schedule regardless of seniority, work experiences, or previous days shift). The survey will require you to complete 124 questions which should take no longer than 40 minutes to complete, though I anticipate that 20 minutes should be more than enough time for experienced survey-takers. After completion of the survey and accurate responses to the quality check questions you will be paid $0.75, though you must submit the completion code that you will be provided with at the end of the survey. You must submit the completion code with the HIT, in order to be compensated. If you elect not to use a completion code you will not be compensated. Your answers in this study will remain anonymous, and there are no known risks for participating.

Your participation in this study is part of my master’s thesis requirement and your responses will be used to advance sciences understanding of employee attitudes and behaviors with regard to scheduling practices.

Refusal to participate in this study will have NO EFFECT ON ANY FUTURE SERVICES TO WHICH YOU MAY BE ENTITLED FROM XAVIER UNIVERSITY. You are FREE TO WITHDRAW FROM THE STUDY AT ANY TIME WITHOUT PENALTY.

If you have any questions at any time during the study, you may contact Chuck Cooper at P: 503-252-2124 or E: cooperc7@xavier.edu. Additionally, you may also contact Dr. Mark Nagy at P: 513 745-1958 or E: nagyms@xavier.edu. Questions about your rights as a research subject should be directed to Xavier University’s Institutional Review Board at (513) 745-2870.

I have been given information about this research study and its risks and benefits and have had the opportunity to ask questions and to have my questions answered to my satisfaction. I freely give my consent to participate in this research project.

☐ I Agree    ☐ I Do Not Agree