

December 2005

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Wing Man Wong
City University of Hong Kong

One-Ki Lee
City University of Hong Kong

Kai Lim
City University of Hong Kong

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Recommended Citation

Wong, Wing Man; Lee, One-Ki; and Lim, Kai, "Managing Non-Work Related Computing within an Organization: The Effects of Two Disciplinary Approaches on Employees' Commitment to Change" (2005). *PACIS 2005 Proceedings*. 36.
<http://aisel.aisnet.org/pacis2005/36>

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Managing Non-Work Related Computing within an Organization: The Effects of Two Disciplinary Approaches on Employees' Commitment to Change

Wong, Wing Man Sharon
IS Department
City University of Hong Kong
is.sharonwong@student.cityu.edu.hk

Lee, One-Ki Daniel
IS Department
City University of Hong Kong
is.daniellee@student.cityu.edu.hk

Lim, Kai H.
IS Department
City University of Hong Kong
iskl@cityu.edu.hk

Abstract

This study compares the effectiveness of two approaches, punitive consequence and logical consequence, to change employees' non-work related computing (NWRC) behaviors in the workplace. Employees' affective commitment to change (change by desire), normative commitment to change (change by obligation), and continuance commitment to change (change by cost-benefit comparison) were compared. A between-subject scenario-based experiment was conducted to test the model. The results revealed that employees' affective and normative commitment to change were significantly different between punitive consequence approach and logical consequence approach. Logical consequence approach was more effective than punitive consequence approach in inducing affective and normative commitment to change. However, there was no significant difference between the two disciplinary approaches in terms of inducing continuance commitment to change. Since previous literature had shown that affective and normative commitment to change may lead to stronger level of behavioral support, our results suggests that logical consequence approach may be a more effective disciplinary approach to change employees' NWRC behaviors.

Keywords: Non-work related computing, Punitive consequence, Logical consequence, Disciplinary approach, Commitment to change

1. Introduction

While computing resources have become an integrated part of organizations to foster productivity, employee use of these computing resources for personal purposes has become prevalent in the workplace. A recent survey conducted by Websense (2004) quoted that over 50% of the sample spent an average two hours per week on surfing the Internet for personal purposes in the workplace. Such personal use of organizational computing resources is commonly called junk computing (Guthrie and Gray 1996), Internet abuse (Urbaczewski and Jessup 2002), cyberloafing (Lim 2002), and cyberslacking (Levoie and Pychyl 2001).

In this study, we adopt the term and definition of Lee et al. (2004a) for this specific computing behavior. They named such behavior as *non-work related computing* (NWRC), which is defined as an employee's usage of organizational IS resources for personal purposes during or after working hours. NWRC examples include online shopping, Internet browsing or searching for personal interests, playing computer games, checking personal email, making online bids, reading online news, web chatting, instant messaging, tracking stock price online, MP3 downloading and CD burning, participating in newsgroups, viewing pornography, etc. (Lee et al. 2004a).

According to Lim (2002), NWRC can lead to great losses for a company. She stated that

NWRC may cost a company US\$1 billion and may lead to productivity loss of 30% to 40%. In addition, NWRC can cause other problems such as bandwidth clogging, spyware infection, and task postponement (Levoie and Pychyl 2001; Lim 2002; Websense 2004).

To avoid losses from NWRC, companies set up computer usage policy and control mechanisms to reduce NWRC activities (Kankanhalli et al. 2003; Lee and Lee 2002; Mirchandani 2004; Straub and Welke 1998). These countermeasures were derived from the *general deterrence theory* (GDT) with the idea of deterring employees and changing their undesirable behaviors by punishment. Despite the use of policy and control mechanisms, NWRC behaviors are still popular in the workplace (Lee and Lee 2002; Lee et al. 2004b; Straub 1990; Straub and Welke 1998; Straub and William D 1990).

Lee et al. (2002) and Lee et al. (2004b) have stated that GDT only emphasizes sanctions and technology uses but ignores human concerns. Because of that, they applied the social control theory to investigate organizational trust factors, such as commitment and involvement, to explain computer abuse. On the other hand, King et al. (2003) revealed that “positive disciplines” can correct employees’ behaviors by encouraging employees to be responsible for their own behaviors. Drawing from Human Resources literature, since positive discipline (Daly and Geyer 1994; Guffey and Helms 2001; King and Wilcox 2003) has never been applied to the NWRC context, we suggest that it can be a more effective disciplinary approach in managing NWRC.

This study examines whether a logical consequence approach (a positive disciplinary approach) is more effective in changing employees’ NWRC behaviors than a punitive consequence approach (GDT-based approach). Since commitment to change was found as an important indicator of behavioral change (Chawla and Kelloway 2004; Daly and Geyer 1994; Herscovitch and Meyer 2002), this study compared the effects of these two different disciplinary approaches on employees’ commitment to change.

2. Literature Review

2.1 Punitive Consequence Approach and General Deterrence Theory

In order to control the misuse of organizational computing resources, punishment is suggested as a countermeasure in previous IS literature (Harrington 1996; Kankanhalli et al. 2003; Lee and Lee 2002; Lee et al. 2004b; Mirchandani 2003; Mirchandani 2004; Straub 1990; Straub and Welke 1998; Straub and William D 1990). These studies are mainly based on the criminological theory of general deterrence (GDT) that focuses on using severe penalties to deter one from committing “criminal” behaviors (Straub 1990). Examples of deterrent policy and remedies include reprimand, fine, suspension etc. (Straub and Welke 1998).

These traditional deterrent practices have been regarded as punitive discipline approaches in human resources management to change employees’ misconducts (Guffey and Helms 2001; King and Wilcox 2003). Managers impose sanctions as punitive consequences and coerce employees to change their behaviors (King and Wilcox 2003). However, employees may actively or passively resist to change, or even choose to quit (Ball et al. 1994; King and Wilcox 2003). This punitive consequence approach is believed to be increasingly counterproductive in developing commitment to organizational goals (Osigweh and Hutchison 1989). It may also generate adversarial relationships between employees and management. As a result, in addition to punitive disciplinary approach, non-punitive

disciplinary approach is introduced at workplaces (Guffey and Helms 2001; Osigweh and Hutchison 1989; Riccucci 1988).

2.2 Logical Consequences and Positive Discipline

Instead of punishment, non-punitive discipline (also called positive discipline) has been suggested to discipline and change children's behaviors in family therapy (Nelsen 1996; Nelson and Economy 1996; Todd 2000). Nelsen (1996) suggested that children can modify their behaviors and behave in good conducts by learning from experiences. She highlighted the concept of "logical consequence" that requires adult intervention or family or class meeting with the children. She explained that this approach is effective because children participate and decide on the most conductive consequence that can help them learn. In relation to this, disciplinary actions that are related, respectful and reasonable are suggested as the criteria in differentiating logical consequence disciplines and punishment disciplines (Nelsen 1996).

Recently, organizational studies have shown that "positive discipline" is an effective approach in modifying employees' misconducts (Guffey and Helms 2001; King and Wilcox 2003; Osigweh and Hutchison 1989; Riccucci 1988; Riccucci and Wheeler 1987). Using positive disciplinary approach, an organization encourages employees to modify their behaviors by recognizing and reinforcing desirable behaviors rather than punishing them when they fail to meet the organization's requirements (Guffey and Helms 2001; King and Wilcox 2003; Osigweh and Hutchison 1989; Riccucci 1988; Riccucci and Wheeler 1987). Employees are allowed to participate in the disciplinary decision-making process, so they are more responsible for their own behaviors and more willing to follow the standard of the disciplinary policy (King and Wilcox 2003).

According to previous organizational studies, managerial practices of logical consequence approach included formal levels of escalating disciplinary actions and informal coaching discussions (Guffey and Helms 2001; Osigweh and Hutchison 1989; Riccucci 1988). Formal actions are mainly in three levels: oral reminder, written reminder, and decision-making leave. A decision-making leave, which used for the final disciplinary step, is a paid request of suspension for a short period. During the suspension, an employee has to decide whether to stay with the company and behave according to the standards or voluntarily quit the company (Guffey and Helms 2001). These disciplinary actions are regarded as logical consequences for the misbehaviors since they are mutually agreed upon by the management and employees.

2.3 Employee's Commitment to Change and Behavioral Change

Organizational literature has shown that commitment to change is a good predictor of employees' actual behavioral change (Chawla and Kelloway 2004; Daly and Geyer 1994; Herscovitch and Meyer 2002; Mazmanian and Pamela M. Mazmanian 1999). Commitment to change is a psychological force that drives an individual to follow the goal of the change. (Herscovitch and Meyer 2002). Herscovitch and Meyer (2002) categorized commitment to change into three components: *affective*, *normative*, and *continuance* commitment to change. Affective commitment to change takes place when an employee inherently desires to support the change. On the other hand, employees may change their behaviors because they feel obligated to follow the organizational requirements. This change is caused by their normative commitment to change. For some changes, employees may assess the costs and benefits of following the required change and this mindset belongs to continuance commitment to change. Since different types of commitments can predict employees' behavioral responses, organizational studies also investigate the relationships between each types of commitments

to change and employees' behavioral support to the change.

According to Herscovitch and Meyer (2002), all three types of commitment to change can lead to compliance of an organization's change requirements. However, employees only spend minimum effort to reach the change standard with compliance behavior (Herscovitch and Meyer 2002; Roepke et al. 2000). The study of Herscovitch and Meyer (2002) also revealed that only affective and normative commitment to change would make it possible for employees to have greater supportive behaviors, such as cooperation and championing.

Since commitment to change can explain the level of behavioral change, exploring employees' commitment to the change is more valuable than just studying employees' actual behavioral change. As a result, this study focuses on whether or not the two different disciplinary approaches can induce employees' commitment to change.

2.4 Procedural Justice and Organizational Justice

Past literature has shown that organizational justice can affect employees' commitment to change and behavioral responses to change (Ball et al. 1994; Chawla and Kelloway 2004; Daly and Geyer 1994; Lim 2002). Organizational justice refers to how fair an organization is towards its employees (Lim 2002). The organizational justice model consists of three dimensions: *distributive justices* (outcome fairness), *procedural justice* (process fairness), and *interactional justice* (interpersonal fairness). Ball et al. (1994) found that harsh punishment, which was found to be related to distributive justice, could not change employees' undesirable behaviors. On the other hand, high process and decision control, which was related to procedural justice, could lead to positive citizenship behaviors.

Among the three types of justice, procedural justice has been most concerned in explaining commitment to change. Chawla et al. (2004) revealed that communication and participation should be enlisted in the early stage of change to create fairness and arouse employees' commitment to change (i.e. trust building and cooperation). Similar factors like voice and justification may also influence the perception of procedural fairness (Daly and Geyer 1994). Hence, we believe that the specific attributes of procedural justice, such as participation and communication, can explain the relationships between the disciplinary approaches and employees' commitment to support required change.

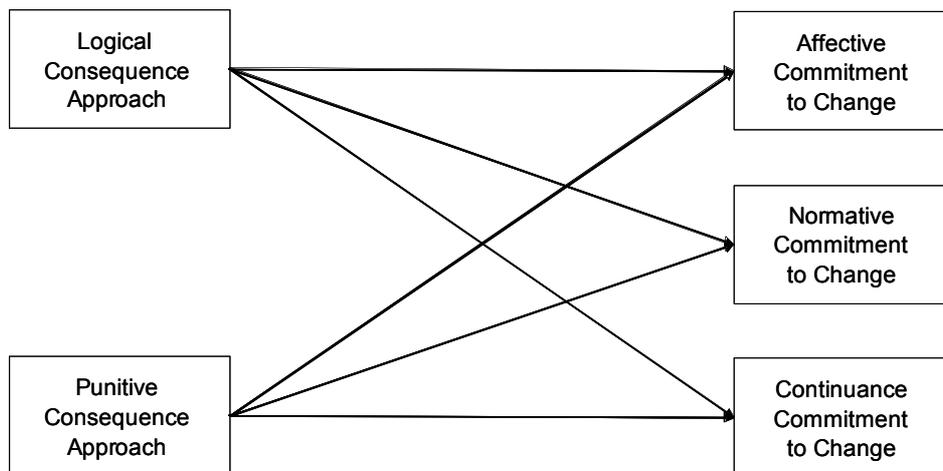
3. Hypotheses and Model Development

We compare the effectiveness of two different disciplinary approaches, the logical consequence and punitive consequence, in changing employees' NWRC behaviors in the workplace. In order to predict behavioral change, this study applies the three components of commitment to change developed by Herscovitch et al. (2002). (see Figure 1).

3.1 Participation and Affective Commitment to Change

Chawla and Kelloway (2004) stated that participation during the change process can encourage employees' change acceptance and commitment. They explained that employees' perception of procedural justice is addressed with participation practices. Voice, a similar factor as participation, could also lead to fair justice and predict employees' commitment to change (Daly and Geyer 1994). Daly and Geyer (1994) stated that employees regard the company as fair if they were allowed to voice out their ideas to decision-makers before the final decision was made. Furthermore, Herscovitch et al. (2002) argued that participation is one of the change strategies to increase employees' affective commitment to change.

Figure 1. Research Model for NWRC Disciplinary Approaches



According to previous literature, logical consequence approach is a kind of participatory management approach (Guffey and Helms 2001; King and Wilcox 2003; Osigweh and Hutchison 1989; Riccucci and Wheeler 1987). Osigweh and Hutchison (1989) stated that this approach can assure organizational justice. In those longitudinal empirical studies, logical consequence practices include employee participation in drafting policy and discussion with the supervisor when behavior did not meet the standard. During the participation processes, mutual agreement to reach required performance is made between the supervisor and employee.

By contrast, employees lack involvement in the punitive consequence approaches since the organization mainly focuses on imposing punishment to deter offended employees. Unjust punishment with little control on decision-making procedures may reduce employees' citizenship behaviors, e.g. rule obedience (Ball et al. 1994). Hence, we predict that logical consequence approach will lead to higher affective commitment to change in NWRC behaviors than the punitive consequence approach. Therefore,

- H1: The subjects in the logical consequence group will develop a higher level of affective commitment to change than those in the punitive consequence group.

3.2 Communication and Normative Commitment to Change

Open communication can foster favorable attitudes towards change and increase one's competence to change without fear (Chawla and Kelloway 2004). During the communication practices, employees can understand clearly the company's change initiative, expected behaviors, and disciplinary actions. In Daly and Geyer's (1994) study, company justification, with a similar concept as open communication, on disciplinary decisions could heighten employees' perception of procedural fairness which caused commitment to change. They explained that since employees have the right to understand the company's decisions, (Chawla and Kelloway 2004; Daly and Geyer 1994) the organization has the responsibility to clarify any decision that is related to the staff. Organizations who apply communication practices can fulfill their obligations to the employees. Therefore, employees reciprocate by executing their obligation to support the company's disciplinary decision and change their behaviors. Since employees' normative commitment to change comes from their sense of obligation to support company's required change, employees who receive open

communication and enough justification from their company should develop a higher level of normative commitment to change than those who do not.

In logical consequence approach, employees are fully informed about the disciplinary decisions and change expectations through effective communication practices, such as formal and informal meeting (Osigweh and Hutchison 1989). Based on our argument of communication, employees in logical consequence are more willing to modify their behaviors because of their obligation to the company. Therefore, employees should have high normative commitment to change in logical consequence approach.

On the contrary, the punitive consequence approach has little or no justification of the disciplinary decisions and modification expectation. Without agreements from employees on the disciplinary decisions, the punitive consequence approach forces employees to change by authority and fear. This may lead to high resistance to change (King and Wilcox 2003). In this approach, since organization cannot fulfill the responsibility to let employees realize the grounds behind the disciplinary decisions, employees are not willing to fulfill their obligation to support the organizational disciplinary policy. Therefore,

- H2: The subjects in the logical consequence group will develop a higher level of normative commitment to change than those in the punitive consequence group.

3.3 Cost Evaluation and Continuance Commitment to Change

As stated in the review of the literature, GDT explains that people commit a criminal action when expected benefits from the criminal action exceed the costs of the possible punishment (Lee et al. 2004b). Herscovitch and Meyer (2002) stated that an employee has a high level of continuance commitment to change if he perceived a high cost in not supporting the change. Therefore, we believe that an employee has strong continuance commitment to change if he supports the change based on cost evaluation.

In punitive consequence approach, employees have to evaluate the cost of not supporting the disciplinary decisions. These may include loss of the chance for promotion, reduction in salary, and even job loss. Under the logical consequence approach, employees also have to face cost-benefit evaluation. For example, an employee's disciplinary records are used for promotion purposes unless he can change his behaviors within an expected period. Also, an employee who resists to change has to choose to stay in the company or leave it in the final disciplinary step (Guffey and Helms 2001; Osigweh and Hutchison 1989; Riccucci 1988; Riccucci and Wheeler 1987). Since under both disciplinary approaches, employees have to evaluate the cost of not supporting the organizational requirements, we believe that employees' continuance commitment to change take place in both approaches. As a result, we hypothesize that there is no difference in continuance commitment to change among the two disciplinary approaches. Therefore,

- H3: The subjects in punitive consequence group and the logical consequence group will have no difference in continuance commitment to change.

4. Methodology

4.1 Scenario-based Experimental Design

In order to test our hypothesis, we conducted a between-subject scenario-based experiment. Participants were randomly divided into two treatment groups: the logical consequence group

and the punitive consequence group.

Subjects were first shown a two-minute video clip with an introduction about NWRC. After that, they were asked to complete a questionnaire, which asked for their demographic information, computer usage, and NWRC management approach in their current organization. Then, respondents were assigned to watch one of the two manipulated video clips, depending on the treatment previously assigned. The videos simulated a hypothetical employee's responses on either an implementation of logical consequence or punitive consequence approach in an organization. After watching the video clip (about three minutes), subjects were asked to complete another questionnaire as if they were the ones who experienced the same NWRC disciplinary approach that was shown in the video.

4.2 Content of the videos

In the video clip of the punitive consequence approach, the sanction of losing a promotion interview was executed immediately when the manager discovered NWRC behaviors. There was no discussion of the disciplinary decisions between the management and the employees. The sanction ascertained the manipulation of the punitive consequence approach by executing 1) harsh and 2) immediate punishment to deter employees' NWRC behaviors. In the video clip of the logical consequence approach, a meeting among the company's staff was held to discuss the problems and the disciplinary decisions of the NWRC within the company. An oral reminder was first given in a meeting between the manager and the employee who engaged in NWRC. After that, a more formal meeting was held with a written reminder to emphasize the expected behavior once again. The employee was asked to have a one-day leave in the final disciplinary step. The employee should decide whether to stay with the company and behave according to standard or voluntarily quit the company. In this video clip, 1) employee participation and 2) company's communication ascertained the manipulation of logical consequence approach to control NWRC behaviors by addressing employees' perceived procedural justice.

4.3 Subjects Profile

The sample consisted of 62 part-time master students. Among the sample, 38 were men and 24 were women. About 60% were between 21 and 30 years old while the remaining were more than 30 years old. Over 90% of them were able to access the Internet using the company's computing resources while 89% of the sample subjects were able to access non-work related websites. The most common management approach applied in the subjects' companies was the blocking system (27%). On the other hand, 27% of the subjects reported that their organizations did not have any regulation regarding the non-work related use of company's computing resources.

4.4 Measurement Development

Eighteen items from Herscovitch and Meyer's (2002) study were used to measure commitment to change, six items each for affective, continuance, and normative commitment to change. Responds were asked to rate their commitment level on a 7-point Likert-type scale ranging from 1 (extremely disagree) to 7 (strongly agree).

Four manipulation items with the 7-point Likert-type scale were developed to ascertain the manipulation of the two disciplinary approaches. The first two described the logical consequence approach while the last two described the punitive consequence approach. These manipulation items were tested through a pretest as described below.

4.5 Pre-Test

A pretest with 33 undergraduate students was conducted to test the validity of our video manipulation. Subjects were required to watch both of the manipulated video clips one by one and rate the four manipulation check items after watching each video. The presentation sequence of the videos was in random order to avoid a possible issue of learning effect from multiple manipulations. Four within subject t-tests were performed to compare the means of each manipulation check item across the two video clips. Results showed significant differences (at 0.01 level) for the two video clips across all four manipulation check items in the intent way. This ascertains the success of our manipulations.

5. Data Analysis

We first tested the reliability and validity of the instruments. After that, we tested the hypothesis one by one.

5.1 Reliability and validity of instruments

To validate the constructs of affective, normative, and continuance commitment to change, three tests were used to assess convergent validity: reliability of the items, composite reliability of constructs, and average variance extracted by the constructs (Fornell and Larcker 1981). Through the tests, items 1 and 3 with loading less than 0.6 were dropped from continuance commitment to change.

Table 1. Results of Reliability and Convergent Validity Test on Three Commitments to Change

Construct	Items	Reliability of Items	Composite Reliability	Average Variance Extracted
ACC	ACC1	.775	.930	.744
	ACC2	.922		
	ACC3	.920		
	ACC4	.811		
	ACC5	.925		
	ACC6	.808		
NCC	NCC1	.815	.903	.676
	NCC2	.887		
	NCC3	.766		
	NCC4	.809		
	NCC5	.802		
	NCC6	.848		
CCC	CCC2	.656	.735	.569
	CCC4	.776		
	CCC5	.856		
	CCC6	.714		

Factor loading of items under the same construct were used to investigate reliability of the items. Evidence of composite reliability was assessed based on Cronbach's alpha (Cronbach 1951). In order for the shared variance between each item and the construct to exceed the error variance, reliability score for the item should be at least 0.707 (Hair et al. 1998). As shown in Table 1, most of the selected questions had reliability scores exceeding 0.707. Regarding the construct reliability, a score of 0.7 indicates adequate reliability of constructs. As shown in Table 1, the reliability score of all three constructs exceed 0.7. Average variance extracted by constructs was computed based on the extent by which all questions measuring a construct actually tapped into the same underlying construct, and 0.5 was suggested as indication of adequate variance extract (Fornell and Larcker 1981). As shown in Table 1, all

constructs in this study met the requirement.

To test whether the affective, normative, and continuance commitment to change are distinguishable constructs, discriminant validity can be tested by factor analysis (Thompson et al. 1991). For this, we conducted a principal component factor analysis with varimax rotation on all the selected commitment-to-change items. Table 2. shows that the discriminant validity was verified.

Table 2. Result of Discriminant Validity Test among Three Commitments to Change

Items	Component		
	1	2	3
ACC1	.655	.414	.111
ACC2	.844	.336	-.042
ACC3	.860	.328	-.019
ACC4	.843	.136	.082
ACC5	.876	.269	.091
ACC6	.774	.207	.142
NCC1	.475	.647	.020
NCC2	.406	.797	-.006
NCC3	.209	.748	.105
NCC4	.277	.787	.007
NCC5	.151	.841	.076
NCC6	.339	.726	.146
CCC2	.112	-.139	.746
CCC4	.264	-.118	.822
CCC5	-.078	.315	.826
CCC6	-.069	.348	.675

5.2 Hypothesis testing

Three independent sample t-tests between two disciplinary groups were done to test our hypotheses. As shown in Table 3, Hypothesis 1 was supported ($t(46)=5.005$; $p<0.01$). The mean difference of employees' affective commitment to change between logical consequence approach ($M=4.517$, $SD=1.660$) and punitive consequence approach ($M=2.771$, $SD=.977$) was 1.746. Therefore, Hypothesis 1, which states that the logical consequences approach group will develop a higher affective commitment to change than the punitive consequence approach group, is supported.

Table 3. Result of T-test on the Comparison of Affective Commitment to Change

Construct	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
ACC Equal variances not assumed	10.683	.002	5.005	46.328	.000	1.7458	.34883

The result of the second t-test (see Table 4) on normative commitment to change by the two approaches also supported Hypothesis 2 ($t(48)=3.672$; $p<0.01$). The difference of employees' normative commitment to change between logical consequence approach ($M=4.061$, $SD=1.328$) and punitive consequence approach ($M=3.021$, $SD=.829$) was 1.040. Therefore, Hypothesis 2, which states that the logical consequences approach group will develop a higher normative commitment to change than the punitive consequence approach group, was

supported.

Table 4. Result of T-test on the Comparison of Normative Commitment to Change

Construct	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
NCC Equal variances not assumed	5.266	.025	3.672	48.072	.001	1.0403	.28332

According to Table 5, Hypothesis 3, which states that there will be no difference in employees' continuance commitment to change between the two disciplinary approaches, was also tenable as the t-test result was insignificant ($t(60) = -.722$; $p > 0.01$).

Table 5. Results of T-test on the Comparison of Continuance Commitment to Change

Construct	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
CCC Equal variances assumed	.753	.389	-.722	60	.473	-.2240	.31022

6. Discussion

Based on our results of Hypothesis 1, logical consequence approach has a higher mean on employees' affective commitment to change as compared to the punitive consequence approach. This implies that employees inherently desired to support the required change in logical consequence approach. Hence, a higher level of behavioral support to change the NWRC behaviors is expected in logical consequence approach. According to Herscovitch and Meyer (2002), employees with affective commitment to change are willing to contribute more than purely comply to the change requirements with minimum effort. Therefore, compared to the punitive consequence approach, logical consequence approach has a higher probability of cooperation and championing behaviors to support the change in NWRC behaviors. Moreover, since the change in behaviors is caused by internal desire, logical consequence approach allows organizations to save their monitoring costs to invigilate employees' NWRC behaviors.

The supported Hypothesis 2 implies that employees have a higher normative commitment to change in the logical consequence approach than in the punitive consequence approach. This suggests that compared to the punitive consequence approach, employees in logical consequence approach feel a greater sense of obligation to follow the company's requirements on reducing NWRC behaviors. This may have resulted from the fulfillment of organizational obligation in providing enough justification and communication for the employees. According to Herscovitch and Meyer (2002), normative commitment to change could lead to a higher level of supportive behaviors regarding the change requirements. Consequently, this can support our theory that employees who have a strong sense of obligation to the organization are more willing to reduce or stop their NWRC behaviors than if they are forced to obey through harsh punishments.

Consistent with our prediction in Hypothesis 3, we found no difference in continuance commitment to change between the two approaches. This finding implies that cost evaluation of not following the required change takes place in both disciplinary approaches. Therefore, continuance commitment to change cannot help differentiate between the logical and punitive

consequence approach to explain employees' change in NWRC behaviors.

In addition, we found that the mean of affective and normative commitment to change in the punitive consequence group ($ACC=2.771$, $NCC=3.021$), were both lower than 4, the neutral score. However, the mean of continuance commitment to change was higher than the neutral score ($CCC=5.141$). On the other hand, for the logical consequence group, the means of the three commitment to change were higher than 4 ($ACC=4.517$, $NCC=4.061$, $CCC=4.917$). Although the figures were not sufficient to explain the relationship between the disciplinary approaches and the three types of commitment to change, they indicated that punitive consequence approach may be negatively related to employees' affective and normative commitment to change but positively related to continuance to change. On the other hand, logical consequence approach may be positively related to all three types of commitment to change. Further studies are needed to test the direct relationships between disciplinary approaches and the different components of employees' commitment to change.

7. Limitations

This study fills the gap in the literature by studying commitment to change under the NWRC context. It can also provide references for managers to formulate their NWRC disciplinary decisions. However, there are several limitations that should be clarified and investigated in future studies.

The study could provide even stronger prediction if intentions or actual NWRC behaviors were also measured to explain the effectiveness of two disciplinary approaches. Since this is an exploratory study to test the effectiveness of the disciplinary approaches in the NWRC context, we only focused on employees' commitment level. Intentions of NWRC behavioral change should be examined in the future study to increase the predictive power of our theory.

Regarding the management methods in managing NWRC, logical and punitive consequence disciplinary approaches are selected in this study. However, according to our respondents, blocking system was the most common countermeasure in their organizations to handle NWRC issues. Since this study does not consider the effectiveness of such preventive mechanisms, future studies should examine the effectiveness of different set of management methods and generate more implications for researchers and managers.

Since this is a scenario-based manipulation study, its external validity may be challenged. Therefore, an extension of this study may be done and tested in real organizations.

Lastly, this study focuses mainly on the negative side of NWRC. However, NWRC may also lead to positive outcomes, such as relaxation and creativity. Therefore, organizations should also consider the advantages of NWRC behaviors for the organization because these benefits may counter-balance the disadvantages.

8. Conclusion

In this study, two disciplinary approaches are applied to manage non-work related computing. A scenario-based experiment was conducted to compare the results of employees' commitment to change under the logical and punitive consequence disciplinary approaches. All hypotheses were supported by the findings. The findings show that when compared to the punitive consequence approach, the logical consequence approach resulted in higher affective and normative commitment to change. On the other hand, there was no difference between the two approaches in terms of employees' continuance commitment to change.

This study can provide significance for both researchers and practitioners. First, previous studies regarding IS resources usage focus mostly on punitive consequence approach, which is supported by GDT. Our study tries to apply another disciplinary approach, which is the logical consequence approach, to the NWRC context. We explained the key attributes of logical consequence approach, i.e. participation and communication, may increase employees' perception of procedural fairness to the organization. Moreover, we believe such fairness can lead to employees' commitment to change, which will lead to greater supportive behaviors in changing NWRC conduct. Therefore, we argue that logical consequence approach can be a more effective solution to reduce NWRC behaviors in the workplace.

Even though most of the prior studies on the logical consequence approach (Guffey and Helms 2001; King and Wilcox 2003; Osigweh and Hutchison 1989; Riccucci 1988; Riccucci and Wheeler 1987) mentioned that such approach can lead to a high level of commitment to change, employees' commitment to change is not measured. Moreover, those organizational studies of participation and communication do not consider multiple types of commitment to change. Past IS literature on GDT study in the computer misuse context has not even considered commitment to change. Therefore, this study clarifies the relationships of the logical and punitive consequence approaches on three components of commitment to change. Since commitment to change is regarded as a predictor of behavioral support to change, based on the findings of this study, further studies can examine the effectiveness of these two disciplinary approaches in reducing NWRC behaviors with greater explanatory power.

Lastly, we investigate the effectiveness of two disciplinary approaches by comparing their results on affective, normative, and continuance commitment to change. Such comparison allows managers to clearly understand the differences of various types of commitment to change between the two approaches. Therefore, this study suggests that managers should be aware of the attributes of logical consequence, i.e. employee participation and communication, when making disciplinary decisions.

Nevertheless, the logical consequence approach requires more time and resources to be committed (Guffey and Helms 2001; Murray 2003; Riccucci 1988). Therefore, managers should carefully weigh the costs and long-term benefits of the disciplinary approaches when designing policies to control NWRC behaviors in their organizations.

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Acknowledgment

"The work described in this paper was partially supported by a grant from City University of Hong Kong, China (Project No. 7001577)."