Chapter V
Discussion and Conclusion

5.1 Summary of Discussion

The results of the empirical assessment of the proposed model are reported in the previous chapter. This chapter summarizes the results from the three cases to test the hypotheses in this study. Furthermore, this section recapitulates the essential findings from the three cases in order to provide answers to the research questions set forth in this study.

5.1.1 Hypothesis Testing

The results from the empirical assessment are shown below. A solid line represents a relationship with consistent results in three cases, whereas a dotted line shows a relationship with inconsistent results. The symbol above the relationship depicts the direction of the relationship (+ is positive, - is negative, ns is non-significant). The majority of the results (two out of three) were reported when the results were inconsistent.

The summary of the hypothesis testing is presented in Table 34. In conclusion, there are seven supported hypotheses and four non-supported hypotheses. There was only inconsistent hypothesized relationship. There were other two hypotheses found to have indirect effects. And there were two hypothesized relationships found to have moderating effects.
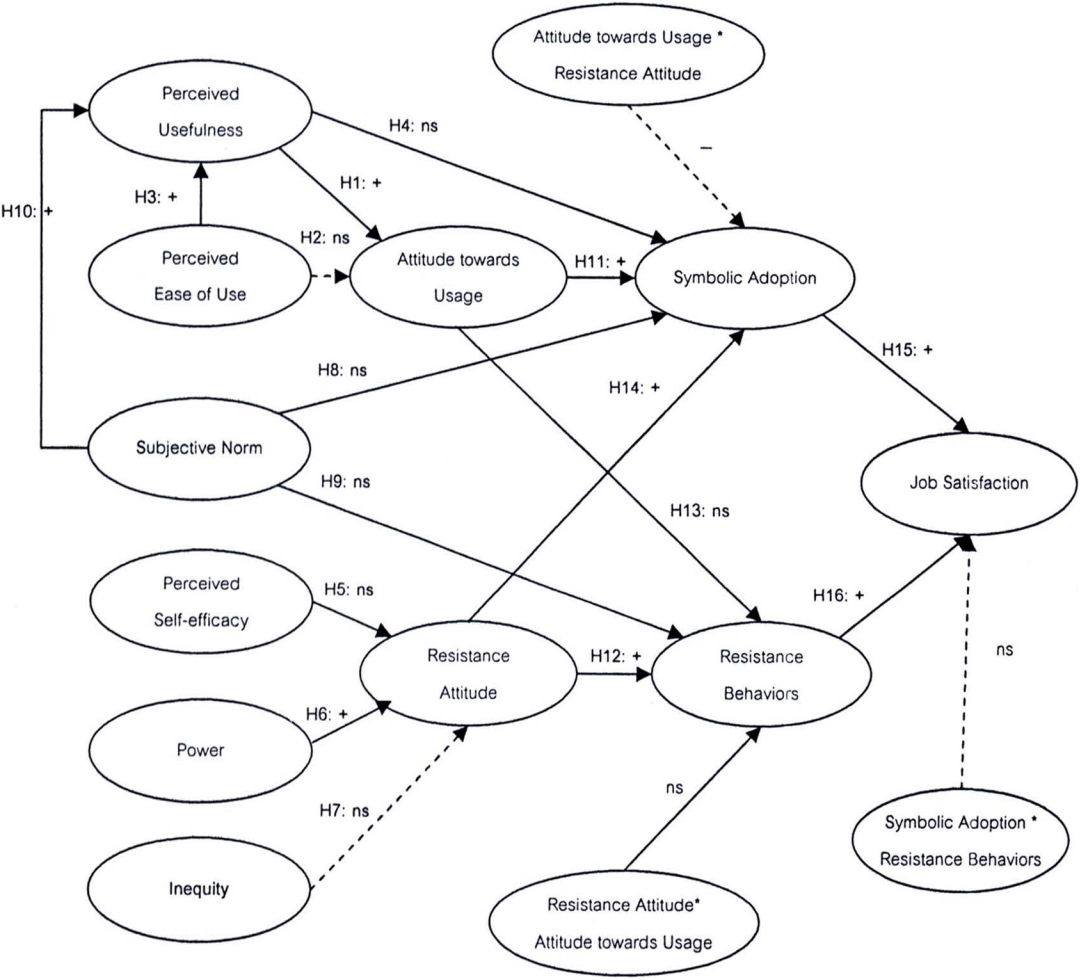
The results provide support for seven hypotheses (H1, H3, H6, H10, H11, H12, and H15) and do not support four of the hypotheses (H5, H8, H9, and H13). It appears that most hypothesized relationships in TAM are supported. Perceived ease of use positively influenced perceived usefulness (H3) which, in turn, affected attitude towards usage (H1). Perceived usefulness and subjective norm did not directly affect symbolic adoption (H4 and H8). Their effects on symbolic adoption were medicated by

attitude towards usage. And this attitude, only one out of three hypothesized determinants, was found to directly influence individual symbolic adoption (H11). The relationships between subjective norm and perceived usefulness in the three cases were significant (H10). The relationships between perceived ease of use and attitude towards system usage were inconsistent (H2). However, there were still indirect effects of perceived ease of use on attitude towards system usage when the direct effect was insignificant.

Out of three hypothesized antecedents of resistance attitude, only perceived level of power in an organization was found significant (H6). Perceived self-efficacy was not found to be significant (H5). Only in the case of ENERGY, perceived inequity was significantly related to resistance attitude (H7). This resistance attitude appears to positively significantly determine resistance behaviors (H12). Subjective norm was not found to be a significant determinant of resistance behaviors (H9).

Although the results from the three cases were inconsistent (H14), resistance attitude was found to weaken the relationship between attitude towards system usage and symbolic adoption. On the other hand, user acceptance did not appear to influence user resistance (H13). Attitude towards system usage was not significantly related to resistance behaviors in all three cases.

It can be concluded that user acceptance positively affected job satisfaction because the results of the three cases were consistent (H15). However, this relationship was weakened by resistance behaviors in case of ENERGY and WATER. The results were inconsistent on how user resistance could influence job satisfaction (H16).

Perceived Usefulness

H4: ns

Attitude towards Usage *
Resistance Attitude

H3: +

H10: +

Perceived Ease of Use

H2: ns

Attitude towards Usage

H1: +

H11: +

Symbolic Adoption

H15: +

Subjective Norm

H8: ns

H9: ns

H14: +

H13: ns

Job Satisfaction

Perceived Self-efficacy

H5: ns

Resistance Attitude

H12: +

Resistance Behaviors

H16: +

ns

Power

H6: +

H7: ns

Inequity

Resistance Attitude*
Attitude towards Usage

ns

Symbolic Adoption *
Resistance Behaviors

——————— Results were consistent.

- - - - - - - - - Results were inconsistent.

Summary of the Empirical Assessment of Technology Acceptance Model with Symbolic Adoption as a Dependent Variable

Path coefficients, explained variance, and statistical significance from three structural models are summarized in Table 28. When intention to use was replaced by SA, only one of the three theorized antecedents was statistically significantly related to the dependent variable. ATU was relatively strongly related to SA and explained about 60% - 65% of its variance. The relationships between PU and SA in all three cases were not statistically significant. SN was also not statistically significantly related with SA.

There appears to be an indirect effect of perceived usefulness on symbolic adoption as attitude towards system usage tends to play a mediating role on this relationship. Perceived usefulness and perceived ease of use seems to play crucial roles in determining the degree of user acceptance measured using symbolic adoption. Perceived usefulness appears to influence user attitude towards system usage and is influenced by perceived ease of use. If users feel that systems can be operated without much effort, they would perceive systems to be more useful since they could use the system to handle most kinds of tasks adeptly. The more benefits they could gain from the use of this system, the more they would develop a positive attitude towards the use which, in turn, would influence them to support the adoption of the system.

Table 34 Summary of hypothesis testing

Hypothesis	Description	Results
H1	Perceived usefulness will have a positive direct effect on attitude towards usage	Supported
H2	Perceived ease of use will have a positive direct effect on attitude towards usage	Inconsistent (Direct & Indirect Effects Found)
H3	Perceived ease of use will have a positive direct effect on perceived usefulness	Supported
H4	Perceived usefulness will have a positive direct effect on symbolic adoption	Indirect Effects Found
H5	A high level of self-efficacy will have a negative direct effect on resistance attitude	Not Supported
H6	A high level of power in an organization will have a positive direct effect on resistance attitude	Supported
H7	Perceived inequity will have a positive direct effect on resistance attitude	Inconsistent (Significant in ENERGY)
H8	A high level of subjective norm will have a positive direct effect on symbolic adoption	Not Supported
H9	A high level of subjective norm will have a negative direct effect on resistance behaviors	Not Supported
H10	A high level of subjective norm will have a direct effect on perceived usefulness	Supported
H11	A high level of user attitude towards usage will have a direct effect on symbolic adoption	Supported
H12	Resistance attitude will have a direct effect on Resistance behaviors	Supported

Hypothesis	Description	Results
H13	A high level of attitude towards usage will have a negative direct effect on resistance behaviors	Not Supported
H14	Resistance attitude will have a negative direct effect on symbolic adoption	Moderating Effects Found
H15	A high level of symbolic adoption will have a positive direct effect on job satisfaction	Supported
H16	Resistance behaviors will have a negative direct effect on job satisfaction	Moderating Effects Found

5.1.2 Results Discussion

Despite the fact that there are inconsistencies in the results from the three cases, explanations and conclusions can be drawn from the results in order to provide the answer to the research questions. There are four questions pertaining to the present research:

1. To what extent do perceived usefulness, perceived ease of use, subjective norm, and attitude towards system usage predict symbolic adoption in a mandatory-use context?

2. To what extent do perceived self-efficacy, perceived level of power in an organization, perceived inequity, and subjective norm predict resistance attitude and resistance behaviors in a mandatory-use context?

3. To what extent does user resistance affect user acceptance in a mandatory-use context?

4. To what extent are job-related outcomes affected by user acceptance and user resistance in a mandatory-use context?

5.1.2.1 To what extent is symbolic adoption explained by perceived usefulness, perceived ease of use, subjective norm, and attitude towards system usage in a mandatory-use context?

Symbolic adoption was seen to be a more pertinent and valid dependent variable of user acceptance model in a mandatory-use context (Nah et al., 2004; Rawstorne et al., 1998). This study aims to explore what perceptions could influence this construct in different phases of the ERP implementation process. Key constructs in TAM from previous research were included in the model to predict a degree of symbolic adoption. Perceived usefulness, perceived ease of use, subjective norm, and attitude towards system usage were hypothesized to predict symbolic adoption with some mediated relationships. The results of the three hypothesized direct relationships between symbolic adoption and its antecedents in all three cases were consistent. The relationships between perceived usefulness and subjective norm were statistically significant. The relationships between attitude towards system usage and symbolic adoption were all statistically significant. Despite the fact that two of the three constructs were not significantly related to symbolic adoption, they jointly explained the variance of symbolic adoption around 63% – 70%. Thus, it can be safely postulated that user attitude towards system usage is a predominant variable in predicting symbolic adoption.

The role of user attitude was mostly viewed to be trivial in TAM (Legris et al., 2003). In previous studies, user attitude was not conceptualized to cover cognitive and affective elements. When it included both dimensions, the role of attitude in promoting user acceptance was more prevalent (Yang and Yoo, 2004). The results of this current study are in line with those of previous studies in that user attitude conceptualized as combining cognitive and affective elements relatively strongly predicted symbolic adoption, a proxy of user acceptance to a new system. The results imply that the predictive role of attitude towards system usage is not varied across the different phases of implementation. This emphasizes the important role of user attitude in user acceptance process of a mandatory use IS. If one could monitor user attitude

towards system usage during the implementation process, it would be helpful to evaluate the level of user acceptance.

Although the three cases represent the different phases of implementation, the relationships between user attitude and symbolic adoption are not different. Nevertheless, determinants of user attitude towards system usage seem to be dissimilar among the cases. In most cases, perceived usefulness is most likely to be a major determinant of user attitude. Users seem to internalize perceived ease of use and the subjective norm, which influence the perception of usefulness. The direct effects of perceived ease of use on user attitude were absent from the case of ENERGY and WATER. When the relationship is significant (in the case of POSTAL), the strength of relationship is relatively weak. It is probable that POSTAL users who were in the early phase of implementation still had no actual experience with the ERP system. They were still in the phase of scope definition and selection. When ERP users attended system demonstrations, it is most likely that vendors selectively presented the system as being useful and easy to use. Difficult functions would not be presented since it would hurt the chance of an ERP vendor to win the bid process.

Most interview participants reported that they agreed with the adoption of the new ERP. Those who agreed stated the usefulness of the system when they were asked about what they thought about the system. For instance, a user in POSTAL responded to the question by stating: "... I agree with the use of system. ... Benefits of ERP are quite clearly evident. We do not have to enter data into the system twice. ... People around here could not work if there would be no ERP around..." The other user in WATER also commented: "...I agreed with the decision to adopt the ERP system. The system has helped the organization a lot in terms of improving work efficiency. ... " The benefits that participants reported include: reducing time in doing some work, providing timely access to information, single entry of data, linking business processes together, and so forth.

In summary, in this particular context where users are mandated to use the system, Brown, et al. (2002) argue that " ... It appears that attitudes matter more

than intentions when technology use is mandated..." Even though attitude towards usage is not positive, users can still continue to use the system. Thus, there is no guarantee that this group of users would not passively misuse the system, as Marakas and Hornik (1996) suggested. The authors purported that users could covertly cooperate and accept the proposed system and then disrupt the system implementation. Hence, the behavioral aspect of user acceptance typically measured by usage or intention to use would provide limited explanations on the degree of user acceptance in the mandatory-use context. Symbolic adoption has been proposed to be a better measure of user acceptance to a new system. It could overcome the shortcomings of behavioral-oriented variables. Theoretically, users who completely agree with the idea of adopting a new system would be seen to accept the new system.

5.1.2.2 To what extent do perceived self-efficacy, perceived level of power in an organization, perceived inequity, and subjective norm predict resistance attitude and resistance behaviors in a mandatory-use context?

Resistance to IS implementation is a complex phenomenon that could arise from any number of different causes (Klaus et al., 2007; Setzekorn, Sugumaran, and Patnayakuni, 2002). In this study, two causes of resistance, perceived level of power in an organization and perceived inequity, were hypothesized to influence resistance attitude which, in turn, lead to resistance behaviors. In addition, perceived self-efficacy was expected to decrease resistant reactions.

Empirical evidence show that perceived level of power in an organization appears to influence resistance attitude. This is similar to the findings in the study of Markus (1983). When a newly introduced system alter power distribution in an organization, an individual whose power affected by the system will be most likely to resist to the implementation.

The effects of perceived inequity, the other hypothesized determinant of resistance attitude, on resistance attitude were inconsistent. Only one of the three cases (ENERGY) provides support to the hypothesized relationships between perceived inequity and resistance attitude. The possible explanations could be from the different phase of the implementation. During the phase of implementation, it could be compared to the change phase in the three stage model introduced by Lewin (1952). While the phase of selection/definition and operation could be viewed to be freeze and unfreeze. During the phase of change, it seems that the impact of perceived inequity would be quite apparent. Users tend to evaluate the net outcome brought about by the system being implemented before they go through the change. Perception of inequity would lead them to develop resistance attitude. On the other hand, the effects of change would still be too early for users to detect in the selection/definition. And it is most likely that the impact of change would be subside during the operation phase,

Perceived self-efficacy appears not to be a significant determinant of resistance attitude at any phase of the implementation. This finding is consistent with what Kim and Kankanhalli (2009) found in their research on user resistance to IS implementation. They argued that self-efficacy has no direct effect on user resistance. Rather, it indirectly decreases user resistance by lowering individual perception of switching costs to the new system.

In conclusion, perceived level of power in an organization seems to be a primary determinant of resistance attitude during the implementation process of a mandated-usage system. During the phase of change, perceived equity tends to play an immediate role in influencing resistance attitude. Users who have undergone through a process of change for a certain period of time seem to pay attention in evaluating and comparing between the net change of input and outcome. An individual with a perception of inequity is most likely to develop resistance attitude and may eventually exhibit resistance behaviors.

5.1.2.3 To what extent does user resistance affect user acceptance in a mandatory-use context?

User resistance has been known as a major obstacle to IS implementation (Gargeya and Brady, 2005; Kim et al., 2005; Kwahk, 2006; Suwardy et al., 2003). Resistance was viewed to be the opposite continuum of acceptance. Recently, there has been growing attention to support the idea that these two phenomena are distinct and inter-related (Bhattacherjee and Hikmet, 2007; Kim and Kankanhalli, 2009). One of the aims of this study is to investigate to what extent user resistance affects user acceptance in the context where users are required to use the ERP system involuntarily. Although the results from the three cases are inconsistent, user resistance appears to have a negative effect on user acceptance. In the case of ENERGY and WATER, resistance attitude moderated the relationship between user attitude towards usage and symbolic adoption. A user with high positive attitude towards system usage would have a high degree of symbolic adoption, implying a high level of acceptance. In a complicated situation, this user might understand the benefits of the system, but the change brought about could threaten the status quo until resistance is developed. Consequently, if a user has high resistance attitude towards IS implementation, it would weaken the positive effect of the user's attitude towards usage on symbolic adoption.

However, in the case of POSTAL, user resistance had no significant effect on user acceptance. Several reasons might explain the absence of the effect of user resistance on user acceptance. First, the phase of implementation was still the first episode of implementation. Information presented by ERP vendors during the bidding process or by management is typically on the positive side in order to gain acceptance from users. Second, it could be the unique culture of POSTAL. All informants in POSTAL reported that most staff willingly accepted change in the organization. They indicated that most people loved the organization and were willing to follow top management's decisions. One informant replied with a smile when asked about the resistance phenomenon; "...most people follow what top management asked us to do. ... Perhaps,

because we are facing with the decline in our business, we would do whatever it takes to help our organization. ...". The consistent answers tend to support the idea that the employees' perception of top management could affect how user resistance negatively influences user acceptance.

In contrast, the relationships between attitude towards system usage and resistance behaviors were not found to be significant in all three cases. No interaction effects were significant. Even though it could be expected that an individual with high positive attitude towards system usage would be least likely to express resistance behavior, the results of this study do not show any support for this. If the change threatens their status quo, users could potentially resist the change brought about by an IS implementation, regardless of how good they feel about the system usage. On the other hand, user resistance was found to negatively affect user acceptance. Resistance attitude negatively moderated the relationship between attitude towards system usage and symbolic adoption. A user with high resistance attitude could have a lesser degree of symbolic adoption. With the moderation effect, the absence of resistance attitude does not imply the increase in the level of symbolic adoption.

The results appear to support the principle of asymmetrical negativity bias (Bhattacherjee and Hikmet, 2007; Cenfetelli, 2004a). It is probably true that bad consequences from using ERP (e.g., losing power, losing some benefits, or working on more difficult jobs) would have more negative impacts than good consequences. Negatively valenced events seem to have a greater impact on an individual than the positively valenced events of the same type (Baumeister et al., 2001). Nevertheless, it could lead an individual to an adaptive advantage. "...those who mobilized their attention and resources toward the bad would be more likely to survive..." (Baumeister et al., 2001) has some meaningful implications here. Users faced with potential negative effects, who have developed resistance attitude, would be most likely to adapt to the change since they pay attention to unpleasant negative effects. If they ignore the bad and embrace only positive consequences, they would find in the end that they do not fit with the change.

5.1.2.4 To what extent are job-related outcomes affected by user acceptance and user resistance in a mandatory-use context?

One direction of research in user acceptance which seems to be mature and explored to a great extent is the link between user acceptance and individual usage outcome (Venkatesh et al., 2003). In the other stream of research, Oreg (2006) found that resistance to change in a general context was related to job satisfaction, intention to quit, and continuance commitment. His research aimed at examining whether user acceptance and resistance to change could link to individual usage outcome. Job satisfaction was chosen to represent job-related outcomes.

Symbolic adoption, a dependent variable of user acceptance, appears to positively determine job satisfaction whether user acceptance and user resistance were tested separately or simultaneously. An individual who highly agrees with the use of a mandated-usage system would have a high level of job satisfaction. Symbolic adoption alone explained around 30% – 60% of the variance in job satisfaction. The relationships were relatively high, as the path coefficients were around 0.59 – 0.76. In a mandatory-usage context, one might consider measuring symbolic adoption as a way to assess user acceptance since the measure of a level of use or an intention to use would be irrelevant. The results show that a high level of symbolic adoption would lead to a high degree of job satisfaction. Measuring only a behavioral perspective alone would not guarantee that users would have a high level of symbolic adoption. They might feel the need to use the system but not genuinely agree with the idea of using the system.

The effects of resistance behaviors on job satisfaction were, however, inconsistent. The results were inconsistent in both cases when user acceptance and user resistance were tested independently or concurrently. When user resistance was tested separately from user acceptance, the relationship was significant only in the case of POSTAL. The relationship was weak, as the path coefficient was only 0.281 and R-square was only 7.9%. But when tested jointly with symbolic adoption, resistance behaviors appear to be positively significantly related to job satisfaction in the case of POSTAL and ENERGEY with no significant interaction effect. In the case of WATER, the

interaction effect was significant. Resistance behaviors negatively moderated the relationship between symbolic adoption and job satisfaction. The effect was moderate, with the R-square change about 7% resulting from the interaction effect.

Although it seems to be inconclusive from the inconsistent results regarding how user resistance affects job satisfaction, it could be argued that in the definition/selection and implementation phase, users may not give true evaluation of the outcomes of job on a new ERP. But in the phase of operation, users are currently using it and can give a more precise view of how user acceptance and user resistance affect their job-related outcomes. However, this argument still needs to be validated further. It may indicate that it is more valid to empirically assess the effects of user acceptance and user resistance on job-related outcomes after the system is fully deployed.

5.2 Conclusion

User acceptance is a research area of much research attention. Many IS scholars have attempted to understand this complex phenomenon. It is argued that user acceptance should be viewed as a process of change. Recently, there have been some attempts to introduce a new body of knowledge to provide greater understanding about the process of user acceptance in the context of mandatory usage. It is believed that symbolic adoption could be a more appropriate dependent variable of user acceptance in this particular context.

Under this circumstance, to ask users whether to use or not to use a mandatory-usage system such as ERP would be too simplistic since users are left with no choice but to use the system. Thus, TAM has been criticized as being inapplicable for measuring user acceptance in this context because the model aims to predict or explain the system usage. A more pertinent dependent variable was needed for this context. When examining the acceptance process of a mandatory use system, an individual is faced with two decisions: to accept the idea and to use the system. If it is so, symbolic adoption could help to provide a more complete view of the user acceptance process (Klonglan and Coward, 1970). This theoretical construct mainly emphasizes the mental process of system adoption which seems to be more plausible in this mandatory use context (Nah et al., 2004). Recent studies have shown the promising role of symbolic adoption in explaining the user acceptance process in involuntary use. In order to capture the full extent to which this individual would thoroughly accept the system, this study included symbolic adoption combined with behavioral intention to use in order to provide richer explanations on the process of user acceptance.

It is argued that resistance to change, when included in the theory of user acceptance, would provide clearer understandings on how a user accepts the system. A pioneer study conducted by Bhattacherjee and Hikmet (2007) has shown that the interconnection between the two paradigms of research does exist. Taking an initiative to gain more insight into the interplay between these two lines of literature, this

study has sought to explore the role of individual attitude in the process of user acceptance in the context of an involuntary environment.

Quantitative and qualitative data were collected from three cases using the survey and interview methods. A total number of 690 questionnaires were acquired from the three organizations. This study employed a PLS approach to SEM illustrated in the work of Henseler et al. (2009), and with their practical guidelines, the level of reliability and validity of survey instruments were determined. All proposed hypothesized relationships were empirically assessed. The results provide support for most hypothesized relationships derived from TAM. Other hypothesized relationships were found to be inconsistent. Plausible explanations of the inconsistencies could be drawn from the fact that the three organizations differed in terms of the phase of implementations, scope of the implementation, and organizational culture. Nevertheless, the results do illustrate the complex nature of user resistance.

User resistance could potentially have a negative effect on user acceptance but not vice versa. Resistance attitude negatively moderated the relationship between attitude towards system usage and symbolic adoption. This follows the principle of asymmetric negativity effect where negative events have a greater impact than do positive events. In the resistance literature, Piderit (2000) argues- that resistance to change should be conceptualized as attitude, thus- providing the theoretical link between user acceptance and user resistance.

The findings also lend support to the findings from the study of Bhattacherjee and Hikmet (2007) where it was found that user resistance could possibly negatively moderate the effects of user acceptance on job-related outcomes in the phase of operation. This would shed light on one of the research objectives, which is to examine whether user acceptance and resistance to change could affect job-related outcomes. Typically, a user with a high level of symbolic adoption would have a high level of job satisfaction. In the presence of resistance behaviors during the phase of operation, job satisfaction could be decreased by the moderating effect between symbolic adoption and resistance behavior.

5.2 Research Contributions

This research offers several theoretical contributions. A main contribution is the theoretical link between user acceptance and user resistance, and the empirical assessment of this link. User attitude is conceptualized to include attitude towards system usage and resistance attitude. The first deals with system characteristics, whereas the latter concerns the consequences of the change brought by the system being implemented. IS researchers have enquired as to what makes users use the system since it is believed that system usage will determine the success of IS implementation (Davis, 1989; Davis, 1993; Davis et al., 1989; DeLone and McLean, 1992, 2002; Legris et al., 2003). In this regard, TAM has been adopted extensively by previous research to understand the user acceptance process. On the other hand, resistance to IS implementation has been recognized to be a major obstacle to IS success (Joshi, 2005; Lapointe and Rivard, 2005; Marakas and Hornik, 1996; Markus, 1983 ; Martinko et al., 1996). Until recently, Bhattacherjee and Hikmet (2007) proposed a model bringing together the influencing role of resistance to change and system usage. This model can be seen as the initial attempt to link the two inter-related phenomena determining the success or failure of IS implementation.

From the theoretical point of view, the current research is the attempt to continue the investigation of the link between user acceptance and resistance to IS implementation. User attitudes which have been a debating issue in the line of user acceptance research are conceptualized using the attitude concept identified in the resistance to change studies. Especially, in the context of ERP implementation where the use is mandated, resistance to change seems to be pervasive. The empirical evidence found in this research contributes to the line of resistance to IS implementation literature, which is still premature.

Second, by simultaneously examining these two concepts, the findings offer support to the principle of asymmetric negativity effects. User resistance when conceptualized as an individual attitude was found to negatively moderate the influence of attitude towards system usage on symbolic adoption. Even though this concept may

not be a new area in IS, there is still a paucity of research addressing this phenomenon. Moreover, the findings provide explanations on how user acceptance and user resistance are inter-related. User resistance negatively moderated user acceptance, but not vice versa.

Third, the results of this study provide empirical assessment of TAM with symbolic adoption as a dependent variable. When a behavioral variable of TAM is substituted by a psychological construct, user attitude tends to be predominant of symbolic adoption. This provides support to the existing literature on user acceptance in a mandatory-usage context where there is a lock of empirical evidence.

Fourth, the empirical evidence from this research also adds to the growing development of the resistance to IS implementation literature. Attention has been growing in exploring the complex nature of resistance. Threats to power and a perception of inequity could lead to the resistance attitude which, in turn, would encourage resistance behaviors. However, perceived self-efficacy does not directly affect the resistance attitude. The results support the findings of previous studies (Joshi, 2005; Kim and Kankanhalli, 2009; Markus, 1983) as well as test the theoretical conceptualization in the mandatory-usage context.

Fifth, the findings provide empirical evidence on how user acceptance together with user resistance can affect job-related outcomes. With the mature stage of user acceptance, the study addresses the individual consequence of user acceptance on job-related outcomes. It is known that user resistance could negatively affect job-related outcomes (Oreg, 2006). When taken together, a high degree of user acceptance would lead to more job satisfaction with the negative moderating effect of user resistance. These two phenomena should be evaluated mutually since they are interdependent. By including user resistance, it seems to provide a more holistic view of the user acceptance process.

Sixth, regarding the methodological issue, only a few previous studies have attempted to capture the dynamic nature of user acceptance and user resistance.

This study recognizes this dynamic nature of user attitude. Three organizations at different phases of implementation were chosen as cases. Data were collected prospectively and retrospectively. With the different time frames, empirical evidence provides different aspects of user acceptance and user resistance.

5.3 Managerial Implications

It may seem that user acceptance and user resistance are two parallel universes. Somehow, they are inter-related to one another. User resistance appears to weaken the process which individual attitude influence a degree of user acceptance as it can be illustrated in the Figure 11. The results of this study provide a venue for understanding the underlying complex nature of a mandatory usage environment, and offer several implications for management in dealing with user acceptance and user resistance of a mandated-use system.
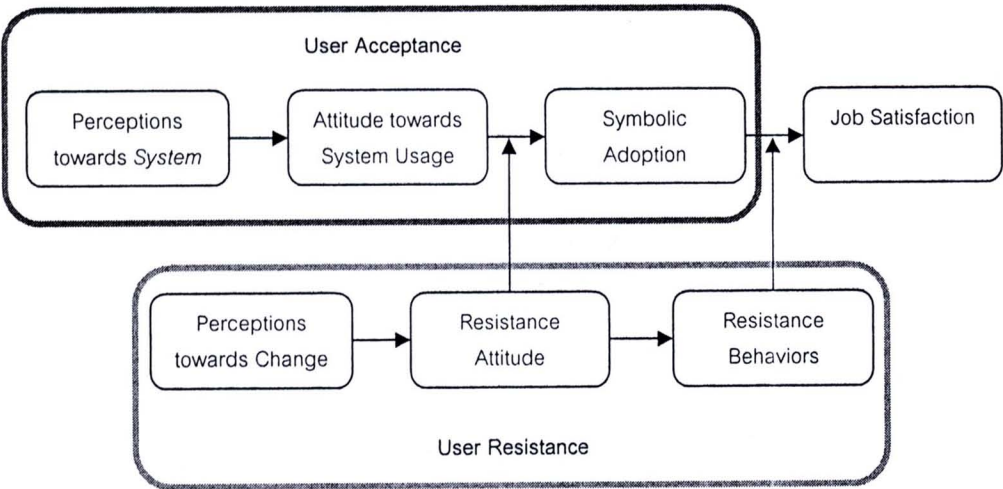

Figure 11 The Linkage between User Acceptance and User Resistance

First, in a mandatory use context, management should not focus on measuring individual behavioral intention to use or a level of system usage since either of these two measurements would not be pertinent in this particular context. Attention should be paid to evaluate whether organization members related to the adoption of ERP system agree with the use of this system. This implies that the success of the implementation should be equated with the high level of system usage. Mostly, the

success of the implementation is measured by the level of system usage. In this particular context, it is illusive to monitor only the use of the system. Symbolic adoption would be a better alternative to illustrate the success level of the implementation.

Second, the role of attitude is seen to be vital in all implementation phases. Attitude towards system usage and resistance attitude were two attitudes that play an influential role in inducing a degree of symbolic adoption. Promoting user acceptance could be done by fostering individual positive attitude towards system usage and manage resistance attitude since these two attitudes were found to play an active role in determining user acceptance. Most of change management program in IS implementation tends to focus on evaluating individual awareness of the implementation. The results of this study suggest that management should probe beyond awareness to understand individual attitudes. Questionnaire survey or interview could be used to detect negative attitude that could potentially hinder the progress of the implementation.

Third, there are two important groups of perceptions determining individual attitudes. The first group is perceptions towards system and the latter is perceptions towards change. These two sets of perceptions influence the two crucial attitudes mentioned earlier (attitude towards system usage and resistance attitude). The effects of perceptions towards system on attitude towards system usage seem to be consistent throughout the three phases. There seems to be some slight differences between how the perceptions towards change affect the resistance attitudes in each phase of the implementation and management should understand these differences in order to better manage the change brought by the system being implemented. Change seems to highly affect users who have a high level of power in an organization since the early episode of the implementation and later on until the phase of operation. However, inequity or unfairness appears to promote individual resistance attitude. During the phase of implementation, management should pay special concern on how organization members affected by the change are treated. Incentive or reward plan should be made clear at this stage to motivate people to embrace the change.

Fourth, to reduce the impact of resistance to IS implementation, most of the change management programs currently in practice are introduced during the time when implementation is taking place. Management generally emphasizes training and communication programs, the programs of which are highly focused on features of the system and the benefits of using the system. Obviously, this would help users understand more and develop a positive attitude towards system usage. However, it does not appear to lessen the degree of user resistance. Users are more prone to negative ideas of the system implementation. By emphasizing only the positive features of the system, it would not help rectify the issue of why users resist implementation. It is not advised to over focus on this particular side. Management should introduce a change management program that provides a channel for users to complain or voice their concerns. This practice would help them to release their stress brought by the change that they are encountering.

Fifth, the increased level of attitude towards system usage would not help alleviate the resistance phenomenon. A new system possibly presents different level of threats to users. Management should pay attention to individuals with a high level of power in an organization. A new system could possibly alter the power distribution in an organization. Thus, those people who perceive to be losing their power should be identified in advance in order to keep the level of resistance low since it might be difficult to reduce the effects of this particular threat. Management should treat this group of people fairly since the perception of inequity would lead them to a higher degree of resistance.

Sixth, the resistance phenomena may be viewed to be transient and will disappear after a long period of usage. The results of this study show that resistance still persists, even when the system has been used for almost 10 years, as in the case of WATER. Management should continue to look for any sign of resistance, since it could hurt job satisfaction. After the system has been used for an extensive period, resistance behaviors may indicate that the system is no longer fully supporting user tasks.

5.4 Limitations and Future Research

This research presents some limitations that should be noted. First, the three organizations that served as cases are state-owned enterprises which might provide a particular view of organizations. This may limit the generalizability of the results. Future research might consider replicating this study in another context. Working for a state-owned enterprise, individuals would probably feel more secure about their job security, which could lead to a different level of resistance to change when compared with other private organizations. Organizational culture, which is a basic assumption embodying the behaviors and values of organization members, is argued to promote a strategic change (Avison and Myers, 1995). Future research should take organizational culture into account.

Second, there have been no validated items for resistance to IS implementation and some other constructs, particularly negative perceptions or the cause of the resistance. Future research is encouraged to develop scales measuring user attitude. In the present study, antecedents of resistance to IS implementation were hypothesized to include a threat to a power level in an organization, a perception of inequity and perceived self-efficacy. According to Ajzen (1988), an individual could hold a large number of beliefs about an object, but only a few individuals may determine attitude towards an object in evaluation. Future studies should identify salient beliefs about a mandated IS and examine their role in determining resistance attitude.

Finally, the cohort study design can provide comparison views at three different time frames, but there still are a number of variables that could potentially affect user acceptance and user resistance. A process approach might be considered to study the dynamic interplay of the two phenomena by using a longitudinal study following the same individual through the process of user acceptance of the change process.