

# How Personality Affects Time Control Over E-Mail Use: The Mediating Effects

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## ABSTRACT

It is well established in psychology literature that personality to some degree predicts performance. However, the mediating effect is unique to the context, and usually complex. In the context of e-mail handling, this paper is interested in looking into how personality affects the perceived control of time. Based on data collected from 251 knowledge workers, the results showed that personality predicted the perceived control of time over e-mail handling through both e-mail specific time management behaviors and e-mail self-efficacy. In addition, higher e-mail self-efficacy leads to improve e-mail specific time management behaviors.

**Keywords:** E-mail, personality, time management, self-efficacy, perceived control of time.

## INTRODUCTION

In the past three decades, e-mail has evolved from being an Internet application that was used only by “techies,” to a common communication tool that is embraced by the general population. The RADICATI Group predicted that the number of worldwide electronic mailboxes would increase at a compound annual growth rate of 136 percent from 2008 to 2012 [18], and that by 2007, the global person-to-person e-mail load would have reached ninety-seven billion messages per day [10]. Advances in communication technology have not only brought about convenience of communication, they have also sped up the pace of our lives [9]. E-mail has influenced our lives both positively and negatively. The positive side is, of course, related to task accomplishment and life enrichment, while the negative side is caused by ineffective use of e-mail.

The use of e-mail is characterized by both the large volume of messages and the diversity of information formats. The variety of e-mail attachments makes possible the diversity of information formats, and this accelerates the growth of the size of e-mail messages and aggravates the burden of processing them. E-mail has gradually penetrated knowledge workers’ daily life, and imposed some high cost [19]. Although the literature on e-mail management has not dealt with a complete account of such costs, it is undeniable that the factor of time is on top of the list to be investigated. These costs may be the time pressures of knowledge workers caused by e-mail.

The works of Macan [15] and Claessens, Van Eerde, Rutte, and Roe [4] established the linkage between perceived control of time and the outcome variables such as satisfaction, tensions, and work performance. According to Macan [15], the perceived control of time is the degree that an individual believes that he/she can directly affect how their time is spent. As to what affect the perceived control of time, previous studies focused mainly on time management behavior; only a few studies investigated the antecedents of time management behavior. Claessens, Van Eerde,

Rutte, and Roe [5] pointed out that personality is one important antecedent of time management behavior.

Macan's [15] investigation of the effect of time management behavior on tension and job satisfaction disconfirmed the mediating effect of perceived control of time. However, he suggested that the type of information received when engaging in time management behavior might shed light on the mediating process. In other words, perceived control of time may emerge as an important mediating factor in other contexts with different information content.

The importance of the study on e-mail in time management research was strongly advocated by Claessens, Van Eerde, Rutte, and Roe [6]; they further called for much research in this area. This foresight was echoed in an earlier study on knowledge workers' performance [7]. Davenport believed that knowledge workers' performance was hindered by the lack of control of information flow. Data showed that e-mail was central to the problem: on average, knowledge workers spent 1.58 hours/day in e-mail, which was about 20 percent of an 8-hour day; about 77 percent of them checked e-mail frequently, and the impact of interruptions worsened. As a result, 51 percent of knowledge workers felt that they were not in control of their information flows.

Based on previous research findings, there is little doubt that personality affects the perceived control of time, and perhaps in all aspects, including which is specific to e-mail use. Moreover, e-mail use has caused knowledge workers to feel less in control of their time or information flows. However, we do not fully understand the process of the causal relationship between personality and time control over e-mail use. Therefore, the purpose of this study is to investigate the mediating process. Besides time management behavior, another possible mediating variable is e-mail self-efficacy. According to Locke's [13] Motivation Hub Model, both self-set goals and self-efficacy mediated the relationship between personality and performance. In Locke's original measurement, self-efficacy is cognitive judgment about one's ability only and does not include cognitive variables, such as knowledge and skills. However, Locke suggested that future research could fill this gap to provide a more comprehensive explanatory framework. Although empirical evidences linking personality with motivational variables has begun to accumulate [14], our study represents one of the first attempts to empirically test the goal-setting variable (e.g., e-mail specific time management behavior) and cognitive variable (e.g., e-mail self-efficacy) simultaneously. The research framework is as shown in Figure 1.

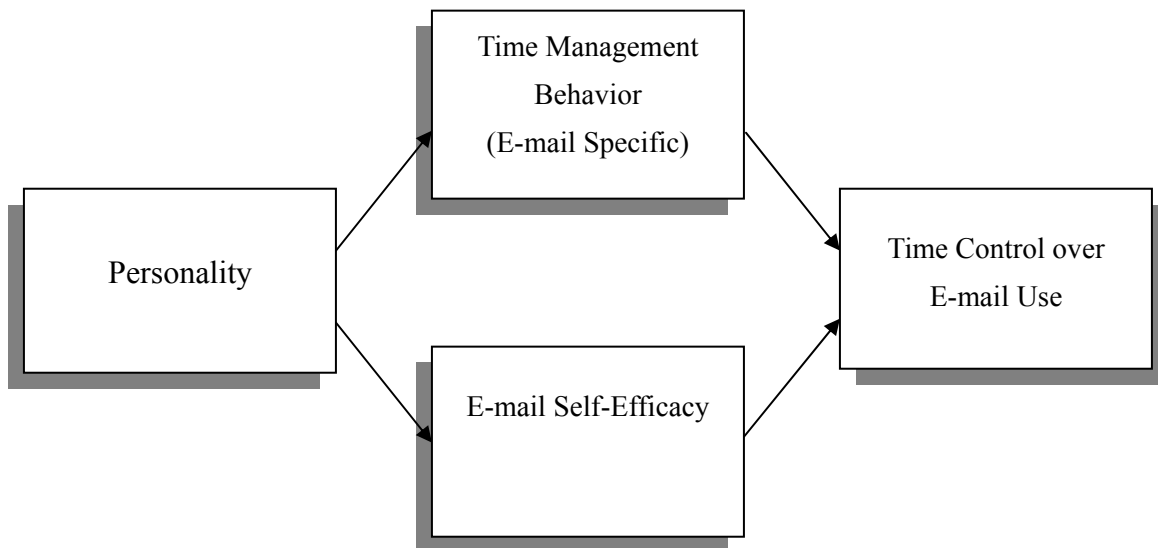


Figure 1. Research framework.

## RESEARCH MODEL AND HYPOTHESES

Existing research found that people who are more proactive tend to have better perceived control of time. In Lay and Schouwenburg' [12] study of the relationship between procrastination and time management related variables, the results showed that procrastination resulted in lower perceived control of time. Williams, Verble, Price, and Layne [20] found that time management practices are closely related to one's personality. Kaufman and Lindquist [11] studied the relationship between time management behavior and two styles of personality, polychronic or monochronic styles, and concluded that people with polychronic personality were better able to manage work interruptions and activity switches. It is clear that personality links to time control or performance. Our proposed mediating process between them is discussed below.

### **E-mail-Specific Time Management Behavior**

Claessens et al. [4] pointed out that e-mail requires goal setting, time scheduling in advanced to reach management purpose. Goal setting and time scheduling are dimensions of time management behavior, and it takes proactive personality to take the initiative to set goal and schedule time properly. Thus it takes a more proactive person to demonstrate better time management behavior.

The notion of perceived control of time was firstly proposed by Macan [16]. Past research found that people who were good at time management tended to have better perceived control of time [5]. There are three reasoning supports for this result. First, Macan [15] described that while allocating time through setting goals, scheduling or organizing skills, the perception of time control naturally emerges. Meanwhile, better time management also means less pressure. Secondly, social cognitive theory suggests that the modeling of one's vision leads him/her to set an action goal, and subsequently self-regulates the behavior to achieve the final goal. Therefore, setting goal is helpful to one's self-control ability [17]. Third, by goal-setting theory, goal may affect the intensity, persistence, and direction of one's action [20], and in turn, leads to better time control.

*Hypothesis 1:* E-mail-specific time management behavior mediates the relationship between personality and time control over e-mail use.

### **E-mail Self-Efficacy**

One possible mediating mechanism linking personality and time control over e-mail use is e-mail self-efficacy. First, individuals who are more proactive would try to change environment, identify opportunity and act on them. They are also more motivated to acquire the knowledge, learn the skills and enhance the abilities they lack in order to cope with the environment. Bandura [2] believed that knowledge, skill, and ability were the material of mastery experiences, which was helpful to developing higher self-efficacy.

If an individual believes that he/she possess the ability to cope with the situation, it is more like that he/she will succeed in controlling the outcome [9]. This is because it is much easier to deal with anticipated change, errors or pressures with higher self-efficacy [17].

*Hypothesis 2:* E-mail self-efficacy mediates the relationship between personality and time control over e-mail use.

### **E-mail-Specific Time Management Behavior and E-mail Self-Efficacy**

As maintained by social cognitive theory and motivation hub perspective, individual's self-efficacy is related to their self-set goal [1]. Yet, what goals would be set is affected by one's self-efficacy for the task at hand [13]. The higher individual's self-efficacy regarding a certain task, the more likely he/she will set a higher goal, and the more he/she strives for reaching the goal. Time management behavior in this study can be viewed as a planned behavior which is a part of goal setting. Therefore, if someone has higher e-mail self-efficacy, this confidence will lead him/her to set a higher goal of e-mail specific time management behavior. Therefore these

two mediating variables are related.

*Hypothesis 3:* E-mail self-efficacy is positively related to e-mail specific time management behavior.

## RESEARCH METHOD

The sampling frame consists of the knowledge workers in a multinational corporation, which is a major computer and electronic home appliance company headquartered in Taiwan. Although the sampling frame is adequate for studying knowledge workers, a name list is not available to the study, thus the questionnaires were distributed through its human resource department. Potential subjects were contacted by internal announcements, such as newsletters and postings, and responses were voluntary. The measurement of each construct is described in the following:

**E-mail Specific Time Management Behavior.** Macan [16] developed a Time Management Behavior scale (TMB), which measures the general time management behavior by three subscales: goal-setting tendency, time management mechanics, and preference for organization. In order to better capture time management behaviors that are specific to e-mail use, we developed a new scale by revising Macan's items: some were reworded, some deleted, and a few additional added. Three sample items for each subscale are listed below:

- I mark the priorities of my incoming and outgoing e-mails, as a habit.

Following the revision, exploratory factor analysis (EFA) was used to examine the factor structure of the construct. An EFA with varimax rotation revealed there were two factors which corresponding eigenvalues were greater than 1, with five items loading on the first factor and six items loading on a second factor. Items of the first factor assessed how individuals set up the goal and scheduled their time in e-mail use, which we labeled "Management practices". Items of the second factor assessed the how individuals organize their e-mail, including writing habits and media selection, which we labeled "Organization practices". These two factors are different from Macan's [16] time management behavior scale. This difference is expected, because the items in this study are specific to e-mail use, while Macan's concern time management in general sense.

**E-mail Self-efficacy.** There exist quite a few studies on computer or Internet self-efficacy, but none on e-mail self-efficacy. To design the measurement items on e-mail self-efficacy, we first conducted a focus group to collect in-dept information about how knowledge workers process and file e-mails, how they respond to and control e-mail interruptions, and their overall e-mail usage behaviors. Then the items were developed based on Compeau and Higgins's scale of self-efficacy [6], with each major e-mail function determined by the focus group serving as the target of self-efficacy assessment. The focus group study is necessary, as there are countless e-mail functions, but we believe only a few are crucial to knowledge workers usage.

An exploratory factor analysis (EFA) found support for two e-mail self-efficacy factors. The first factor was labeled as "beginning-level e-mail skills" and the second factor was labeled as "advanced-level e-mail skills". All items assessing the extent to which individuals believe they have the ability to use the functions of e-mail. A sample measurement item is listed below:

- I have confidence using the function of address book, e.g. setting contact group.

**Perceived Control of Time.** In this study, we applied Macan's [15] scale of perceived control of time to the context of e-mail use. Some sample items are listed below:

- I feel in control of my time spent in e-mail.

Because there were no additions or deletions to the Macan's items, the structure of the construct did not underwent an exploratory factor analysis.

**Personality.** Time control is a perception-based construct; given a similar context, the perception of two individuals may not be the same. Therefore, to study issues of time control, an important variable has to be the personality. There are many ways in classifying personality, for

example, Type A or Type B, introversion or extroversion, proactive or reactive, etc. Since the effective use of e-mail seems to require the kind of personality that has the tendency to take initiative, therefore this study will go along the direction of measuring how proactive a person is. One widely accepted scale is Proactive Personality scale from Bateman and Crant [3], which is a unidimensional scale. The sample items of proactive personality are

- I am constantly on the lookout for new ways to improve my life.

### **Data Analysis**

Since the assessment of the overall fit of the model is crucial in this study, Structural equation modeling (SEM) was used to analyze the data. It is the most efficient estimation method for examining a series of separate multiple regression equations simultaneously for each of a set of dependent variables.

## **RESULTS**

We assessed the proposed model with maximum likelihood estimation using AMOS 7.0 All calculations were based on the covariance matrix of the variables. There were 251 valid responses, representing 83.6% response rate. Of the respondents, 63% were males and 37% were female. The analysis indicates that Model fits the data well, with  $\chi^2(33, N=251)=9.287$ , GFI=0.987, AGFI=0.932, CFI=0.932, IFI=0.940, RMSEA=0.074. All standardized path coefficients are statistically significant and in the predicted directions. The indirect relationship between personality and the time control on e-mail use via mediating variables, time management behavior and e-mail self efficacy, as stated in Hypotheses 1 and 2, were examined by Sobel Test. Results showed that both hypotheses are supported with  $z = 2.19$ ,  $p < 0.05$  for Hypothesis 1, and  $z = 2.048$ ,  $p < 0.05$  for Hypothesis 2. The path running from e-mail self-efficacy to e-mail specific time management behavior is statistically significant ( $\beta = .23$ ,  $p < .05$ ), offering support for Hypothesis 3.

## **CONCLUSION**

This research empirically examined how personality affects the perceived control of time over e-mail use. Two mediating constructs were identified and the mediating effects confirmed; they are the e-mail specific time management behavior and e-mail self-efficacy. The results showed that individuals with more proactive personality are better in controlling their time spent on e-mail, achieved through higher e-mail self efficacy and more effective e-mail specific time management behavior. Additionally, e-mail self-efficacy positively influences time management behavior which is specific to e-mail use.

A very important practical implication is on the possibility of increasing knowledge workers' productivity by improving e-mail self efficacy and e-mail specific time management behavior. The perceived control of time over e-mail use is intuitively closely related to productivity, because time is an important element in productivity. Therefore, while it is very difficult to judge the degree of influence of these two mediating constructs, sensible organizations should consider taking actions to enhance employees' positive time management behavior and their e-mail self efficacy. Training courses or an e-mail knowledge platform may prove to be quite useful.

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