

THE HAWAI'I TIME MANAGEMENT SCALE AND HEALTH RELATED  
BEHAVIORS

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## ABSTRACT

Good time management (TM) skills have been related to both physical and psychological health. This dissertation focused on the development of a content valid measure of TM to allow further exploration of this relationship. Such an instrument, in the future, could allow identification of specific TM skills related to specific health-related behaviors. In order to create this instrument and explore the relationship between it and health related variables, five studies were undertaken to: a) write items to assess all identified TM elements (Study 1), b) submit these items to subject matter expert review for revision and removal of weaker items (Study 2), c) conduct an item analysis to remove weak items and provide a preliminary identification of the factors underlying TM skills (Study 3), d) explore the validity of the new TM instrument (Study 4), e) explore the relationship of the revised TM questionnaire to data from measures of health-related behaviors (Study 4), and f) explore the reliability of the new TM instrument in relation to test-retest data from already existing TM instruments (Study 5). The instrument resulting from this dissertation was more content valid than any previously identified instrument. Factor analysis of the resulting instrument suggested seven general groups of TM skills (Problem Solving/Goal Setting, Reminders, Not Wasting Time, Pleasure Activities/Breaks, Organization, Delegation, and Routines Predictability). Validity analyses provided support for relationships between TM skills and measures of physical and psychological health.

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### The Hawaii Time Management Scale and Health Related Behaviors

This dissertation addressed the relationship between time management (TM) and health related behaviors, as indicated by reports of engaging in behaviors related to physical health and reported degree of psychological distress. In order to explore these relationships, a new time management instrument was developed and validated.

Past research had suggested a variety of approaches to defining TM. Many of these definitions fail to clarify the nature of TM: a) “managing time” (Orpen, 1994, p.393), b) “the degree to which individuals perceive their use of time to be structured and purposive” (Bond & Feather, 1988, p. 321), c) “managing time effectively” (Woolfolk & Woolfolk, 1986, p. 267), and d) “use of time structuring and management practices and behaviors” (Mudrack, 1997, p.222). Other authors have taken a more direct approach of identifying TM elements by using a list of such elements as a definition: a) “setting goals and priorities, the mechanics of time management (e.g., making lists), and preference for organization” (Macan, 1994, p.181), b) “choosing goals and subgoals, prioritizing the goals, generating tasks and subtasks from the goals, prioritizing the tasks, listing the tasks on a “to-do” list, scheduling the tasks, and then carrying out the tasks” (Britton & Tesser, 1991, p.405), and c) “behavioral outcomes (e.g., accomplishing tasks), making and following a schedule, using a daily planner, feeling in control of one’s time, prioritizing tasks, problem solving, making lists, delegating, breaking down tasks into small components, assertiveness, being organized, monitoring one’s use of time, and engaging in self-reinforcement for task completion” (Gafarian, Heiby, Blair, & Singer, 1999, p. 585). Shumay, Nelson, Heiby, Kaholokula, and Frank (2002) took this a step further by

conducting a literature review and identifying 48 TM elements. The listing of elements provided a first step toward developing a more comprehensive definition of TM.

With few exceptions (e.g., Britton & Glynn, 1989; Macan 1994; Shumay et al., 2002), little research has connected past TM instruments and definitions to theories or models. Britton and Glynn suggested that the brain, similar to the organization of computers and computer programs, must use a time management system to increase productivity. This model suggested that a “goal manager” component took “desires” and transformed them into “prioritized goals and subgoals” (Britton & Glynn, p. 430). A “task manager,” in turn, took the list of “prioritized goals and subgoals” and transformed them into a listing of “prioritized tasks and subtasks” (Britton & Glynn, p. 430). Finally, a “scheduler” component took over the task of completing the items from the list of tasks (Britton & Glynn, p.430). This model has remained largely untested.

Macan (1994) tested a process model of time management. This model tested whether providing training in time management skills would improve participant’s use of time management skills. Macan predicted that the improvement would increase the perception that participants controlled their time; this, in turn, was predicted to improve job-related variables. The model received weak support when tested using path analysis.

Shumay et al. (2002) represents the only attempt to integrate the study of TM into a larger theory. Staats’s (1996) theory of psychological behaviorism posits that complex human behaviors may be categorized into four, somewhat overlapping repertoires: a) language-cognitive, b) emotional-motivational, c) verbal-emotional, and d) sensory-motor. These categories have been shown to be relevant to a range of complex behaviors

(e.g., Eifert & Evans, 1990). Shumay et al. argued that all identified TM elements could be grouped within these repertoires of behavior. Although the psychological behaviorism theory is still undergoing revision and analysis (e.g., Riedel, Heiby, & Kopetskie, 2001), the categories provided a heuristic for grouping TM elements into conceptually similar areas.

Past research has addressed relationships between TM and numerous other variables (Table 1). In particular, some past research has touched upon the relationship between engaging in physical health related behaviors, or general physical health, and TM skills. These studies suggested that better TM skills were associated with higher levels of general health habits (Williams, Moore, Pettibone, & Thomas, 1992), reporting fewer physical symptoms or better general health (Adams & Jex; 1999; Bond & Feather, 1998; Williams et al.), increased dietary adherence among diabetics (Gafarian, Heiby, Blair, Galagan, & Singer, 1995), and increased exercise adherence among diabetics (Gafarian et al.).

Additional evidence for a relationship between TM skills and engaging in physical health related behaviors comes from Shumay et al. (2002). This study found significant correlations between TM skills and engaging in breast self-exam, flossing of teeth, drinking less alcohol, wearing a seatbelt, engaging in regular exercise, and eating a healthy diet. This study compared relationships between multiple TM questionnaires and a variety of variables (Table 2), including reports of engaging in health related behaviors.

Shumay et al. (2002) found that the relationships were not consistent across the four TM instruments and the health related behaviors considered. Engaging in breast

self-exam correlated with two sub-scales of the Time Management Behavior Scale (TMB; Macan, personal communication, November 10, 1988). Obtaining a regular pap-smear screen correlated significantly with one subscale of the TMB. Flossing one's teeth on a daily basis was associated with total scores from the Time Structure Questionnaire (TSQ; Bond & Feather, 1988), the Lifestyle Attitudes Questionnaire (LSA; Williams et al., 1992), and the Modified Diabetes Time Management Questionnaire (MDTMQ; Shumay et al.). Flossing teeth was also related to one TMB subscale. Limiting alcohol intake was related to total scores from the TSQ and LSA. Engaging in regular exercise correlated significantly with total scores from the LSA and MDTMQ. Eating a healthy diet correlated with the total scores from the TMB, TSQ, LSA, and MDTMQ. However, it only correlated significantly with two of the TMB subscales.

Given the findings of a relationship between TM skills and health related behaviors, such as exercise (e.g., Minifie & McAuley, 1998; Searle & Ready, 1991; Steinhard & Dishman, 1989), it is surprising that many models of adhering to health related behaviors do not take TM skills into account. Models not considering TM skills include the Relapse Prevention Model (Marlatt, 1985), the Stages of Change model (Prochaska, DiClemente, & Norcross, 1992), and the Theory of Planned Behavior (Ajzen & Madden, 1986). One exception to this appears in Frank's (2000) work on the revised health compliance model (HCM-II). The HCM-II suggested that a person's learning history, the consequences of engaging in a behavior (or not engaging in a behavior), and the present environmental conditions would all influence personality repertoires identified in psychological behaviorism as the general categories of complex human

behaviors. Furthermore, the personality repertoires and the consequences of certain behavioral choices would influence compliance with health-related behaviors. TM was posited in the HCM-II as one personality repertoire element related to exhibiting health related behaviors.

Past research also has addressed the relationship between psychological health and TM skills (Table 1). An association has been demonstrated between better TM skills and greater psychological well-being, (Jex & Elacqua, 1999; Macan, Shahani, Dipboye, & Phillips, 1990), less depression (Bond & Feather, 1988; Macan et al., 1990) lower anxiety (Bond & Feather, 1988; Lang, 1992), and lower psychological distress (Bond & Feather, 1988).

Additional evidence for a relationship between TM skills and psychological adjustment appears in Shumay et al. (2002). Using the Brief Symptom Inventory (Derogotis & Melisaratos, 1983), this study found inverse relationships between general psychological distress and TM skills (Table 2). However, the size of the correlations varied across the TSQ, TMB, LSA and MDTMQ, as measures of TM skills.

An explanation for varied relationships across TM instruments, when considering health related behaviors and psychological health, appears in Shumay et al. (2002). This study identified content validity problems within four reviewed TM instruments (Table 3; the TSQ, TMB, LSA, and MDTMQ). Shumay et al. found that none of the instruments assessed the 48 identified elements of TM. For the TM elements identified in this study, none of the instruments assessed more than 67% of the identified TM construct elements. Furthermore, some of the identified elements were not assessed by any of the

questionnaires considered. This may explain the significant variability in relationships among TM assessment instruments and measures of physical and psychological health.

This variability extended across other areas related to TM (Shumay et al., 2002). In addition to considering physical and psychological health, Table 2 also contains other indices identified, on the basis of a past literature search, as related to TM. The pattern of these relationships varied across these 14 convergent validity indices (as indicated by the number of indices, and the pattern of indices) that were significantly related to each TM instrument: TSQ (n = 5; frequency of self-reinforcement, TM self-efficacy, social support from a significant other, GPA, and activity level), TMB (n = 6; frequency of self-reinforcement, time management self-efficacy, age of participant, gender of participant, GPA, and activity level), LSA (n = 6; frequency of self-reinforcement, TM self-efficacy, social support from family, social support from friends, social support from significant others, GPA), and TMQ (n = 5; frequency of self-reinforcement, TM self-efficacy, hours worked per week, GPA, and overall activity level). The differential pattern of significant correlations suggests that the TM instruments assessed in Shumay et al. assess different elements of the TM construct.

A literature review conducted after the completion of Shumay et al. (2002), headed by the second author of Shumay et al., identified one additional TM element (setting long-term goals), increased the generalization of one element (expanded making lists to include both making lists and using environmental cues), and identified one additional TM instrument<sup>1</sup> for use in this study (the Time Management Questionnaire; TMQ; Britton & Tesser, 1991) not considered in Shumay et al.. A listing of all the

identified TM elements appears in column 1 of Table 3; this Table combines information from Shumay et al. and the current, expanded literature search. As indicated by column six, the TMQ (similarly to previously considered TM instruments) did not assess all of the TM elements. This, in combination with the information from Shumay et al., suggested that content validity problems are a concern with all available TM instruments. Even with all instruments considered, five identified TM elements remain unassessed by the five TM instruments (balancing solitary and group time, taking breaks, sorting mail daily, sets clothing out nightly, and manages meetings).

In order to effectively explore the relationship between TM, and psychological adjustment and engaging in health-related behaviors, a new TM instrument was required. Such an instrument needed to be content valid for all identified TM elements and to have acceptable convergent and divergent validity. The goals of the current study were: a) develop a content valid measure of TM, b) determine whether the identified TM elements were unique or whether data analysis would suggest that the number of unique elements is less than 49, c) identify the factor structure underlying TM, and d) explore the relationship between the underlying TM factor structure and health related variables. This dissertation had five studies that, together, met these goals. Goal a) was addressed across all five studies. Study 1 focused on creating a pool of items to assess each identified TM element. Study 2 revised the items created in Study 1 and removed poor items from the item pool. Study 3 involved an item analysis study to remove psychometrically poor items, determine which elements correlated highly enough to warrant combining items, and provided preliminary data on the underlying factor

structure. As some elements were no longer assessed by any items after this factor analysis, additional items were written as part of study 3 in order to ensure a content valid measure in studies 4 and 5. Study 4 explored the replicability of the factor structure across a new sample of respondents, addressed the convergent and divergent validity of the new instrument, and explored the relationship between the identified TM factors and health related variables. Study 5 considered the temporal stability (test-retest reliability) of the newly developed TM instrument.

The available literature did not allow me to make predications regarding what factors or elements will emerge from this data analysis. Therefore, my predications for the dissertation results remained tentative. Based on the variable pattern of relationships found in Shumay et al. (2002), I hypothesized that: a) the TM instrument would prove to be multidimensional, and b) the pattern of relationships between TM factors and health-related variables would vary across individual health related behaviors and psychological health.

### Study 1: Initial Item Creation

In order to further explore the relationship between engaging in health related behaviors and TM skills, a content valid measure of TM was required. Such an instrument would allow an exploration of the relationship between factors and elements of TM and health related behaviors. In order to create a content valid measure of TM, one would usually identify all of the elements to be assessed by the instrument on the basis of a literature review (Clark & Watson, 1995). As reported earlier, this had already been done (e.g., Shumay et al., 2002). The next step was to write items that assess each of the identified TM elements. In line with recommendations of Reise, Waller, and Comrey (2000) multiple items were written to tap each element of the TM construct, based on the elements listed in Table 3.

#### *Method*

##### *Participants*

Five participants wrote potential items for the Hawaii Time Management Scale (HTMS). The individuals ranged in age from 21 to 31. Four of the individuals were undergraduate students enrolled in psychology directed research courses. One of the individuals was a graduate student (the author of this dissertation). Four of the participants were men; one of the participants was a woman. Participants gained a working knowledge of TM by participating in a literature review to ensure that the HTMS would include all identified TM elements. Also, the participants gained additional knowledge of the elements by participating in a study to examine the content validity of the Time Management Questionnaire (TMQ; Britton & Tesser, 1991).

*Materials*

Participants received a copy of the revised TM elements list (Table 3). This list was based on an expanded literature review conducted to enhance the probability that all elements considered in the literature will be considered when writing items. This literature review expanded beyond traditional psychological literature to include business and teaching related materials.

In addition, participants received copies of several sources to provide guidance in writing good assessment items (i.e., Clark & Watson, 1995; Holden & Fekken, 1990; Murphy & Davidshofer, 1994; and sections of Nunnally & Bernstein, 1994). These materials, and the guidelines contained within these materials, were applied and discussed during the process of initial item creation for the HTMS.

Participants were provided with materials regarding how to write items that appear understandable to the person taking the test (Nunnally & Bernstein, 1994). Several sources made specific recommendations that supported this primary goal. Murphy and Davidshofer (1994) emphasized that items should: (a) be as short as possible, (b) be kept at a reading level that is below that of the target population, (c) avoid double negatives, (d) avoid ambiguous wording, and (e) avoid sexist, racist, and other offensive language. Nunnally and Bernstein suggest that items should avoid negative wording whenever possible. Clark and Watson (1995) endorse many of the previous suggestions and warn against writing complex, “double-barreled” items. Finally, Holden and Fekken (1990) noted the need to: a) avoid negative words when

writing items, b) avoid absolute terms when writing items, and c) use items that clearly assess the targeted element.

Participants were also provided with a set of instructions and response anchors for a Likert-type response format to guide item creation. The basic HTMS instructions were, “For each of the following items, please circle the number that best describes how well the statement describes you.” The items will be responded to on the basis of a five-point Likert-type scale with 1 = “very unlike me,” 2 = “somewhat unlike me,” 3 = “neither like me nor unlike me”, 4 = “somewhat like me,” and 5 = “very like me.”

#### *Procedure*

The content validity study used the same methods as Study 1 in Shumay et al. (2002). Briefly, the five participants received a list of the identified TM elements (Table 3), mentioned above, and a copy of the TMQ. Each item was considered as a potential measure for each of the 49 TM elements. Judges made these decisions independently and later met to discuss discrepancies. Item classification was confirmed when 80% inter-judge agreement was obtained.

Before beginning item creation, participants read and discussed all of the materials presented above. Following this, item creation began. Participants met weekly over the course of six weeks. During each of the first five meetings, 10 elements of the TM construct were presented and discussed to ensure that all participants understood the elements. After this discussion, the participants had three days to write three or more items per element without further discussion of the element, or items, with other

participants. This was done so that participants would have a minimal impact on the initial items written.

On the third day, the potential items were e-mailed to all group members. Each group member made suggestions for improving and revising the items written by the other group members. After receiving this feedback, the items were revised by the original item writers (based on the feedback received) before the next face-to-face group meeting, four days later.

At the group meeting, all of the items were reviewed again and additional changes were discussed and, where necessary, made so that all participants saw the items as acceptable. This allowed for iterative group feedback and consideration of all items. After changes were made on the basis of these recommendations, all items were placed on a "master list." The master list ultimately contained 744 items.

After the six weeks of item writing, a master list, comprised of all potential items, was distributed to all participants. Group members had one week to review the master list. This allowed group members to: (a) identify similar or identical items that could be revised or removed from the master list, (b) make suggestions for changes to items that individuals viewed as poorly constructed, and (c) ensure that the items were appropriate for the suggested element. Group members also wrote additional items and suggested items for removal from consideration for inclusion in the final assessment instrument, where appropriate (e.g., when a group member thought that an important area of the element remained unassessed or removal of items dropped the number of items below 12

for an element as I considered 12 the minimum number of items necessary to encourage a thorough review of all items when choosing items to drop).

After this, the process was repeated one week later to allow for examination of revised and newly written items. During the second review, group members identified 10 acceptable items per element to retain for use in Study 2. I chose 10 items as a number that I thought would prove large enough to allow retention of a heterogeneous item set associated with each TM, but not so large as to overwhelm the external item reviewers (Subject Matter Experts) in the next study. The participants met a final time and voted on items to retain into future studies. Items were deemed acceptable if at least four of the five participants considered them acceptable.

### *Results*

As planned, Study 1 procedures resulted in the creation of 10 acceptable items per element. A complete listing of these 490 items, grouped by element, is presented in Appendix A.

### *Discussion*

The iterative nature of initial item creation in this study allowed participants to review and comment on items several times over the course of approximately two months. This had a number of unforeseen consequences. First, discussion of who had originated specific items retained for use in Study 2, conducted after examining inter-judge agreement on which items to retain, yielded some interesting results. With only a few exceptions, no one in the group could recall who had originated the majority of the items. This observation was based on spontaneous group comments during the final item

elimination session. At one point in the item elimination process one participant commented that they thought a particular item was excellent and asked who wrote the item. No one in the group could recall this information. This resulted in a brief discussion regarding who wrote which items.

Second (perhaps as a result of consequence one), the final discussion of which items to retain proceeded quite quickly. The group review of which items to drop took approximately 95 minutes (or two minutes per TM element). Thus, participants evidenced substantial agreement on which items to retain in spite of making decision individually, before the final meeting began.

As a result of this rather quick, final agreement, there was some worry that the group item creation process might have resulted in creation of poor items. After working with the materials for an extended period, outside feedback was needed in order to ensure that the items retained were of good quality.

### Study 2: Item Revision, Subject Matter Expert Phase

Murphy and Davidshofer (1994) suggest that test items be revised by submitting them to a group of people before conducting validation studies for new assessment instruments. Therefore, Study 2 followed this suggestion by having three subject matter experts (SMEs) review the items. SMEs are individuals with experience in a given area of research, in this case TM, who did not actually aid in item creation. This study had two goals. The first goal was to obtain outside input regarding the quality of the items generated by study 1. The second goal was to remove poorly written HTMS items before proceeding to data collection.

#### *Method*

##### *Participants*

Three SMEs, who have previously worked on research related to TM and health-related behaviors (three authors of Shumay et al., 2002), participated in this study. One was a woman and two were men. The ages of these individuals ranged from 31 to 37.

##### *Materials*

Participants received a copy of the updated list of 49 TM elements, a list of the 10 items written for each element (results from Study 1), the intended instructions for this instrument, and a listing of the response options. Participants also received a copy of the item-writing guidelines presented in Study 1.

##### *Procedure*

The three participants were asked to separately look over the instructions, response options, and items for each element, in light of the guidelines for item writing.

Participants reviewed the list of items twice. During the first review, the SMEs were asked to make suggestions that could help clarify and improve any portion of the HTMS (e.g., item wording changes). SMEs also were asked to identify items they consider as removable from the instrument. These steps were done individually so that each SME would not influence the decisions made by the other SMEs.

After integrating the suggestions for item change from the SMEs, the SMEs reviewed the list of revised items. The second review was designed to ensure that items improved on the basis of suggestions from the first SME review would not be summarily removed from further consideration. The second review also allowed for further suggestions for wording changes and the SMEs were asked to identify five items from each element for removal from the instrument. Again, these steps were carried out individually by the SMEs.

Finally, the results of the second review were discussed as a group. SMEs made a group decision regarding which five items to drop from each TM element (items deemed acceptable by all participants or two of the three participants, one dissenting opinion, were retained). When identifying items for removal (both individually and in groups), SMEs were asked to keep in mind the need for heterogeneous content when assessing each element (Nunnally & Bernstein, 1994), as well as the guidelines for writing good items. This process was designed to produce a set of approximately 245 items. The removal of half of the items had no known basis in the research literature; it is designed to reduce the amount of time invested by participants in Study 3.

*Results*

As intended, the SME review reduced the number of items from 490 to 245 (i.e., by 50%). A listing of retained items, organized by element, the instructions, and the response options is located in Appendix B.

*Discussion*

As intended, Study 2 reduced the number of items under consideration for the HTMS. Similar to study 1, the final, face-to-face decisions on which items to retain proceeded quite quickly. This meeting with the SMEs required slightly less than an hour. The SMEs made only a few suggestions for changes to items (10 items out of the original 490 had suggested wording changes). This implied that the items produced in Study 1 were seen as generally acceptable as written, in spite of concerns mentioned in the Study 1 discussion section. Even after the review by the SMEs for content validity, it was not clear that all of the 245 retained items would demonstrate reliability and construct validity. An item may appear well worded and relevant to the TM construct, but fail to enhance the HTMS's psychometric adequacy. Thus, Study 3 was undertaken to explore the psychometric properties (e.g., inter-item correlation within elements, item-total correlations within elements, and the underlying factor structure) of the items retained after SME review.

### Study 3: HTMS Item Analysis and Exploratory Factor Analysis

Study 3 focused on administering the 245 HTMS items retained from Study 2 to a set of respondents in order to initially explore the psychometric properties (e.g., inter-item correlation within elements, item-total correlations within elements, and the underlying factor structure) of these items. This study focused on: a) removing psychometrically poor items from the HTMS, b) determining the number of statistically independent TM elements (and if combining elements would prove appropriate), and c) identifying the factor structure underlying the TM construct, as suggested by the HTMS factor structure. The HTMS items were considered psychometrically poor if an item correlated less than .20 with the total for the element (Stevens, 1996), above .50 with other items within the element (Clark & Watson, 1995), below .15 with other items within the element (Clark & Watson; Floyd & Widaman, 1995), lacked variability in responses (e.g., 90% of respondents select the same answer), or eliminating the item increased the element coefficient alpha by .10 or more.

#### *Method*

##### *Participants*

376 participants (exceeding the N of 300 suggested by Clark & Watson [1995] and Nunnally & Bernstein [1994]) were recruited from undergraduate psychology courses. A total of 75.20% of the distributed packets were returned. This set of participants was diverse in a number of areas (total Ns vary due to unreported data) including gender, females (N = 267, 71.0%) and males (N = 106, 28.3%). Participants reported ages ranged from 15 to 58 (Mean = 23.10, SD = 5.90). Participants were ethno-

culturally diverse: African-American (N = 1, .3%), Caucasian (N=71, 18.9%), East-Asian (N=191, 50.8%), Hispanic (N=4, 1.1%), Mixed Ancestry (N=62, 16.5%), Pacific Islander (N=21, 5.6%), Southeast-Asian (N=20, 5.3%) and “Other” (N=3, .8%).

Participants varied in relation to reported year in college (Mean = 3.66, SD = 1.70) and marital status (Single = 307, 81.6%; Cohabiting = 38, 10.1%; Married = 22, 5.9%; Divorced = 5, 1.3%; Separated = 2, 0.5%).

### *Materials*

All packets began with two copies of an informed consent document (Appendix C), so that participants could take one with them and return one for use in assigning course credit, and a sheet for gathering demographic information (Appendix D). The 245-item HTMS was presented after the demographics page (Appendix E).

*Demographic Information.* The demographics sheet (Appendix D) gathered information on participant sex, marital status, year in school, ethnicity, and age. Participants were also asked to provide the last four digits of their social security number to use in packet identification and to aid in providing feedback to section instructions for extra-credit purposes. As past research (e.g., Shumay et al., 2002) has suggested the use of some items for convergent validity purposes, and one demographics sheet was desired for use in the final three studies, several additional items appeared on the demographics sheet. These items included cumulative grade point average and TM related self-efficacy

### *Procedure*

Participants were recruited from undergraduate psychology courses at the University of Hawaii, Manoa campus. Participants were told about the ultimate purpose

of the research (to explore the relationship between TM skills and health related behaviors) and the primary focus of the current study (work towards creating an instrument to better assess TM skills). Participants were asked to volunteer and were informed of class extra credit that they could receive by participating in the study.

Individuals who agreed to participate received a copy of the research packet. The packet contained the informed consent, the demographics page, and the HTMS-1A. Participants completed the packet on their own and returned it within a week in order to receive class credit.

### *Results*

The HTMS items were analyzed first by element in order to remove poorly performing items. If an item correlated less than .20 with the total score for the element (Stevens, 1996), above .50 with other items within the element (Clark & Watson, 1995), or below .15 with other items within the element (Clark & Watson; Floyd & Widaman, 1995), then the item was eliminated from further consideration. These deletion rules resulted in the removal of 3, 46, and 23 items respectively. In addition, 3 items were removed because they correlated at levels that were both too high (above .50) and too low (below .15) with other items in the element. I had intended to remove items if they lacked variability in responses (e.g., 90% of respondents select the same answer). However, no items were removed based on this criterion. Additionally, the coefficient alpha change for removing the item from the element was considered as a guide for eliminating items designed to assess specific elements. If elimination of an item increased coefficient alpha by .10 or more for items in the element, the item was

removed. Only 1 item was removed based on an increased coefficient alpha value.

Together, these five rules removed 76 items from future consideration.

Second, totals were calculated for the remaining items associated with each element and the correlations between elements were considered. If the correlations between the element totals exceeded .70, I considered combining the items for the two elements, as they seemed to be statistically similar, and rerunning the item level analyses described above. Correlations of .70 or higher were observed between several sets of elements: 6 (linking short-term to long-term goals) and 7 (task analysis of goals), 5 (decisiveness) and 12 (monitoring effective use of time), 1 (sense of time being structured) and 15 (preference for organization), and 13 (monitoring daily schedule) and 38 (schedules time daily). With the exception of elements 5 and 12, which did not appear conceptually similar, these elements were combined and the items in the elements were re-analyzed as mentioned in the previous paragraph. As a result, 12 additional items were dropped from consideration. This reduced the number of elements to 46 and the number of items to 157.

The 157 remaining items were subjected to an exploratory factor analysis, with an oblique rotation, to identify factors underlying the TM construct and to aid in identifying further items for elimination. An oblique rotation, promax, with a maximum likelihood extraction method was used to consider factor loading of individual items, as it seemed reasonable that the underlying TM factors would correlate with each other. Stevens (1996) suggested that with a sample size of at least 300, loadings above .30 could be considered as significant. Nunnally and Bernstein (1994), and Floyd and Widaman

(1995), also suggest that items with factor loadings below .30 do not effectively represent the factor in question. Therefore, it was originally intended that items loading at least .30 on one factor, and at low levels (below .10) on the other factors, would be considered for use in further data analysis. However, the realities of the factor analysis dictated a change, as this rule would have forced all items to be dropped from future consideration. Thus, the retention rules were modified to: a) at least .50 on one factor and below .30 on all other factors, or b) at least .30 on one factor and relatively low (generally below .15) on all other factors. The number of factors retained was based on a scree test (Floyd & Widaman; Stevens). This was done to allow creation of subscales based on item-factor loadings with at least three items used when computing any subscales (Nunnally & Bernstein).

The results of the exploratory factor analysis (Appendix F) suggested that 57 items be retained. Based on the scree plot, six factors were retained and they accounted for 32.92% of the variance. Examination of the items retained (pattern matrix in Appendix F) suggested that the six underlying factors were Problem Solving/Goal Setting (18.84%), Organization/Reminders (4.82%), Making Changes/Wasting Time (3.01%), Breaks/Pleasure Activities (2.43%), Delegation (2.11%), and Routines/Predictability (1.71%). Appendix F also contains information on the correlations between the individual items and the retained factors (structure matrix) and correlations among the retained factors (factor correlation matrix). Items in this factor analysis, like subsequent factor analyses reported in this study, were organized by facet to determine what facets would disappear from the HTMS as a result of the EFA.

As the scree plot from these data (Appendix F) did not clearly delineate the number of factors to retain, two subsequent EFAs were run to explore the possibility of retaining a 5 (Appendix G) or 4 (Appendix H) factor solution, rather than a six-factor solution. The five factor solution would have retained 69 items and accounted for 31.15% of the variance. Examination of the items retained (pattern matrix in Appendix G) suggested that the five underlying factors were Problem Solving/Goal Setting (18.83%), Organization/Reminders (4.80%), Routines/Coping with Changes (3.00%), Delegation (2.42%), and Breaks/Pleasure Activities (2.10%).

The four factor solution would have retained 67 items and accounted for 29.01 % of the variance. Examination of the items retained (pattern matrix in Appendix H) suggested that the four underlying factors would have been Problem Solving/Goal Setting/Follow Through/Values Time (18.82%), Organization/Reminders (4.78%), Changes/Completing Activities (2.98%), and Breaks/Pleasure Activities (2.42%). As the number of factors decreased, each factor appeared to include more constructs so the 6-factor solution was retained for future use.

Unfortunately, removing 145 items in line with the decision rules listed above and following the 6-factor EFA solution, meant that 12 of the remaining TM elements would not have items assessing them in the next study. In order to avoid this, and in keeping with the goal of creating a more content valid instrument, 12 of the items were rewritten in an attempt to maintain their original content and to more effectively tap one of the identified elements. Items (1 for each of the 12 elements) with the cleanest loading were identified and rewritten to better reflect identified TM factors. The “cleanest loading”

item was identified as the one with the loadings closest to those identified in the modified item retention rules identified above, relative to the other element items entered into the EFA. The old items, new items, and relevant elements are listed in Table 4.

### *Discussion*

The first section of Study 3 results may prove somewhat misleading. It could be read as implying that items were poor in one area (e.g., low inter-item correlation), but not in the other areas considered. The reality was that an item that had problems in one area would often have problems in other areas as well. The reason provided for dropping an item from consideration reflects the first problem encountered when reviewing the statistical printout at the item and element level.

The results of the correlations between elements, leading to consideration of combining elements, proved quite surprising. In retrospect, I had expected many of the elements that focused on goals (e.g., setting short-term goals, setting long-term goals, linking short-term to long-term goals) to correlate highly enough to warrant combining them at the element level. This obviously did not occur. The results of these element level correlations only reduced the number of TM elements by 3, yielding a total of 46 elements. This suggests that, consistent with results of the literature review, there are multiple, independent skills that appear to have less than collinear relationships to each other. Thus, any future TM skills interventions that are developed on the basis of this study may need to consider carefully whether to proceed with training based on the underlying factor structure or on the basis of the rationally identified elements.

The results of the factor analysis were less surprising. Given the number of elements, and therefore items, that focus on goals and goal setting, the identification of the largest factor as related to problem solving and goal setting did not come as much of a surprise. The difference in variance explained between the first two factors (18.84% for Problem Solving/Goal Setting and 4.82% for Organization/Reminders) also was quite interesting. Future studies may focus on the relationship between these two sets of skills that, conceptually, appear closely related. Organization and reminders may be skills that prove necessary in order to engage in problems solving and the setting of goals.

The results of this study must, of course, be interpreted with caution. Although the basic psychometric properties of the items look good initially, this does not ensure that the HTMS in its 69-item format is either reliable or valid. Thus, Studies 4 and 5 will take up this issue in greater depth.

#### Study 4: HTMS Confirmatory Factor Analysis and Comparison with Other Measures

Study 4 gathered data using the 69-item HTMS and a number of other instruments. This study focused on: a) further exploration of the factor structure underlying the TM construct, as suggested by the HTMS factor structure, b) exploring convergent validity between the HTMS factor scores and other measures of TM and variables thought to related to TM skills, and c) testing the divergent validity of the HTMS factor scores by comparison to measures presumed unrelated to TM skills.

#### *Method*

##### *Participants*

403 participants (exceeding the target N of 300 suggested by Clark & Watson [1995] and Nunnally & Bernstein [1994]) were recruited from undergraduate psychology courses. 72.48% of the packets distributed for this study were returned. This set of participants was diverse in a number of areas (total Ns vary due to unreported data) including gender, females (N = 271, 67.2%) and males (N = 130, 32.3%). Participants reported ages ranged from 18 to 48 (Mean = 20.27, SD = 3.24). Participants were ethnoculturally diverse: African-American (N = 4, 1.0%), Caucasian (N=52, 12.9%), East-Asian (N=199, 49.4%), Hispanic (N=3, .7%), Mixed Ancestry (N=83, 20.6%), Pacific Islander (N=24, 6.0%), Southeast-Asian (N=30, 7.4%) and “Other” (N=1, .2%). Participants varied in relation to reported year in college (Mean = 2.24, SD = 1.37) and marital status (Single = 343, 87.8%; Cohabiting = 33, 8.2%; Married = 9, 2.2%).

##### *Materials*

Following the recommendations of Clark and Watson (1995), the packet included means to assess the convergent and divergent validity of the HTMS. All packets began with two copies of an informed consent document (Appendix I), so that participants could take one with them and return one for use in assigning course credit, and a sheet for gathering demographic information (Appendix D). The packet included measures of health-related behaviors and a measure of psychological functioning. In order to explore how the HTMS relates to other TM instruments, several TM instruments appeared in the packet. We administered a social desirability scale and a measure of obsessive-type behaviors commonly seen in the general population as additional validity measures. The demographics sheet, the already developed TM instruments, the measure of psychological symptoms, and the measures of health related behaviors provided data for convergent validity. The social desirability, sexual attitudes, obsessiveness, and religiousness measures provided data to assess divergent validity of the HTMS.

*Demographic Information.* The demographics sheet (Appendix D) gathered information on participant sex, marital status, year in school, ethnicity, and age. Participants were asked to provide the last four digits of their social security number to use in packet identification. As past research (e.g., Shumay et al., 2002) has suggested the use of some individual items for convergent validity purposes, they also appeared on this sheet. These items include cumulative grade point average and TM related self-efficacy as convergent validity indices.

*Time Management Instruments.* Six time management (TM) instruments appeared in the packet. The revised version of the HTMS, as produced after Study 3

(Appendix J), was included. Other TM instruments included were the Modified Time Management Questionnaire for Diabetes (MDTMQ; Gafarian et al, 1995; Gafarian et al, 1999; Shumay et al., 2002; Appendix K), the Lifestyle Approaches Questionnaire (LSA; Williams et al., 1992; Appendix L), the Time Management Behavior Scale (TMB; Macan et al., 1990; Macan, 1994; Macan, personal communication, November 10, 1998; Appendix M), Time Management Questionnaire (TMQ; Britton & Tesser, 1991; Appendix N), and the Time Structure Questionnaire (TSQ; Bond & Feather, 1988; Appendix O).

The MDTMQ (Gafarian et al., 1995; Gafarian et al., 1999; Shumay et al., 2002) is designed to measure general TM skills. It was modified from its earlier version by removing 10 diabetes specific items. The version considered in the Shumay et al. research, and used here, consisted of 39 items. The internal consistency for the 39 items was found to be .65 for a multiethnic sample of undergraduate students. Test-retest data is not available for the MDTMQ. Shumay et al. provided evidence for the convergent validity of the MDTMQ as correlations between the MDTMQ and scores derived from other TM instruments were all significant and ranged from .27 to .68. MDTMQ convergent validity was demonstrated via significant correlations with measures of psychological health, self-reinforcement, TM self-efficacy, flossing teeth, regular exercise, healthy diet, hours worked per week, GPA, and activity level. When subjected to an exploratory factor analysis, the results suggested an eight-factor (procrastination, written plans, knowledge, overextension, negative emotion when tasks remain unfinished, delegation, exercise and challenge) solution accounting for approximately

51% of the variance in the MDTMQ items. As some of the factors do not obviously relate to TM, and this factor structure has not been replicated, only the total score for the MDTMQ was used in this study.

The LSA was designed to measure TM in terms of self-management (e.g., procrastinating on work/study assignments, prioritizing activities and working on the most important tasks first). It consists of 22 items rated on a 5-point Likert-type scale. The 22 items break into six factors: a) Performance Focus and Efficiency, b) Goal Directedness, c) Timelines of Task Accomplishment, d) Organization of physical Space, e) Written Plans for change, and f) Verbal Support. Internal consistency reliability for the complete scale was found to be .80 (Williams et al., 1992) and .77 (Shumay et al., 2002) in two separate samples. No test-retest reliability information has been reported for the 22-item questionnaire. Construct validity was supported by significant correlations with self-efficacy, life satisfaction, sense of purpose in life, optimism, health status, and health habits (Williams et al.). Convergent validity in Shumay et al. was demonstrated via significant correlations with three other TM instruments (range: .37 - .67) and significant correlations with measures of psychological health, frequency of self-reinforcement, TM self-efficacy, social support from family, social support from friends, social support from significant others, flossing teeth, drinking less alcohol, exercising regularly, eating a healthy diet, and GPA. Williams et al. identified a six-factor solution accounting for 53% of the variance in the items: performance focus and efficiency, goal directedness, timeliness of task accomplishment, organization of physical space, written plans for change, and verbal support.

The TMB (Macan et al., 1990; Macan, 1994; Macan, personal communication, November 10, 1998) has undergone multiple revisions. It was designed to assess TM behaviors and attitudes. Factor analysis of the 1990 version suggested a four-factor solution of setting goals and priorities, mechanics, perceived control of time, and preference for disorganization. Construct validity of the 1990 version has been supported by significant correlations with role ambiguity, role overload, job satisfaction, grade point average, and job performance ratings (Macan et al.; Shahani, Weiner, & Streit, 1993). The 1994 TMB version (Macan, 1994) yielded three factors of goal setting/prioritizing (coefficient of congruence = .94), mechanics of TM (coefficient of congruence = .87), and preference for organization (coefficient of congruence = .83). This three-factor structure has been replicated (Adams & Jex, 1997).

Upon requesting a copy of the TMB for research purposes, Macan (Personal communication, November 10, 1998) provided a revised, 34-item TMB. Macan suggested that this version contained four subscales of setting goals and priorities, mechanics of TM, preference for organization, and perceived control of time. This was the 1994 version with the addition of the perceived control of time subscale, which should be considered exploratory. Reliability and validity information for this form comes from Shumay et al. (2002). Internal consistency for the total score was .90. Internal consistencies for the four subscales were .87 (setting goals and priorities), .85 (mechanics of TM), .71 (preference for organization), and .58 (perceived control of time). Test-retest information does not exist for the 1998 version. Convergent validity has been demonstrated by significant correlations between all TMB derived scores and the TSQ,

LSA, and TMQ; correlations ranged from .21 to .85). TMB derived scores correlated significantly with validity indices measuring psychological health, frequency of self-reinforcement, TM self-efficacy, breast self-exam, pap smears, flossing of teeth, healthy diet, age, gender, GPA, and activity level. Exploratory factor analysis of the TMB substantially confirmed the reliability of the identified subscales (Shumay et al.).

The TMQ (Britton & Glynn, 1989; Britton & Tesser, 1991) is an 18-item scale designed to assess TM practices among college students. Participants respond to items via a 5-point, Likert-type scale. This instrument provides three subscale scores related to short-range planning, time attitudes, and long-range planning. The authors suggest that a total score may be calculated. Internal consistency and temporal stability data are not available for the TMQ. Convergent validity for the TMQ has been demonstrated by significant correlations with GPA four years after gathering TMQ scores (Britton & Tesser) and cumulative GPA at the time that the TMQ was administered (Mpfu, D'Amico, & Cleghorn, 1996). The original version of the TMQ had 35 items (Britton & Glynn). However, two subsequent factor analyses (Britton & Tesser; Mpfu et al.) have found substantially similar factor structures with a small ( $n = 90$ ) sample of US college students and a larger ( $n = 472$ ) sample of students at a teachers' college in Zimbabwe. In both cases, the same 18 items loaded on the three subscales identified above. Given this replication, only the 18 items loading on the subscales have been retained.

The TSQ (Bond & Feather, 1988) was designed to assess the extent to which people perceive their use of time to have structure and purpose. The TSQ has 26 items answered on a 7-point Likert-type rating scale. Mudrack (1997) indicated that the TSQ

could provide five, factor-based, subscale scores: sense of purpose, structured routine, present orientation, effective organization, and persistence. Bond and Feather reported on the use of the TSQ across three undergraduate samples. The internal consistency values for the total scores were .88, .92, and .91. Shumay et al. (2002) reported internal consistency for the entire scale at .89. Bond and Feather reported that internal consistency for these five subscales ranged from .66 (present orientation) to .77 (sense of purpose). Stability across a 15-week test-retest trial for one sample was .76 (Bond & Feather). Shumay et al. reported convergent validity based on significant correlations with other measures of TM (range: .27 - .65) and significant correlations with measures of psychological health, self-reinforcement, TM self-efficacy, significant other social support, flossing teeth, seat-belt use, drinking less alcohol, eating a healthy diet, GPA, and activity level. Bond and Feather reported significant correlations between the TSQ and study habits, work methods, better general health, better psychological health, and greater optimism. Bond and Feather (1988) reported that the factor structure of the TSQ was supported by replication of a five-factor structure across three samples of undergraduate students (N1 = 336, N2 = 193, N3 = 217).

*Psychological Symptoms.* Various psychological symptoms were measured using the Brief Symptom Inventory (BSI; Derogatis & Melisaratos, 1983; Appendix P) as an index of adjustment. The BSI is a 53 item self-report instrument rated on a 5-point, Likert-type scale with values ranging from 0 to 4. According to Derogatis and Melisaratos, the BSI responses may be combined to indicate global distress using three different scores: the Global Severity Index (GSI), the Positive Symptom Distress Index

(PSDI), and the Positive Symptom Total (PST). Test-retest reliability for the global scales range from .80 (PST) to .90 (GSI). Derogatis and Melisaratos did not report on the internal consistency of the global scales. Convergent validity has been demonstrated via comparisons between BSI and MMPI subscales (Derogatis & Melisaratos). Derogatis and Melisaratos also suggested that the BSI has nine subscales. However, other researchers (e.g., Hayes, 1997; Heinrich & Tate, 1996) have argued against using the originally identified subscales. Similarly, researchers have argued that the BSI only assesses one general distress factor (Boulet & Boss, 1991). Therefore, analyses in this study only considered the global scores as indicators of general distress.

*Health Behaviors.* Health related behaviors were assessed using three scales: the Health-Promoting Lifestyle Profile II (HPLP-II; Susan Walker, personal communication, November, 2001; Appendix Q), the Personal Lifestyle Activities Questionnaire (PLQ; Brown, Muhlenkamp, Fox, & Osborn, 1983; Appendix R), and the Health Behavior Schedule-II (HBS-II; Frank, 2000; Appendix S).

The Health-Promoting Lifestyle Profile II (HPLP-II; Susan Walker, personal communication, November, 2001) is a 52-item<sup>2</sup> instrument with responses provided on a four-point scale indicating how often the respondent engages in the identified behavior. It is designed to assess health related behaviors in the domains of health responsibility, physical activity, nutrition, spiritual growth, interpersonal relations, and stress management. It represents a revision of the Health-Promoting Lifestyle Profile instrument (Walker, Sechrist, & Pender, 1987), which is no longer available for research purposes. The HPLP-II subscale scores have reportedly good internal consistency, with

coefficient alphas ranging from .79 (stress management) to .94 (total HPLP-II score). Similar internal consistency results have been obtained in a sample of homeless women (Alley, Macnee, Aurora, Alley, & Hollifield, 1998). Test-retest data is not available for this instrument. Convergent validity for the subscales and total scores has been demonstrated through correlations with single item ratings of general health (Alley et al.). Information on factor analytic studies of this instrument were not available.

The Personal Lifestyle Activities Questionnaire, also called the Personal Lifestyle Questionnaire (PLQ; Brown et al., 1983; Muhlenkamp & Brown, 1983) is a 24-item instrument assessing health-promoting activities on a 4-point scale reflecting the frequency of engaging the identified activities. Higher scores indicate engaging in more behaviors thought to positively impact health. It has six subscales of exercise, substance use, nutrition, relaxation, safety, and general health promotion. Coefficient alpha for the entire instrument was initially reported as .74, with subscale internal consistency values range from .24 to .75. However, other studies have reported higher internal consistency (.68 to .82) for the subscales when used with employed adults (Felton, Parson, & Bartoces, 1997), and .80 to .92 when used with adults with a diagnosis of Parkinson's Disease (Fowler, 1997). Three-week test-retest coefficients for the total score were reported as .88 (Brown et al.). Evidence for convergent validity comes from significant correlations with assessment of engaging in behaviors that could be considered hazardous (Muhlenkamp & Brown). Factor analysis results were not available for this scale.

The Revised Health Behavior Schedule (HBS-II; Frank, 2000) gathers self-report data on compliance for twelve common health behavior prescriptions using 12 items,

which will be used in this study. The full instrument is a 218 item self-report questionnaire designed to be administered to healthy subjects to predict risk of noncompliance toward behavioral health prescriptions, using various predictor variables derived from the revised health compliance model (Frank, 2000). Frank, Heiby, and Lee (in press) assessed the psychometric properties of the HBS-II using a multi-ethnic sample of 461 college students. The 12, Likert-type, 4-point response based compliance ratings yielded moderate internal consistency ( $\alpha = .52$ ), suggesting that compliance rates to health behaviors are not highly interrelated.

*Self-Control.* Self-control skills were measured via the Frequency of Self-Reinforcement Questionnaire (FSRQ; Heiby, 1982, 1983a; Appendix T). This is a 30-item, true-false, rationally derived instrument. The internal consistency for this instrument has been reported as .73 (Wagner, Holden, & Jannarone, 1988). Heiby (1983b) reported a split-half reliability of .87. The test-retest reliability of the FSRQ, over a two-month interval, is .92. Construct validity of the FSRQ has been supported by findings that its factor structure coincides with the self-evaluation and self-reinforcement components of self-control skills (Wagner et al.). Predictive validity has been demonstrated for depression over a five-month interval (Wong, Heiby, Kameoka, & Dubanoski, 1999).

*Compulsiveness Inventory.* The Compulsiveness Inventory (CI; Kagan & Squires, 1985; Appendix U) was designed to assess non-pathological compulsive behaviors that appear in the general populations. It is an 11-item, true-false format instrument that delivers four scores: indecision and double-checking, order and

regularity, detail and perfectionism, and a total score as a general measure of compulsiveness. Higher scores reflect greater compulsiveness. Internal consistency for the four derived scores was reported as .89, .88, .85, and .80, respectively. Information on temporal stability was not available. Convergent validity has been demonstrated between the CI and measures of compulsive eating and dieting (Squires & Kagan, 1985).

*Social Desirability.* The Marlowe-Crowne Social Desirability Scale (MCSD; Crowne & Marlowe, 1960; Appendix V) was designed to assess social desirability via self-report. It was used to assess response bias indicative of social desirability. It has also been identified, however, as a measure of need for approval (Crowne & Marlowe, 1964), as avoidance of disapproval (Crowne, 1979), and as a general measure of impression management (Paulhus, 1984). It is a 33-item, true-false format instrument. Loo and Thorpe (2000) indicated that the internal consistency for the MCSD was .72 in a sample of undergraduate students. Crowne and Marlowe (1964) indicated that the scale has a 1-month, test-retest correlation of .88. Convergent validity has been demonstrated between the MCSD scale and the MMPI validity scales (Robinette, 1991). Although psychometric evaluation has suggested that the MCSD is composed of more than one element, it is still recommended that researchers use the full scale when looking for biased responses on assessment instruments (Loo & Thorpe).

*Religiousness.* The short form of the Religiousness Value Scale from the Personal Value Scales (RS-PVS; Robinson, Shaver, & Wrightsman, 1991; Scott, 1965; Appendix W) assesses the value of religiousness through the use of a five-item scale. Items are ranked based on whether the respondent sees specific behaviors in other

individuals as always admired, always disliked, or dependent on the situation. Internal consistency (.78) and temporal stability over a two-week interval (.77) have been reported. Although a longer, 20-item form of this scale is available, the high correlation between the short and long-forms (.81) suggests that the short form is an adequate measure of this construct. Construct validity has been demonstrated by higher scores for students in seminary training than for students in the general college population. No known factor analytic studies have addressed the structure of the RS-PVS.

*Sexual Attitudes.* The Sexual Attitude Scale (SAS; Fisher & Corcoran, 1994; Hudson, 1992; Appendix X) contains 25 items, answered on a 4-point, Likert-type scale. It assesses liberalness of individual attitudes toward sexual activities. Coefficient alpha for the scale has been reported above .90. Additional information on this scale is not currently available.

#### *Procedure*

Participants were recruited from undergraduate psychology courses at the University of Hawaii, Manoa campus. Participants were told about the purpose of the research: a) to explore the relationship between TM skills and health related behaviors, and b) to create an instrument to better assess TM skills. They were asked to volunteer and told about receiving class credit for participating. Participants were asked to complete the entire packet and to return it within one week of receiving the packet.

Individuals who agreed to participate received a copy of the research packet. The packet contained the informed consent, the demographics page, and the instruments mentioned above (randomized via the use of a Latin-squares design). Participants

completed the packet on their own and returned it within a week in order to receive class credit.

### *Results*

A confirmatory factor analysis of the HTMS was conducted to determine if the model emerging from study 3 (i.e., 69 items loading on 6 correlated factors) would represent a good model fit for the data gathered from the new group of participants. This had the potential to determine if the initial factor structure would prove reliable across multiple samples.

The fit of the model was evaluated with LISREL 8.12a (Jöreskog & Sörbom, 1993) using the sample covariance matrix as input and a maximum likelihood solution. The model was statistically overidentified.

Because different fit indices are sensitive to unique artifactual influences, multiple fit indices were used to provide a conservative evaluation of the model. These indices included  $\chi^2$ ,  $\chi^2$  divided by degrees of freedom, the Goodness of Fit Index (GFI), the Comparative Fit Index (CFI), the Root Mean Square Error of Approximation (RMSEA), and the standardized Root mean Square Residual (RMR).  $\chi^2$  compares the current model to a completely independent model and a non-significant  $p$  value associated with this comparison suggests a good model fit. For  $\chi^2$  divided by degrees of freedom, values of 3 or less suggest good model fit (Kline, 1998). For the GFI and CFI, scores of .90 and above conventionally represent good model fit. RMSEA values below .08 represent acceptable fit and values at or below .05 represent good model fit. Smaller values of the

standardized RMR also indicate good model fit, with values of .05 or lower representing close fit.

The overall  $\chi^2$  test of model fit was statistically significant,  $\chi^2(2262)=5195.46$ ,  $p<.001$ ;  $\chi^2/df = 2.30$ . The RMSEA was .061. The standardized RMR was .085. The GFI was .68, and the CFI was .70. With the exception of the RMSEA and  $\chi^2/df$ , all of the fit indices suggested a poor fit of the model to the data. A review of the residuals, expected change, and modification indices suggest several changes (e.g., changing loading of item 30 from factor 4 to factor 2 and allowing certain error terms to correlate). Although these changes did improve model fit ( $\chi^2[2261]=4397.62$ ,  $p<.001$ ,  $\chi^2/df = 1.95$ , RMSEA = .058, standardized RMR = .077, GFI= .70, CFI = .72), the resulting model did not provide a good fit for the data.

Three additional CFAs were undertaken at this point in an attempt to identify a better fitting model for the current data. The first model ( $\chi^2[2272]=6098.17$ ,  $p<.001$ ,  $\chi^2/df = 2.68$ , RMSEA = .15, standardized RMR = .14, GFI= .63, CFI = .60) retained the six-factor solution suggested by the study 3 EFA, but only examined it using the items originally examined in study 3 (i.e., the rewritten items were not included). The second and third models attempted to fit a one-factor solution to the data since the first factor identified by the study 3 EFA accounted for the vast majority of the variance explained in the data. Specifically, the second model ( $\chi^2[2277]=6771.60$ ,  $p<.001$ ,  $\chi^2/df = 2.97$ , RMSEA = .075, standardized RMR = .088, GFI= .56, CFI = .53) attempted to do this with all 69 items on the HTMS and the third ( $\chi^2[2293]=7992.63$ ,  $p<.001$ ,  $\chi^2/df = 3.49$ , RMSEA = .084, standardized RMR = .16, GFI= .53, CFI = .41) attempted to fit a single

factor model to the data after removing the items rewritten in study 3. As all of these models represented poorer model fit than the first model considered using CFA, they were not retained.

At this point, it was decided to redo the exploratory factor analysis using the procedure described in study 3, but focusing on the HTMS data obtained from the 69-item instrument. The results of the exploratory factor analysis (Appendix Y) suggested that 52 items be retained. Based on the scree plot, seven factors were retained and they accounted for 40.50% of the variance. Examination of the items retained suggested that the seven underlying factors were Problem Solving/Goal Setting (22.13%), Reminders (5.52%), Not Wasting Time (4.75%), Pleasure Activities/Breaks (3.10%), Organization (1.92%), Delegation (1.72%), and Routines/Predictability (1.36%). Items cleanly loading on these factors, as indicated by the item retention rules in study 3, were combined (by taking their means) to create subscales. (The exceptions to this rule occurred where the items had a negative loading on a factor and were reverse scored before means were calculated.) Unfortunately, this meant that 10 TM facets were unrepresentative in the calculation of these subscales. Six of these facets were also removed in the study 3 EFA.

Descriptive statistics (Means, Standard Deviations, and Internal Consistency where appropriate) for the seven HTMS subscales indicated in the previous paragraph, and all validity and health indices reviewed in the materials section above, appear in Table 5. Internal consistency for the HTMS ranged from 0.63 to 0.92. Coefficient alphas for the Organization (0.65) and Delegation (0.63) were the only values to fall below 0.70. Internal consistency varied across all previously published TM instruments, including the

MDTMQ (0.76), LSA (0.24 – 0.75), TMB (0.66 – 0.82), TMQ (0.55 – 0.87), and TSQ (0.60 – 0.79).

Convergent validity of the HTMS was explored by examining the relationship between HTMS subscales and: a) scores derived from the five other TM instruments considered in this study, and b) other validity indices including self-reinforcement, TM self-efficacy, and GPA (Table 6). List-wise deletion of cases was used when considering correlations, which reduced N for this Table to 301. Due to the number of correlations considered in this Table and the relatively large N, only correlations with  $p < .001$  were considered statistically significant.

Originally, I had intended to use a Bonferoni correction to control for Type I error. However, the number of correlations assessed in Study 4 was 406. With this number of correlations and a Bonferoni correction, all correlations would have required testing at the .00012 level in order to maintain an experiment-wise Type I error rate of .05. This represented a problem because SPSS only reports p values to three decimal places. I attempted to find a correlation table that would provide correlation significance values at the  $p = .0001$  as a close approximation, but I was unable to locate such a table. As a result, I chose the  $p$  value that represented the closest approximation, provided by SPSS, to the  $p$  of .00012 and used this value throughout the remainder of the dissertation when statistical significance tests were required.

Contrary to expectations, student reported GPA correlated significantly with only one HTMS scale, Problem Solving/Goal Setting. As expected, TM self-efficacy significant correlations ranged from .320 to .475 and correlated with all HTMS subscale

scores except Pleasure Activities/Breaks and Delegation. Self-reinforcement correlated significantly with the HTMS Problem Solving/Goal Setting, Not Wasting Time, and Pleasure Activities/Breaks subscales. As expected, correlations between HTMS subscales and the five TM scales already existing varied by scale and subscale. The number of statistically significant correlations between the previously published TM scales and the HTMS subscales varied from five for the TSQ up to seven for the LSA. The absolute values of the significant correlations ranged from .195 (LSA Verbal support and HTMS Routines/Predictability) to .704 (TMB Mechanics of time management and HTMS Reminders). The lowest number of relationships between HTMS subscales and scores from existing instruments occurred for the Pleasure Activities/Breaks subscale. Only the LSA Goal Directedness subscale and MDTMQ total score correlated significantly with this HTMS subscale. Additionally, the LSA Verbal Support subscale failed to correlated significantly with any of the HTMS subscales.

Divergent validity was addressed via consideration of correlations between HTMS scores and scores on the CI, MCSD, RS-PVS, and SAS (Table 7) which were expected to prove largely unrelated to TM skills. List-wise deletion of cases was used when considering correlations, which reduced the N for this Table to 381. As mentioned, above, only correlations with  $p < .001$  were considered statistically significant. Contrary to expectations, significant correlations between the CI and the HTMS varied by CI-derived score and ranged from -.358 to .427. The CI Indecision and Double Checking score was positively related to the HTMS Organization (.427), Routines/Predictability (.299), Problem Solving/Goal Setting (.238), and Reminders (.192) subscales. The CI

Detail and Perfectionism was inversely related (-.358) to the Not Wasting Time subscale. The CI Order and Regularity was positively related to the HTMS Problem Solving/Goal Setting (.209), Reminders (.201), Organization (.299), and Routines Predictability (.234) subscales. The CI total score, a general measure of compulsiveness, was positively correlated with the HTMS Reminders (.186), Organization (.352), and Routines/Predictability factor scores. The CI general compulsiveness measure was negatively related to Not Wasting Time.

Somewhat contrary to expectations, the MCSD (which is reverse scored) correlated significantly with Problem Solving/Goal Setting (-.222), Not Wasting Time (-.374), and Organization (-.182) HTMS subscale scores. In line with expectations at the beginning of the study, none of the relationships between the HTMS subscales and the RS-PVS and SAS instruments were statistically significant.

The relationship between HTMS scores and various measures of health related behaviors, as determined by scores from the BSI, PLQ, HPLP-II, and HBS-II, were explored. Relationships between the HTMS and BSI, PLQ, and HPLP-II, all addressing general areas of physical and psychological health are presented in Table 8. Due to list-wise deletion, for this Table, the N was reduced to 380. Relationships between engaging in specific health related behaviors, as measured by the HBS-II, and HTMS factors appear in Table 8. As several of the HBS-II behaviors could not be applied (e.g., breast self-exam) to the entire sample of study 4, casewise deletion was used for these comparisons. The Ns in Table 9 range from 131 to 399 and are listed by row in Table 9.

As in previous tables from this study, only statistically significant correlations at the  $p < .001$  level were interpreted.

As expected, all four instruments assessing health-related behaviors correlated significantly with some of the HTMS subscales. The BSI global scores, measures of general psychological adjustment, correlated significantly with the HTMS Not Wasting Time (-.325 - -.342), Pleasure Activities/Breaks (-.194 - -.259), and Problem Solving/Goal Setting (-.185 - -.188). All of the HPLP-II subscales correlated with at least some of the HTMS subscales. However, this wide-ranging pattern was not seen in the PLQ where two of the 6 subscales (Exercise and Substance Use) failed to correlate significantly with any of the HTMS subscales. Additionally, the Reminders, Organization, and Delegation HTMS subscales failed to correlate with any of the PLQ subscales. On the HBS-II, the Breast Self-Exam, Exercise, and Healthy Diet items correlated significantly (.202-.233) with any of the HTMS subscales. Four of the six significant HBS-II/HTMS correlations were with the HTMS Problem Solving/Goal Setting and Not Wasting Time Subscales.

Incremental validity analyses (Haynes & Lench, in press) were undertaken to examine the improved prediction of convergent and health related variables by the HTMS over the previously existing time management instruments. This took the form of a two-step multiple regression with all subscales from the previously published TM instruments entered on step one and the HTMS subscales entered on step two. In these multiple regressions, 19 of the 31 models saw statistically significant improvements ( $p < .001$ ) in amount of variance explained by addition of the HTMS (Table 10). Statistically

significant changes in the amount of variance explained were seen on TM self-efficacy (6.1%), two of the global measures from the BSI (3.5 – 7.1%), four of the subscales from the HPLP-II (4.1% - 23.2%), three of the PLQ subscales (5.3% - 6.8%), and nine of the 12 HBS-II items (3.2% - 24.7%). The most striking results came from the Not Smoking HBS-II item where the second model accounted for 100% of the variance.

## Discussion

### *Factor Analysis*

The initial CFA results initially appeared problematic, but perhaps were not too surprising given that the initial model was based on the larger version of the HTMS considered in the EFA for study 3. The subsequent CFAs, surprisingly, represented even poorer fit than the originally suggested model. In relation to the revised six-factor model, only considering items retained in the study 3 EFA, this may suggest that some of the rewritten items assessed their relevant factors. In relation to the one-factor models, the improved fit of the original 6-factor model over both single factor models provides some support for the use of HTMS subscales. Unfortunately, the relatively poor fit of the initial, six-factor CFA did not support the use of these factors as defined in this model. Thus, the EFA became necessary to further explore the factor structure underlying the HTMS.

The EFA in study 4 largely produced factors that were conceptually similar to those identified in study 3, with the exception of splitting into two factors the Organization/Reminders factor from study 3. This splitting may explain why the CFA

produced such poor fit indices, in spite of the relatively good factor loadings suggested for most of the individual items in relation to their study 4 subscales.

The study 4 EFA had the unintended effect of removing 10 TM elements from the HTMS subscale calculations, which means that the HTMS subscale scores did not include all TM elements identified in earlier studies. Six of these elements (low anxiety when schedule changes, low anger when schedule changes, organizes tasks by preference, balancing solitary and group time, sets clothing out nightly, and writes down ideas) were also eliminated as a result of the study 3 EFA. This may suggest that my rewriting of these items failed to associate them cleanly with the factors identified or it may suggest that these literature-suggested elements of TM may not relate to the TM super-construct. Future studies may explore this further by considering the relationship between element scores and TM validity indices. This could provide more evidence about the appropriateness of including these elements in the definition of the TM construct. Alternately, future studies could return previously removed TM items, perhaps some of the items removed during the SME review, to the HTMS and repeating the EFA to determine if the items would load on any of the identified factors. Finally, it might prove beneficial to explore the psychometric properties of the HTMS total score as a way to work with a TM instrument/score based on all literature review based elements of the TM construct.

The dropping of the 10 elements from the final HTMS had the unintended impact of changing the definition of TM assessed in the current study. Approximately 24% of the TM elements were not included in HTMS subscale calculations. Thus, the TM

definition targeted in HTMS creation is not completely sampled. For example, the dropping of the items removed the TM elements with clearly emotional content (i.e., boredom, anxiety, anger).

*Reliability*

The Study 4 EFA identified factors, for the most part, appeared conceptually similar to factors identified on the basis of the Study 3 EFA. Thus, the factor structure underlying the HTMS appears somewhat reliable across multiple samples.

The analysis of internal consistency reliability indicated that HTMS internal consistency ranged from .63 (Delegation) to .92 (Problem Solving/Goal Setting). As a rule, internal consistency of .70 or greater is generally considered acceptable. Thus, all HTMS scales except delegation and organization had acceptable internal consistency. It should be noted, however, that both of these scales were quite short and coefficient alpha is strongly impacted by scale length (e.g., the Delegation subscale was only 3 items in length). Thus, future research on this scale may have the potential to improve this subscale by increasing its length.

In consideration of these low HTMS internal consistency values it should also be noted that several of the previously published TM instruments had internal consistency values that were lower than those obtained on the HTMS in Study 4 and in previously published studies. The MDTMQ value reported in the methods section was 0.65 and the internal consistency from the current study was 0.76. This value fell at approximately the midpoint for the HTMS. Previously published internal consistency information on the LSA (entire instrument only) ranged from .77 - .80. LSA internal consistency values for

calculated subscales in Study 4 ranged from .24 to .72. Previously published TMB subscale values ranged from .58 to .87 and the current internal consistency values ranged from 0.66 to 0.82. The TMQ had no previously published internal consistencies, but the current values ranged from 0.55 to 0.87. Finally, previously published TSQ internal consistency values ranged from 0.66 to 0.77, and from 0.60 to 0.79 in the current study. Thus, the HTMS appears to have internal consistency reliability that is comparable to many of the previously published TM instruments.

#### *Convergent Validity*

In light of past research regarding relationships between various variables and TM (e.g., Shumay et al., 2002), three variables were considered as convergent validity indices for the HTMS: GPA, TM self-efficacy, and self-reinforcement (FSRQ). Only the HTMS Problem Solving/Goal Setting subscale correlated significantly with GPA. This was somewhat surprising as the combination of skills represented by other HTMS subscales (e.g., Reminders, Organization, Routines/Predictability) have face validity for improved school performance. However, the size of the significant correlation obtained was similar to those found in Shumay et al.. Thus, only a subset of TM skills appeared related to GPA.

TM self-efficacy was related to all HTMS subscales except Pleasure Activities/Breaks and Delegation. This may reflect the fact that many individuals do not see Breaks as an effective way of managing time, in the first case, and delegation as related to how other individuals manage their time. Thus, these relationships provide some support for the validity of the HTMS. The lack of a conceptual tie between

Pleasure Activities/Breaks and TM skills in general may explain why this HTMS subscale did not correlate with existing TM instrument scores.

Self-reinforcement, as measured by the FSRQ, correlated significantly with three of the HTMS subscales (Problem Solving/Goal Setting, Avoiding Not Wasting Time, and Pleasure Activities/Breaks). This was somewhat reassuring, as the self-reinforcing properties of subscales such as Delegation, which focuses on what one asks other to do, have no obvious relationship to self-reinforcement.

Five of the HTMS factor-analytic derived subscales correlated significantly with at least 16 of the scores derived from previously published TM instruments. This provides support for the HTMS Problem solving/Goal Setting, Reminders, Avoiding Not Wasting Time, Organization, and Routines/Predictability subscales as measures of TM skills. With one exception, these correlations were not large enough to indicate a collinear situation, which suggests that these HTMS subscales measure something unique about TM that has not been tapped by previous instruments.

The one exception to this was the correlation between the HTMS Reminders Subscale and the TMB Mechanics of Time Management subscale. This high correlation suggests that the HTMS reminders subscale adds nothing to our understanding of TM beyond that provided by the TMB in this area. Interestingly, this implies that the TMB subscale does not include organization, delegation, or routines as part of the Mechanics of TM and focuses primarily on Reminders. Thus, the TMB may have a definition that is too limiting for some applications.

The HTMS Delegation subscale only correlated significantly with six scores derived from already published TM instruments. None of these correlations exceeded an absolute value of .232. This suggests that many existing TM instruments do not take delegation into account. This position is supported by Table 3, which indicates that only the MDTMQ includes items that clearly assess delegation.

Finally, the HTMS Pleasure Activities/Breaks subscale only correlated with the LSA Goal Directedness subscale. This was initially surprising until the Shumay et al. (2002) results were revisited. Taking breaks was one of the areas that none of the published TM instrument items assessed. Only one of the published instruments, the MDTMQ, included an item to assess the Engaging in Pleasure Activities TM element. Thus, it may be more surprising that any of the scores derived from published TM instruments correlated with this subscale, rather than that so few had significant correlations. This implies that if Pleasure Activities/Breaks continues to receive support as an area of TM skills, many of the published instruments have large gaps in relation to content validity.

#### *Divergent Validity*

The divergent validity of the HTMS was supported by a lack of significant correlations with sexual (SAS) and religious (RS-PVS) attitudes. No past research, or *a priori* hypotheses suggested a relationship between these concepts and time management. However, the divergent validity of the HTMS did not receive as much support from measures of compulsiveness and avoidance of disapproval.

A review of Shumay et al. (2002) BSI subscale scores (Table 2), in relation to TM scored, suggested significant inverse relationships (-.21 - -.47) existed between the Obsessive-Compulsive BSI subscale and all of the TM instruments considered in this study. Thus, the choice of the CI as a measure of divergent validity for the HTMS appears ill conceived. Interestingly, the correlations between the HTMS and the CI were not consistently significant. The CI order and regularity subscale was inversely correlated with the HTMS Not Wasting Time subscale. The number, and direction, or correlations suggests that general compulsiveness is related to time management. In retrospect, perhaps, this should not appear too striking as indecision, order, and regularity all appear, in some form, as elements within the TM construct. Interestingly, no measure of compulsiveness was related to the HTMS Pleasure Activities/Breaks or Delegation subscale scores. Thus, compulsiveness appears related only to some areas of TM skills. This, plus the inverse relationship between the CI Detail and Perfectionism and CI Total scores and HTMS Not Wasting Time Subscale could suggest that only some forms of compulsiveness are antithetical to effective TM skills because they encourage individuals to waste time. This could also suggest that a curvilinear or nonlinear relationship exists between compulsiveness and TM. For example, too little or too much compulsiveness could interfere with the use of TM skills. Unfortunately, most of the CI subscales provide a very limited range of potential values so these possible relationships cannot be explored with the current data set.

Correlations between the MCSD and HTMS scale scores suggest that avoidance of disapproval encourages the use of some areas of TM skills (Problem Solving/Goal

Setting, Not Wasting Time, and Organization), but not others (Reminders, Pleasure Activities/Breaks, Delegation, and Routines/Predictability). The strongest relationship appears between Not Wasting Time and avoidance of disapproval. Thus, avoidance of disapproval, like compulsiveness, may play a role in encouraging the use of TM skills.

*Health Related Measures*

In past examinations of the relationship between psychological health, as measured by the BSI, and TM skills, better time management skills were related to lower levels of psychological symptoms (-.19 - -.45; Shumay et al., 2002). Statistically significant correlations in the current study supported the existence of such a relationship, but only for Problem Solving/Goal Setting, Not Wasting Time, and Pleasure Activities/Breaks. The Not Wasting Time subscale may reflect a tendency of people with fewer psychological symptoms to have less “down time” in their day, whereas the Pleasure Activities/Breaks may reflect a lower level of stress and, thus, lower levels of psychological symptoms.

Three instruments assessed behaviors related to general and physical health: HPLP-II, PLQ, and HBS-II. The vast majority of the correlations, 32 of 49, between the HPLP-II and the HTMS were significant. All HTMS subscales correlated significantly with the HPLP-II Health Promoting Lifestyle subscale. Together, these facts suggest that all areas of TM skills are related to a generally healthy life as assessed by this instrument. Several additional areas of note are stress management, nutrition, and physical activity subscales from the HPLP-II. Physical activity was significantly correlated with the HTMS Problem Solving/Goal Setting and Not Wasting Time. Nutrition was related to

Problem Solving/Goal Setting and Routines Predictability. Stress Management, which may explain part of the relationship between TM and health, correlated significantly with Problem Solving/Goal Setting, Not Wasting Time, and Routines/Predictability. Thus, results from the HPLP-II support the idea that TM skills are related to health related behaviors and lifestyles.

The support from the PLQ was not as consistent. None of the HTMS subscales correlated significantly with the PLQ Exercise or Substance Use subscales. The PLQ Nutrition, subscale correlated significantly with the HTMS Problem Solving/Goal Setting, Not Wasting Time, and Routines/Predictability HTMS subscales. Two of these parallel results from the HPLP-II. The PLQ Relaxation subscale, like the HPLP-II Stress Management subscales, correlated significantly with Problem Solving/Goal Setting and Pleasure Activities/Breaks. Again, support was provided for a relationship between TM skills and health (or health-related behaviors), but the patterns were not as consistent. The explanation for the difference in patterns of significant correlations, most surprisingly for the PLQ Exercise subscale, remains unclear. The PLQ is a shorter instrument, but contains items that are quite similar to those on the HPLP-II. It may be that since the HPLP-II assesses a broader range of health-related activities, participants were more likely to find some portion of the subscale to endorse as an ongoing portion of their lifestyle.

Finally, the HBS-II was used to assess relationships between TM skills and health-related behaviors. This instrument was previously used in Shumay et al. (2002) and significant correlations were found between previously published TM instruments

and breast self-exam, pap-smear, flossing teeth, seat-belt use, less alcohol consumption, regular exercise, and healthy diet. In the current sample, significant correlations were found between the HBS-II and breast self-exam (Problem Solving/Goal Setting and Organization subscales), exercise (With the Not Wasting Time subscale), and healthy diet (Problem Solving/Goal Setting, Not Wasting Time, and Routines/Predictability). The correlations in relationships with the HBS-II, especially exercise and healthy diet, parallel those found in the current study with the conceptually similar HPLP-II and PLQ subscales, although HBS-II results are based on single item responses. However, the support for a wide-ranging relationship between healthy behaviors, as measured by the HBS-II, and TM skills was not as widespread in the current study as in the Shumay et al. work. The reasons for this remain unclear. Future studies on the relationships between measures of healthy behaviors may aid in clarifying the differences across measures of health related behaviors. The results of the current study may support the use of more comprehensive instruments, with multiple items assessing each area of health, over the use of less comprehensive instruments as the pattern of relationships became clearer when more comprehensive measures of health were used.

#### *Incremental Validity*

The HPLP-II incremental validity results suggested increases in amounts of variance explained when comparing the HPLP-II to previously published TM instruments. The improvements were largely associated with measures of psychological adjustment and physical health. This suggests that the HTMS has tapped something not assessed by previously developed instruments. The most surprising results come from

the HBS-II Not Smoking item where the second model accounted for all of the variance. The reason for this remains unclear and, I suspect, may be unreplicable in future studies. However, it does seem appropriate to further explore this issue by considering the predictive validity of the HTMS and previously published TM instruments to predict smoking behavior over time.

Study 4 examined the reliability of the HTMS factor structure, the internal consistency of the HTMS subscales, the convergent validity of the HTMS, the divergent validity of the HTMS, and the relationship of the HTMS to measures of health. The exploratory factor analysis conducted in study 4 largely reproduced the factor structure identified in study 3. Examination of convergent validity between the HTMS and other TM instruments suggested that the HTMS did assess TM skills, and assessed areas not considered by previously developed instruments. This seems to provide some support for the increased utility of the HTMS as a more content valid instrument. Significant correlations between the HTMS and GPA, TM self-efficacy, and health related behaviors also support the convergent validity of the HTMS. Evidence for the divergent validity of the HTMS was mixed. The HTMS had no relationship with measures of religious or sexual attitudes, which supports its divergent validity. However, it was related to compulsiveness and social desirability. This may be based, in the case of compulsiveness, on a poor choice of instruments as some of the CI subscales were conceptually similar to TM elements used to guide HTMS item creation.

Finally, this study provided additional evidence for a relationship between TM skills and health-related behaviors. This was rewarding as none of the currently

dominant models of adherence include TM skills as an important variable. Future studies should start to consider additional health-related variables, already present in adherence models, which may be related to TM skills so that current models may be modified to take these findings into account.

An interesting weakness should be raised in the consideration of study 4.

Although questions of validity have been addressed, traditional measurement theory emphasizes that validity is limited by the reliability of an instrument. Study 4 addressed the internal consistency reliability of the HTMS, but did not address the test-retest reliability of this instrument. Thus, study 5 takes up this question.

### Study 5: HTMS Test-Retest Reliability

Multiple approaches have been suggested to explore the reliability of a measurement instrument. This study was designed to address temporal stability (i.e., test-retest reliability), as temporal stability is a requirement for predicting future behaviors on the basis of current knowledge. A subsection of the participants from study 4 were asked to complete the packet again in order to gain data for this study.

#### *Method*

##### *Participants*

120 participants from Study 4 were initially asked to complete the research packets with the understanding that they would complete it a second time. Of these 120 participants, 69 completed and returned the packet twice. This represented a response rate of 57.5%. This set of 69 participants was diverse in a number of areas, including gender, females (N = 54, 79.9%) and males (N = 15, 20.3%). Participants reported ages ranged from 19 to 48 (Mean = 22.12, SD = 3.93). Participants were ethno-culturally diverse: African-American (N = 2, 2.9%), Caucasian (N=9, 13.0%), East-Asian (N=34, 49.3%), Hispanic (N=, 1.4%), Mixed Ancestry (N=12, 17.4%), Pacific Islander (N=6, 8.7%), Southeast-Asian (N=4, 5.8%) and “Other” (N=1, 1.4%). Participants also varied in relation to reported year in college (Mean = 3.72, SD = .82) and marital status (Single = 59, 87.0%; Cohabiting = 8, 8.7%; Married = 2, 4.3%).

### *Materials*

The materials used in study 5 were almost identical to those described in Study 4. The only changes occurred to the informed consent (Appendix Z), which reflected the request to complete the packet twice.

### *Procedure*

Participants were recruited from undergraduate psychology courses at the University of Hawaii, Manoa campus. Participants were told about the purpose of the research: a) to explore the relationship between TM skills and health related behaviors, and b) to create an instrument to better assess TM skills. They were asked to volunteer and told about receiving class credit for participating in both portions of the study. Participants were asked to complete the entire packet, twice, with a three-week time span between receipts of packets.

Individuals who agreed to participate received two copies of the research packet with three weeks passing between each administration. The packet contained the informed consent, the demographics page, and all the instruments mentioned in the materials section of study 4 (randomized via the use of a Latin-squares design). Participants completed the packet on their own and returned it within a week, each time it was administered, in order to receive class credit.

### *Results*

A second administration of the entire research packet provided the basis for test-retest analysis of the originally identified HTMS scales. In addition, test-retest values were calculated for the previously published TM instruments in order to provide a basis

for comparison and interpretation of the HTMS results. List-wise deletion was used in consideration of test-retest reliability. This allowed comparison of these correlations across all TM scales used in this study and reduced the N to 52. Table 11 contains test-retest information on all TM instruments considered and descriptive information (means and standard deviations) for both the first and second administrations of these scales. As in past tables, test-retest correlations with  $p < .001$  are indicated.

Test-retest values for the HTMS subscales ranged from .416 to .731. Two of the correlations, Problem Solving/Goal Setting and Delegation, failed to reach significance at the .001 level. These two subscales also had the largest changes, in standard deviation units, between the two measurement times. The Problem Solving/Goal Setting subscale mean decreased by .08 standard deviation units and the Delegation subscale increased by .11 standard deviation units. Statistically significant HTMS test-retest correlations ranged from .574 to .731. Statistically significant test-retest correlations, ranging from .547 to .895, were found for most scores derived from previously published instruments. The exception to this was the LSA Verbal Support Subscale ( $r = .441, p > .001$ ).

Given the poor test-retest reliability of the Problem Solving/Goal Setting subscale, and the high internal consistency for this subscale in Study 4, a post-hoc analysis of individual difference scores on this scale was conducted. With one exception, difference scores between the two measurement times ranged from -.84 to 1.00. One respondent, however, had a difference score of 3.57. When this person's data was removed and the test-retest correlations were recalculated, the test retest correlation for the Problem Solving/Goal Setting HTMS subscale was significant ( $r = .751, p < .001$ ).

On the basis of the poor temporal stability of the Delegation subscale, an individual differences score was also calculated for this subscale. Values ranged from – 2.33 to 1.67 with no obvious outliers. Thus, an additional analysis was undertaken to explore the test-retest reliability of the individual items making up this subscale (items 25, 49, and 66). List-wise deletion of items reduced the N for the correlations to 67. The test-retest correlations for items 25 ( $r = .415, p < .001$ ) and 49 ( $r = .465, p < .001$ ) were both significant. However, the test-retest reliability for item 66 failed to reach significance ( $r = .072, p = .560$ ).

#### *Discussion*

Overall, all of the TM scales considered in this study demonstrated acceptable test-retest reliability. The HTMS initially demonstrated acceptable temporal stability for all subscales, except Problem Solving/Goal Setting and Delegation subscales. The lack of temporal stability for the Problem Solving/Goal Setting scale disappeared when one outlier was removed. This suggested that the scale, as a whole, was temporally stable (contrary to the initial results).

The lack of temporal stability on the Delegation subscales could have implied several possibilities, once the presence of an outlier was ruled out. First, this subscale may not remain stable over time. This may occur because people spend less, or more, time on the relevant TM skills in relation to what is happening in their lives. Due to the nature of scheduling for data collection, most participants turned in the second set of data for study 5 on the last two class days before finals. This stress associated with this portion of the semester may have had a disproportionate impact on the TM skills

measured by this subscale, perhaps because it become harder to delegate as the time of finals approached. This could explain why the test-retest value for the subscale failed to reach statistical significance. The fact that the follow-up analysis found a problem with only one item, however, could imply either that this item is particularly sensitive to such environmental stressors or that the item itself is poorly written. These possibility could be explored in future studies by varying the length of time between test and retest administrations, examining test-retest reliability of this subscale at both the scale and item level, and by using a measure of experienced stress as a covariate.

Second, the delegation subscale may not be particularly “clean.” Future research may suggest that the Delegation subscale does not exist separately from the other HTMS subscales or that the scale is simply too short to be a reliable measure of this construct (which may be likely given this subscale’s low internal consistency in Study 4). Studies on additional populations, using CFA or EFA based approaches, could prove helpful in further exploration of these possibilities.

### Conclusion

In order to effectively explore the relationship between TM, psychological adjustment, and engaging in health-related behaviors, a new TM instrument was required. This need was identified in Shumay et al. (2002) that noted the lack of a content valid measure of TM. Specifically, none of the published instruments examined in that study, or since, assessed more than 2/3rds of the identified TM elements.

Thus, this dissertation set out to create a TM instrument that would be content valid for all identified TM elements and to have acceptable reliability, and convergent and divergent validity. This goal was partially fulfilled in the current study. The final version of the HTMS lacked items reflecting 10 of the TM elements maintained into study 4 (Low Anxiety When Schedule Changes, Low Anger When Schedule Changes, Not bored, Organizes Tasks by Preference, Handling Incoming Information, Balancing Solitary and Group Time, Makes lists/Environmental Cues, Sets Clothing Out Nightly, Writes Down Ideas, Manages Meetings). Thus, the final version contained items reflecting 78.26% of the identified TM elements. Interestingly, six of these elements (Low Anxiety When Schedule Changes, Low Anger When Schedule Changes, Organizes Tasks by Preference, Balancing Solitary and Group Time, Sets Clothing Out Nightly, Writes Down Ideas) were also removed on the basis of the EFA in study 3. Thus, future research should consider the possibilities that these elements were removed either as a result of poor item creation or as a result of an over inclusive TM construct definition. If it was the second explanation, then the definition of the TM construct, rather than the HTMS, will need additional revision. The reduction of the number of elements from 49

to 46, based on the results from study 3, certainly suggests that such revisions may be necessary. A consideration of a total score from the HTMS, as it emerged from study 3, would have forced consideration of the HTMS as a 100% content valid measure of TM skills. However, this goes beyond the limits of this dissertation, as originally proposed. It may be explored in future studies once a better determination of the TM construct definition is reached.

Future studies should concern additional revision of the HTMS. This would have two primary goals. First, future studies should add items to the HTMS in order to assess all currently identified TM elements. Second, future studies should focus on rewriting items that have poor temporal stability (e.g., item 66 identified in study 5) in order to improve the reliability of the instrument as a whole.

One goal of these five studies was to create a reliable and valid measure of TM skills. Study 4 and 5 results suggested that the HTMS was generally reliable. The reliability was supported by subscale coefficient alpha values that, with one exception, exceeded .70. Test-retest reliability was significant for the majority of the HTMS scales. Internal consistency and temporal stability reliability was unacceptably low for the Delegation subscale. Improvements in this subscale may come from additional items that assess this TM factor. Future research may identify this as an area of TM skills that are strongly influenced by environmental demands. The underlying TM factor structure remained consistent across studies 3 and 4. This also supports the reliability of the HTMS as a whole.

The results of study 4 supported the validity of the HTMS. Convergent validity was well supported when considering variables including GPA, TM self-efficacy, and existing measures of TM skills. Divergent validity was supported by a lack of significant relationships with sexual attitudes and religious values. Evidence for divergent validity in relation to compulsiveness and social desirability was mixed. The CI appears to have been poorly chosen, as several areas assessed by this instrument are conceptually similar to the TM elements used to guide item creation. If future studies continue to support this relationship, then it may make sense to add compulsiveness to the list of variables related to TM.

Finally, this dissertation also supported the relationship between TM skills and measures of health. Not Wasting Time, Pleasure Activities/ Breaks, and Problem Solving/Goal Setting were all related to psychological health. Future research should consider the possibility that these relationships may be moderated by stress. Specifically, people who use time management skills may experience less stress and, as a result, appear to have (or, by definition, have) better psychological adjustment. Each of the HTMS subscales were related to different measures of health related behaviors and all of the HTMS subscales were related to general health as measured by the HPLP-II Health Promoting Lifestyle subcale. Again, future studies should consider the impact of stress on these relationships.

The HTMS Problem Solving/Goal Setting factor accounted for the most variance in the two EFAs run as part of this study. This subscale also appeared to have the best internal consistency and, after dropping one outlier, the best temporal stability of the

HTMS subscales considered. This subscale also had decent convergent validity support, relative to the other subscales. It was the only subscale to correlate significantly with GPA and it correlated with 19 of the health-related indices considered in study 4. Thus, this subscale appears to have the best validity and reliability support of the HTMS subscales considered.

Given the support for this subscale, it may prove a good starting point for future time management training and treatment interventions. It certainly suggests that the processes of goal setting and problem solving are interrelated and should not be ignored when conducting time management training. If future studies also support the importance of these ideas, they may form the primary focus of such interventions.

This dissertation, like any study, suffered from several limitations. First, the instruments used were all self-report. Information gathered from informants and direct observation (e.g., behavioral products) could impact the strength of relationships seen in this study. Second, the samples providing data were multi-ethnic and, one could generally assume, dwelling in Hawaii. Future studies should explore the generalizability of the HTMS, and its relationship to individuals living in other portions of the world. Third, the participants in these studies, especially studies 3, 4, and 5, were largely members of “minority” groups (relative to the population of the United States as a whole). Future studies can address this weakness by examining the reliability of findings across ethno-cultural groups located in other parts of the United States. Finally, future studies also need to address the TM construct definition revision and continue work toward development of a TM measure that assesses all TM elements. Fourth, the

participants in these studies were relatively homogenous in relation to age, primarily ages 18-22, and (one could presume) primarily full-time students. Individuals at other points in their lives might respond differently, as suggested by past studies indicating a relationship between TM and age. Thus, future studies may expand exploration of the relationships seen here to include other age groups and people in multiple careers. For example, it seems reasonable to assume that self-employed individuals would show better time management skills than those that work in generally less self-guided positions.

References

- Adams, G. A., & Jex, S. M. (1997). Confirmatory factor analysis of the time management behavior scale. *Psychological Reports, 80*, 225-226.
- Adams, G. A., & Jex, S. M. (1999). Relationships between time management, control, work-family conflict, and strain. *Journal of Occupational Health Psychology, 4*, 72-77.
- Ajzen, I., & Madden, T. J. (1986). Prediction of goal-directed behavior: Attitudes, intentions, and perceived behavioral control. *Journal of Experimental Social Psychology, 22*, 453-474.
- Alley, N., Macnee, C., Aurora, S., Alley, A., & Hollifield, M. (1998). Health promotion lifestyles of women experiencing crises. *Journal of Community Health Nursing, 15*, 91-99.
- Barling, J., Cheung, D., & Kelloway, E. K. (1996). Time management and achievement striving interact to predict car sales performance. *Journal of Applied Psychology, 81*, 821-826.
- Biswas, U. N. (2000). A scale for measuring time management of professionals. *Psychological Studies, 45*, 90-95.
- Bond, M. J., & Feather, N. T. (1988). Some correlates of structure and purpose in the use of time. *Journal of Personality and Social Psychology, 55*, 321-239.

- Bost, J. M. (1984). Retaining students on academic probation: Effects of time management peer counseling on students' grades. *Journal of Learning Skills, 3*, 38-43.
- Boulet, J., & Boss, M. W. (1991). Reliability and validity of the brief symptom inventory. *Psychological Assessment, 3*, 433-437.
- Britton, B. K., & Glynn, S. M. (1989). Mental management and creativity: A cognitive model of time management for intellectual productivity. In J. A. Glover, R. R. Ronning, and C. R. Reynolds (Eds.), *Handbook of Creativity* (pp. 429-440). New York, NY: Plenum Press.
- Britton, B. K., & Tesser, A. (1991). Effects of time-management practices on college grades. *Journal of Educational Psychology, 83*, 405-410.
- Brown, N., Muhlenkamp, A., Fox, L., & Osborn, M. (1983). The relationship among health beliefs, health values, and health promotion activity. *Western Journal of Nursing Research, 5*, 155-163.
- Clark, L. A., & Watson, D. (1995). Constructing validity: Basic issues in objective scale development. *Psychological Assessment, 3*, 309-319.
- Crowne, D. P. (1979). *The experimental study of personality*. Hillsdale, NJ: Erlbaum
- Crowne, D. P., & Marlowe, D. (1960). A new scale of social desirability independent of psychopathology. *Journal of Consulting Psychology, 24*, 349-354.
- Crowne, D. P., & Marlow, D. (1964). *The approval motive*. New York: Wiley.
- Derogotis, L. R., & Melisaratos, N. (1983). The brief symptom inventory: An introductory report. *Psychological medicine, 13*, 595-605.

- Eifert, G. H., & Evans, I. M. (1990) (Eds.). *Unifying behavior therapy: Contributions of paradigmatic behaviorism*. New York, NY: Springer.
- Felton, G. M., Parson, M. A., & Bartoces, M. G. (1997). Demographic factors: Interaction effects on health-promoting behavior and health related factors. *Public Health Nursing, 14*, 361-367.
- Fischer, J., & Corcoran, K. (1994). *Measures for Clinical Practice: A Sourcebook*. New York, NY: The Free Press.
- Floyd, F. J., & Widaman, K. F. (1995). Factor analysis in the development and refinement of clinical assessment instruments. *Psychological Assessment, 7*, 286-299.
- Fowler, S. B. (1997). Hope and a health-promoting lifestyle in persons with Parkinson's diseases. *Journal of Neuroscience Nursing, 29*, 111-116.
- Francis-Smythe, J. A., & Robertson, I. T. (1999). On the relationship between time management and time estimation. *British Journal of Psychology, 90*, 333-347.
- Frank, M. R. (2000). Psychometric evaluation of the health behavior schedule—II for compliance with behavioral health regimens. (Masters thesis, University of Hawaii, 2000). Masters Abstracts International.
- Frank, M. R., Heiby, E. M., & Lee, J. H. (in press). Assessment of determinants of compliance to twelve health behaviors: Psychometric evaluation of the revised health behavior schedule. Manuscript submitted for publication. *Psychological Reports*.

Gafarian, C. T., Heiby, E. M., Blair, P., Galagan, R., & singer, F. (1995, February).

Psychometric evaluation of the Daily Diabetes Activity Schedule. Poster presentation at the Hawaii Psychological Association annual convention, Honolulu, HI.

Gafarian, C. T., Heiby, E. M., Blair, P., & Singer, F. (1999). The diabetes time management questionnaire. *Diabetes Educator, 25*, 585-592.

Gortner Lahmers, A., & Zulauf, C. R. (2000). Factors associated with academic time use and academic performance of college students: A recursive approach. *Journal of College Student Development, 41*, 544-556.

Hall, B. L. (1982). An evaluation of the effects of a time management training program on work efficiency. *Journal of Organizational Behavior Management, 3*, 73-96.

Hall, B. L., & Hursch, D. E. (1981). An evaluation of the effects of a time management training program on work efficiency. *Journal of Organizational Behavior Management, 3*, 73-96.

Hanel, F., Martin, G., & Koop, S. (1983). Field testing of a self-instructional time management manual with managerial staff in an institutional setting. *Journal of Organizational Behavior Management, 4*, 81-96.

Hayes, J. A. (1997). What does the brief symptom inventory measure in college and university counseling center clients? *Journal of Counseling Psychology, 44*, 360-367.

Haynes, S. N., & Lench, H. (in press). *Incremental validity of new clinical assessment measures*. Psychological Assessment.

- Heiby, E. M. (1982). A self-reinforcement questionnaire. *Behaviour Research and Therapy*, 20, 397-401.
- Heiby, E. M. (1983a). Assessment of frequency of self-reinforcement. *Journal of Personality and Social Psychology*, 44, 1304-1307.
- Heiby, E. M. (1983b). Toward the predication of mood change. *Behavior therapy*, 14, 110-115.
- Heinrich, R. K., & Tate, D. G. (1996). Latent variable structure of the brief symptom inventory in a sample of persons with spinal cord injuries. *Rehabilitation Psychology*, 41, 131-147. Heinrich & Tate, 1996
- Holden, R. R., & Fekken, G. C. (1990). Structured psychopathological test item characteristics and validity. *Psychological Assessment: A Journal of Consulting and clinical Psychology*, 2, 35-40.
- Hudson, W. W. (1992). The WALMYR Assessment Scales Scoring Manual. Tempe, AZ: WALMYR Publishing Co.
- Jex, S. M., & Elacqua, T. C. (1999). Time management as a moderator of relations between stressors and employee strain. *Work and Stress*, 13, 182-191.
- Jöreskog, J.D., & Sörbom, D. (1993). *LISREL 8.12a: Users' reference guide*. Chicago, IL: Scientific Software.
- King, A. C., Winett, R. A., & Lovett, S. B. (1986). Enhancing coping behaviors in at-risk populations: The effects of time-management instructions and social support in women from dual-earner families. *Behavior Therapy*, 17, 57-66.

- Kleijn, W. C., Van der Ploeg, H. M., & Topman, R. M. (1994). Cognition, study habits, test anxiety, and academic performance. *Psychological Reports, 75*, 1219-1226.
- Klein, R. B. (1998). *Principles and practices of structural equation modeling*. New York: The Guildford Press.
- Lakein, A. (1973). *How to get control of your time and your life*. New York: The New American Library.
- Lang, D. (1992). Preventing short-term strain through time-management coping. *Work and Stress, 6*, 169-176.
- Lay, C. H., & Schouwenburg, H. C. (1993). Trait procrastination, time management, and academic behavior. *Journal of Social Behavior and Personality, 8*, 647-662.
- Loo, R., & Thorpe, K. (2000). Confirmatory factor analyses of the full and short versions of the marlowe-crowne social desirability scale. *The Journal of Social Psychology, 140*, 628-635.
- Macan, T. H. (1994). Time management: Test of a process model. *Journal of Applied Psychology, 79*, 381-391.
- Macan, T. H., Shahani, C., Dipboye, R. L., & Phillips, A. P. (1990). College student's time management: Correlations with academic performance and stress. *Journal of Educational Psychology, 82*, 760-768.
- Maher, C. A. (1981). Time management training for school psychologists. *Professional Psychology, 12*, 613-620.
- Marlatt, G. A. (1985). Relapse prevention: Theoretical rationale and overview of the model. IN G. A. Marlatt, & J. R. Gordon (Eds.), *Relapse Prevention:*

- Maintenance strategies in treatment of addictive behaviors* (pp. 3 – 70). New York: Guilford Publishing.
- McConalogue, T. (1984). Developing the skill of time management. *Leadership and Organizational Development Journal*, 5, 25-27.
- McLaughlin, M., Cormier, L. S., & Cormier, W. H. (1988). Relation between coping strategies and distress, stress, and marital adjustment of multiple-role women. *Journal of Counseling Psychology*, 35, 1988, 187-193.
- Minifee, M., & McAuley, E. (1998). An attribution perspective on African-American adults' exercise behavior. *Journal of Applied Social Psychology*, 28, 924-936.
- Mpofu, E., D'Amico, M., & Cleghorn, A. (1996). Time management practices in an African culture: Correlates with college academic grades. *Canadian Journal of Behavioural Science*, 28, 102-112.
- Mudrack, P. E. (1997). The structure of perceptions of time. *Education and Psychological Measurement*, 57, 222-240.
- Muhlenkamp, A. F., & Brown, N. J. (1983). The Development of an Instrument to Measure Health Practices. Presentation at the American Nurses Association Council of Nurse Researchers Conference, Minneapolis, Minnesota, September, 1983.
- Murphy, K. R., & Davidshofer, C. O. (1994). *Psychological testing: Principles and applications* (3<sup>rd</sup> ed.). Englewood Cliffs, New Jersey: Prentice-Hall Inc.
- Nunnally, J. C., & Bernstein, E. H. (1994). *Psychometric theory* (3<sup>rd</sup> ed.). New York, NY; McGraw-Hill.

- Orpen, C. (1994). The effect of time-management training on employee attitudes and behavior: A field experiment. *Journal of Psychology, 128*, 393-396.
- Partin, R. L. (1983). Time management for school counselors. *The School Counselor, 30*, 280-284.
- Paulhus, D. L. (1984). Two component models of socially desirable responding. *Journal of Personality and Social Psychology, 46*, 598-609.
- Prochaska, J. O., DiClemente, C. C., & Norcorss, J. C. (1992). In search of how people change: Applications to addictive behaviors. *American Psychologist, 47*, 1102-1114.
- Reidel, H. R., Heiby, E. M., & Kopetskie, S. (2001). Psychosocial behaviorism theory of bipolar disorder. *Psychological Record, 51*, 507-532.
- Reise, S. P., Waller, N. G., & Comrey, A. L. (2000). Factor analysis and scale revision. *Psychological Assessment, 12*, 287-297.
- Robinette, R. L. (1991). The relationship between the marlowe-crowne form c and the validity scales of the mmpi. *Journal of Clinical Psychology, 47*, 396-399.
- Robinson, J. P., Shaver, P. R., & Wrightsman, L. S. (1991). Personal value scales. In J. P. Robinson, P. R. Shaver, & L. S. Wrightman (Eds.), *Measures of personality and social psychological attitudes: Volume 1 in measures of social psychological attitudes series* (pp. 726 – 736). San Diego, CA: Academic Press.
- Scott, W. A. (1965). *Values and organizations: A study of fraternities and sororities*. Chicago, IL: Rand McNally.

- Searle, M.S., & Ready, A. E. (1991). Survey of exercise and dietary knowledge and behaviour in persons with type II diabetes. *Canadian Journal of Public Health*, 82, 344-348.
- Shahani, C., Weiner, R., & Streit, M. K. (1993). An investigation of the dispositional nature of the time management construct. *Anxiety, Stress and Coping*, 6, 231-243.
- Shumay, D. M., Nelson, K. G., Heiby, E. M., Kaholokula, J. K., & Frank, M. (2002). A comparison of four time management questionnaires. Manuscript in preparation.
- Squires, R. L., & Kagan, D. M. (1985). Personality correlates of disordered eating. *International Journal of Eating Disorders*, 4, 80-85.
- Staats, A. W. (1996). *Behavior and personality: Psychological behaviorism*. New York, NY: Springer.
- Steinhard, M. A., & Dishman, R. K. (1989). Reliability and validity of expected outcomes and barriers for habitual physical activity. *Journal of Occupational medicine*, 31, 536-546.
- Stevens, J. (1996). *Applied multivariate statistics for the social sciences* (3<sup>rd</sup> ed.). Mahway, New Jersey: Lawrence Erlbaum Associates.
- Sweidel, G. B. (1996). Study strategy portfolio: A project to enhance study skills and time management. *Teaching of Psychology*, 23, 246-248.
- Tanner, C. K., & Atkins, T. T. (1990). Planning for stress reduction in the high school principalship. *High School Journal*, 74, 22-37.

- Trockel, M. T., Barnes, M. D., & Egget, D. L. (2000). Health-related variables and academic performance among first-year college students: Implications for sleep and other behaviors. *Journal of American College Health, 49*, 125-131.
- Vodanovich, S. J., & Seib, H. M. (1997). Relationship between time structure and procrastination. *Psychological Reports, 80*, 211-215.
- Walker, S. N., Sechrist, K. R., & Pender, N. J. (1987). The health promoting lifestyle profile: development and psychometric characteristics. *Nursing Research, 36*, 76-81.
- Wagner, M. K., Holden, E. W., & Jannaroone, R. J. (1988). Factor structure of the Heiby self-reinforcement questionnaire. *Journal of Clinical Psychology, 44*, 198-202
- Wexley, K. N., & Baldwin, T. T. (1986). Posttraining strategies for facilitating positive transfer: An empirical exploration. *Academy of Management Journal, 29*, 503-520.
- Williams, R. L., Moor, C. A., Pettibone, T. J., & Thomas, S. P. (1992). Construction and validation of a brief self-report scale of self-management practices. *Journal of Research in Personality, 26*, 216-234.
- Wong, S. S., Heiby, E. M., Kameoka, V. A., & Dubanoski, J. P. (1999). Perceived control, self-reinforcement, and depression among Asian American and Caucasian American elders. *Journal of Applied Gerontology, 18*, 48-64.
- Woolfolk, A. E., & Woolfolk, R. L. (1986). Time management: An experimental investigation. *Journal of School Psychology, 24*, 267-275.

Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990).

Psychometric characteristics of the multidimensional scale of perceived social support. Journal of Personality Assessment, 55, 610-617.

Footnotes

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<sup>1</sup>The search also identified a TM instrument published by Biswas (2000). As this instrument did not appear appropriate for an American English-speaking population, it was designed for use in India, I have not included it in this study.

<sup>2</sup>The HPLP-II, as provided by the authors, used the majority of two pages. Unfortunately, one of the items, item 26, was “cropped” by the printer when the materials packets were sent for duplicating. This problem was discovered only after distribution of the packets, which was too late to make any changes. Item 26 loads on the Nutrition and Health-Promoting Lifestyle scores. As means of items were calculated to compute these scores, I chose to ignore the loss of the item and include these scores in comparisons with the HTMS. The loss of the item may have biased the results in comparisons with these HPLP-II scores.

Table 1

Variables Related to Time Management on the Basis of Past Studies

Table 1

*Correlates of Time Management Skills*

Correlates	References	Correlations <sup>a</sup>
Compliance to diet among diabetics	1	-.31
Compliance to exercise among diabetics	1	-.39
Fewer physical symptoms & Better general health	2	-.17 - -.24
	3	.15 - .27
	4	.18 - .30
Somatic tension	5	-.22 - -.45
Psychological well-being	6	-.15 - -.42
Less depression	3	-.24 - -.55
	7	-.28 - -.41
Less hopelessness	3	-.23 - -.49
Life satisfaction	4	.11 - .44
	5	.17 - .31
Tolerance of role ambiguity	5	-.16 - -.55
Efficient study habits	3	.24 - .66
	8	.46
Better job performance rating	5	.21 - .37
	9 <sup>b</sup>	
	10 <sup>b</sup>	
	11 <sup>b</sup>	

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Better school performance (e.g., higher grade point average, higher test scores)	5	.17 - .23
	7	.19 - .31
	12	.25 - .39
	13	.25
	14 <sup>b</sup>	
	15 <sup>c</sup>	
Job satisfaction	16	.26 - .48
	2	.17 - .20
	5	.26 - .32
Less role overload	17 <sup>b</sup>	
	5	-.35
	6	-.25 - -.49
Less job-induced tension	5	-.36
	18	-.14
More/Better general health habits	4	.11 - .32
	7	.19 - .35
Greater self-efficacy	4	.16 - .69
	7	.29 - .52
More sense of purpose in life	3	.25 - .65
	4	.19 - .49
More positive self-esteem	3	.20 - .54
Less psychological distress	3	-.30 - -.37

	7	-.24 - -.45
Lower anxiety	3	-.13 - -.68
	7	-.19 - -.34
	19	-.22
Lower neuroticism	3	-.15 - -.55
Lower anomie	3	-.14 - -.40
Delay avoidance	3	.23 - .66
More efficient work methods	3	.16 - .53
Older age	3 <sup>b</sup>	
	7	.19 - .30
Employed	3	.04 - .06
Poorer estimation of time passage	20	.31 - .50
Frequency of self-reinforcement	7	.19 - .41
Married	3 <sup>b</sup>	
Greater social support	7	.21-.23
Marital adjustment	21	.24

Note: References for column two: 1. Gafarian et al. (1995), 2. Adams & Jex (1999), 3.

Bond & Feather (1988), 4. Williams et al. (1992), 5. Macan et al. (1990), 6. Jex & Elacqua (1999), 7. Shumay et al. (2002), 8. Kleijn et al. (1994), 9. Barling, Cheung, & Kelloway (1996), 10. Maher (1981), 11. Woolfolk & Woolfolk (1986), 12. Britton & Tesser (1991), 13. Mpofu et al. (1996), 14. Sweidel (1996), 15. Bost (1984), 16. Lay & Schouwenburg (1993), 17. Hall & Hursch (1981), 18. Tanner & Atkins (1990), 19. Lang

(1992), 20. Francis-Smythe & Robertson (1999), 21. McLaughlin et al. (1988). <sup>a</sup>Sign of correlation varies as some Time Management Scales are reverse scored; only correlations associated with statistically significant relationships are reported here. When possible, correlations were calculated on the basis of reported statistical analysis if correlations were not reported. <sup>b</sup>Correlations not reported and reported statistics do not allow recapture of correlation between identified variable and Time Management skills, although reported data do support the existence of such a relationship. <sup>c</sup>Source supports the identified relationship but calculated statistics, based on reported data, did not support the presence of a statistically significant relationship.

Table 2

Correlations Between Four Time Management Instruments and Selected Convergent  
Validity Indices (Reproduced from Shumay et al., 2002)

Table 2

*Correlations Between TM Questionnaires and Psychosocial Constructs*

Constructs	MDTMQ	LSA	TMB	TMB1	TMB2	TMB3	TMB4	TSQ
<b>BSI Scales</b>								
GSI	-.24*	-.32*	-.13	-.13	.02	-.13	-.33*	-.45*
PST	-.24*	-.29*	-.15	-.15	.01	-.15	-.32*	-.43*
PSDI	-.19*	-.29*	-.13	-.13	-.03	-.09	-.24*	-.35*
Somatization	-.17	-.12	-.04	-.05	.08	-.09	-.23*	-.22*
Obsessive- Compulsive	-.34*	-.40*	-.21*	-.23*	-.06	-.06	-.45*	-.47*
Interpersonal. Sensitivity	-.19*	-.30*	-.16	-.15	-.20*	-.14	-.30*	-.39*
Depression	-.18	-.28*	-.12	-.11	-.01	-.09	-.29*	-.41*
Anxiety	-.18	-.21*	-.06	-.08	.05	-.07	-.19*	-.34*
Hostility	-.18	-.25*	-.12	-.09	-.00	-.19*	-.18	-.33*

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Phobic Anxiety	-.13	-.17	-.07	-.08	.05	-.08	-.19**	-.20*
Paranoid Ideation	-.07	-.08	.05	.07	.04	.00	.05	.04
Psychoticism	-.09	-.20*	-.08	-.06	.04	-.15	-.23*	-.30*
FSRQ	.33*	.37*	.29*	.24*	.19*	.12	.34*	.41*
TM Self-Efficacy	.46*	.49*	.46*	.51*	.29*	.13	.48*	.52*
MSPSS								
Family	.11	.23*	.13	.12	.07	.15	.14	.18
Friend	.13	.23*	.14	.15	.13	.07	.09	.18
Significant Other	.14	.21*	.14	.16	.12	.09	.11	.22*
HBS-II Items								
Breast Self-Exam	.11	.10	.19*	.10	.24*	.10	.07	.10
Pap Smear	.12	.03	.16	.03	.23*	.14	.05	.07
Prescribed	.09	.11	.12	.08	.17	-.01	.02	-.01
Medication								
Not Smoking	-.06	-.07	.12	.11	.14	-.02	-.03	-.10

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Bike Helmet	.01	-.03	.03	.01	.07	.02	-.03	-.03
Skin Protection	.17	.13	.14	.06	.14	.11	.14	.16
Flossing Teeth	.24*	.20*	.19*	.16	.18	.10	.13	.25*
Seat-Belt Use	.11	.14	.06	.08	.03	-.02	.07	.19*
Less Alcohol	.11	.19*	.07	.13	.03	.03	.10	.21*
Safe Sex	.06	.08	.12	.15	.12	.05	.04	.09
Regular Exercise	.35*	.20*	.12	.13	.09	.01	.10	.18
Healthy Diet	.28*	.31*	.30*	.25*	.29*	.12	.13	.31*
Age	.15	-.09	.19*	.12	.20*	.14	.10	.13
Gender	-.16	-.10	-.17	-.04	-.22*	-.17	-.10	-.11
Work Hours/Week	-.19*	-.01	-.06	-.03	-.07	-.02	-.10	-.02
GPA	.31*	.22*	.22*	.25*	.13	.08	.19*	.22*
Number of Credits	.01	.01	.03	.04	.06	-.01	-.02	-.02
Number of People Care for	-.08	.05	.06	.05	.07	.04	-.04	.00

Extracurricular/ Hobbies	.07	.03	.04	.10	.03	-.05	.00	.06
Activity Level	.21*	.15	.16	.22*	.12	.02	.06	.30*
Social Support	.09	.15	.06	.05	.01	.07	.12	.13

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Note. TSQ = Time Structure Questionnaire (Bond & Feather, 1988); TMB = Time Management

Behavior Scale (Macan et al., 1990); LSA = Lifestyle Approaches Questionnaire (Williams et al., 1992);

MDTMQ = Modified Diabetes Time Management Questionnaire (TMQ; Gafarian et al., 1995; Gafarian

et al., 1999) with diabetes-specific items omitted; BSI=Brief Symptom Inventory (Derogotis &

Melisaratos, 1983); GSI=Global Severity Index; PST=Positive Symptom Total; PSDI=Positive Symptom

Distress Index; FSRQ=Frequency of Self-Reinforcement Questionnaire (Heiby, 1982; 1983a);

MSPSS=Multidimensional Scale of Perceived Social Support (Zimet et al., 1988); HBS-II=Revised

Health Behavior Schedule (Frank, 2000); TM=Time Management.

Table 3

Elements of Time Management and Items from Each TM Scale that Assess Each Element

Table 3

*References for Elements of the Time Management Construct and Items from the Questionnaires that Assess Each Element*

Time Management Elements	References item #'s	MDTMQ item #'s	LSA Item #'s	TMB Item #s	TMQ Item #s	TSQ Item #s
<i>Language-Cognitive Repertoire</i>						
Sense of time being structured	1, 2, 3	18		26	2, 5, 12	3, 15, 20
Sense of orientation in the present	1, 2				1	5, 6, 24, 26
Problem solving	4, 5	15,32	5	3,6,20	11	
Prioritizing or ranking of goals	4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16	11,15,17, 28	2	7,10,12	7	
Decisiveness	16	15	2,11,18			11, 13
Linking short-term to long-term Goals	16	31		1		
Task analysis of goals	10, 11, 13, 17, 18	17,28,31,32	6,17	3		
Setting short-term goals	5, 17, 19	19,31		1,4,16	4, 6, 15	

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Setting long-term goals	5, 7, 8, 19, 20, 21		8, 14	1	15	
Setting goals with deadlines	6, 10, 11, 13, 15, 16, 17			5	4, 6, 15	
Monitoring goals	17	41		1,2		6, 17, 19
Monitoring effective use of time	5, 10, 16	2,41,46		6,8	10, 11, 12, 13	
<i>Emotional-Motivational Repertoire</i>						
Monitoring daily schedule	9, 12, 13, 22	26,38		8,9,23	1	
Values time	1, 2	3,35		25		17, 25
Preference for organization	12, 13, 17	40	22	27,28	1, 14	15
Low anxiety when schedule changes	4	22				
Low anger when schedule changes	4	22,23				
Not bored	1, 2					18
<i>Verbal-Emotional Repertoire</i>						
Self-control/self-management/self-reinforcement	1, 4	3,22,33,34, 37,43,49	7	1	7, 9, 10, 13	

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Organizes tasks by preference	17, 18	11,17,28	1			
Perceives days as predictable	17			26,33	2	15, 20
Identifies needs and wants	11, 17	20,29	8,11,15,18		1, 6	22
Self-efficacy in meeting goals	13, 23	13,26,31	6,16			14
Deals with procrastination	3, 5, 8, 13,	9,12,16,26,	4,13,20	34	16	10, 12, 23
		47				
Perceives use of time to be Purposive	1	2,46			12	4, 8, 19, 22, 25
<i>Sensory-Motor Repertoire</i>						
Handling incoming information	11, 15			13,19	18	
Assertiveness	4, 5, 13, 16, 18	44			8, 9	
Organization of work space	1, 2, 4, 6, 10, 11, 13, 17	40	10,22	22,24	14	
Balancing solitary and group time	16					
Taking breaks	16					
Sort mail daily	5, 13					
Files papers	11, 15			19	14	

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Follow-through of plans	4	9,16,26	3,13,20,21	33	7	7, 14, 23
Meets deadlines	4, 9, 17	6	13,20			
Makes lists/Environmental Cues	2, 4, 5, 8, 11, 13, 15, 16, 17, 18, 21	14, 15,19,20	5,8,14	16,23	1, 4	
Has routines	1, 2, 4, 24	4,8,18		14	1, 4, 13, 18	3, 15, 20
Schedules events weekly	12, 13, 17	8,18		12	3, 6	
Schedules time daily	1, 2, 8, 10, 13, 15, 16, 17	19,45		14	1, 2, 5	3, 9, 15
Organizes paperwork	17			19		
Sets clothing out nightly	17					
Uses a daily planner/calendar	4, 5, 6, 10, 11, 13, 14, 15, 16, 17, 25	25		17		
Delegates responsibilities and tasks	5, 10, 13, 14, 18	24,30				
Minimizes interruptions	8, 10, 11, 13, 15, 17			20		

Uses reminders	17	19,25		15,16,23	1	
Writes down ideas	17		5	11	1, 4	
Stays on task	1, 2, 5, 8, 10, 12, 25	26	3,21		7, 8, 12, 18	7, 13, 14
Keeps daily log	9, 17, 21	25		18		
Manages meetings	10					
Engages in pleasure activities	23	36				
<i>Items not falling into above categories</i>		23	9,12,19	21,30,31	17	

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Note. Ref = References; TSQ = Time Structure Questionnaire (Bond & Feather, 1988); TMB = Time

Management Behavior Scale (Macan et al., 1990); LSA = Lifestyle Approaches Questionnaire (Williams et al., 1992); MDTMQ = Modified Diabetes Time Management Questionnaire for Diabetes (Gafarian et al., 1995; Gafarian et al., 1999) with diabetes-specific items omitted.

References for Column Two: 1. Bond & Feather (1988), 2. Mudrak (1997), 3. Vodanovich & Seib (1997), 4. Gafarian et al. (1995), 5. Partin (1983), 6. Adams & Jex (1997), 7. Biswas (2000), 8. Hall (1982), 9. Hall & Hursch (1981), 10. Hanel et al. (1983), 11. Lakein (1973), 12. Lang (1992), 13. Macan et al. (1990), 14. McConalogue (1984), 15. Orpen (1994), 16. Wexley & Baldwin (1986), 17. Macan (1994), 18. McLaughlin et al.

(1988), 19. Mpofu et al. (1996), 20. Barling et al. (1996), 21. Maher (1981), 22. Woolfolk & Woolfolk (1986),  
23. King et al. (1986), 24. Gortner Lahmers & Zulauf (2000), 25. Trockel et al. (2000)

Table 4

Items Rewritten Following Study 3 Factor Analysis

Table 4

*Old Items Dropped, and New Items Written to Replace Them, Following Study 3 Exploratory Factor Analysis*

Element	Old Item	New Item
Sense of Time Being Structured/Preference for Organization	I allocate time to specific tasks	I allocate time to specific goals
Monitoring goals	From time to time, I re- evaluate my goals to see if they remain important	I regularly re-evaluate my goals to see if they remain important
Low anxiety when schedule changes	I become nervous when things go off schedule	I feel nervous when my schedule changes
Low anger when schedule changes	I feel angry when I must change my routine	Changing my routine makes me angry
Organizes tasks by preference	I save my least favorite tasks for last	I waste time when I do my least favorite tasks last

Perceives Days As Predictable	I can predict what will happen during the day	I use routines to make my days predictable
Self-Efficacy in Meeting goals	I have what it takes to succeed	I have what it takes to reach my goals
Balancing Solitary and Group Time	I sometimes work alone to finish tasks more effectively	Depending on the best way to finish tasks, I work alone or with others people
Schedules Events Weekly	I rarely know what I will do during the following week	I rarely organize enough to know what I will do during the following week
Schedules Time Daily	I plan my activities at the start of the day	I keep organized by planning my activities at the start of the day
Writes Down Ideas	Whenever I have a good idea, I jot it down so that I	I write down my good ideas so I will remember them later

will remember it

Keeps Daily Log

I keep a daily log to stay  
organized

I keep organized by using a  
daily log

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Table 5

Descriptive Information on Subscales Used in Study 4

Table 5

*Descriptive Information on Subscales Used in Study 4*

Scales	N	Mean	Standard Deviation	Internal Consistency <sup>a</sup>
HTMS				
HTMSPSGS	401	3.67	0.60	0.92
HTMSR	401	3.25	0.90	0.82
HTMSNWT	401	2.57	0.76	0.80
HTMSPAB	401	3.88	0.74	0.71
HTMSO	401	3.34	0.85	0.65
HTMSD	401	2.82	0.79	0.63
HTMSRP	401	3.47	0.87	0.78
GPA	370	2.95	0.63	
TM Self-Efficacy	394	4.49	1.19	
FSRQ	403	19.52	4.97	0.77
MDTMQ	402	108.84	13.53	0.76
LSA				
LSAPFE	398	10.58	3.83	0.72
LSAGD	399	11.41	.310	0.70
LSATTA	401	8.53	3.04	0.65
LSAOPS	399	7.03	3.07	0.75
LSAWPC	397	4.40	2.81	0.52

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LSAVS	400	5.96	2.16	0.24
TMB				
TMBGOAL	385	30.78	7.10	0.82
TMBMECH	393	31.81	8.12	0.79
TMBORGA	395	28.16	5.95	0.75
TMBCONT	393	15.37	3.85	0.66
TMQ				
TMQSHOR	397	21.30	5.99	0.87
TMQATTI	397	17.61	3.39	0.55
TMQLONG	397	16.44	3.11	0.47
TMQTOTAL	389	55.34	9.51	0.81
TSQ				
TSQSE	388	22.64	5.56	0.79
TSQST	386	21.91	5.48	0.75
TSQPR	394	8.99	3.38	0.60
TSQEF	393	16.52	4.94	0.79
TSQPE	395	14.14	3.40	0.70
CI				
CIIDC	403	2.77	1.68	0.72
CIDP	403	1.98	1.21	0.53
CIOR	403	0.90	0.86	0.68
CITOTAL	403	5.64	2.69	0.71

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MCS D	392	18.31	5.32	0.77
RS-PVS	401	1.50	1.60	0.76
SAS	395	38.46	14.41	0.89
BSI				
Global Severity	386	0.83	0.65	0.97
Index				
Positive Symptom	385	1.66	0.59	
Distress Index				
Positive Symptom	386	23.67	13.50	
Total				
HPLP-II				
Health-Promoting	401	2.49	0.74	0.94
Lifestyle				
Health	401	2.00	0.53	0.81
Responsibility				
Physical Activity	401	2.27	0.72	0.86
Nutrition	401	2.36	0.55	0.74
Spiritual Growth	401	2.81	0.58	0.86
Interpersonal	401	2.99	0.57	0.84
Relations				
Stress Management	401	2.44	0.50	0.72
PLQ				

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Exercise	400	2.45	0.89	0.73
Nutrition	400	2.03	0.54	0.34
Relaxation	400	2.06	0.47	0.40
Safety	400	1.91	0.43	0.18
Substance Use	400	1.34	0.48	0.57
Health Promotion	400	2.20	0.71	0.53
HBS-II				
Breast Self-Exam	269	1.69	0.81	
Pap Smear	266	2.32	1.38	
Taking Medications	233	3.22	0.99	
Not Smoking	132	2.67	1.30	
Bike Helmet	135	1.85	1.19	
Skin Protection	396	2.47	0.99	
Bike Helmet	401	2.40	0.99	
Flossing	401	3.75	0.61	
Limiting Alcohol	399	3.10	1.12	
Safe-Sex	400	3.33	1.01	
Exercise	400	2.61	1.07	
Healthy Diet	401	2.56	0.84	

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Note. HTMS = Hawaii Time Management Scale; HTMSPSGS = HTMS Problem Solving/Goal Setting subscale; HTMSR = HTMS Reminders subscale; HTMSNWT = HTMS Not Wasting Time subscale; HTMSPAB = HTMS Pleasure

Activities/Breaks subscale; HTMSO = HTMS Organization subscale; HTMSD= HTMS Delegation subscale; HTMSRP = HTMS Routines/Predictability subscale; GPA = Grade Point Average; LSA = Lifestyle Approaches Questionnaire (Williams et al., 1992);; GPA = Grade Pointe Average; TM = Time Management; FSRQ = Frequency of Self-Reinforcement Questionnaire (Heiby, 1982, 1983a); MDTMQ = Modified Diabetes Time Management Questionnaire for Diabetes (Gafarian et al., 1995; Gafarian et al., 1999; Shumay et al., 2002) with diabetes-specific items omitted; LSA = Lifestyle Approaches Questionnaire (Williams et al., 1992); LSAPFE = LSA Performance Focus and Efficient Subscale; LSAGD = LSA Goal Directedness subscale; LSATTA = LSA Timeliness of Task Accomplishment subscale; LSAOPS = LSA Organization of Physical Space subscale; LSAWPS = LSA Written Plans for change Subscale; LSAVS = LSA Verbal Support Subscale; TMB = Time Management Behavior Scale (Macan et al., 1990); TMBGOAL = TMB Setting Goals and Priorities subscale; TMBMECH = TMB Mechanics of Time Management subscale; TMBORGA = TMB Preference for Organization subscale; TMBCONT = TMB Perceived Control of Time subscale; TMQ = Time Management Questionnaire (Britton & Glynn, 1989; Britton & Tesser, 1991); TMQSHOR = TMQ Short-Range Planning subscale; TMQATTI = TMQ Time Attitudes subscale; TMQLONG = TMQ Long-Range Planning subscale; TMQTOTAL = TMQ Total Score; TSQ = Time Structure Questionnaire (Bond & Feather, 1988); TSQSE = TSQ Sense of Purpose subscale; TSQST = TSQ Structured Routine subscale; TSQPR = TSQ Present Orientation

subscale; TSQEF = TSQ Effective Organization subscale; TSQPE = TSQ Persistence subscale; CI = The Compulsiveness Inventory (Kagan & Squires, 1985); CIIDC = CI Indecision and Double-Checking subscale; CIDP = CI Detail and Perfectionism subscale; CIOR = CI Order and Regularity subscale; CITOTAL = CI Total Score; MCSD = Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960); RS-PVS = short form of the Religiousness Value Scale from the Personal Value Scales (Robinson, Shaver, & Wrightsman, 1991); SAS = Sexual Attitude Scale (Fisher & Corcoran, 1994; Hudson, 1992); BSI = Brief Symptom Inventory (Derogotis & Melisaratos, 1983); HPLP-II = Health Promoting Lifestyle Profile II (Susan Walker, personal communication, November, 2001); PLQ = Personal Lifestyle Activities Questionnaire (Brown, Muhlenkamp, Fox, & Osborn, 1983); HBS-II = Health Behavior Schedule-II (Frank, 2000). <sup>a</sup>Coefficient alpha not calculable for all scores listed in column 1.

Table 6

Correlations Between the HTMS and Convergent Validity Indices

Table 6

*Relationships Between HTMS Subscales and Convergent Validity Indices*

Validity Indices	HTMSPSGS	HTMSR	HTMSNWT	HTMSPAB	HTMSO	HTMSD	HTMSRP
GPA	.223*	.192	.151	-.003	.124	.047	.164
TM Self-Efficacy	.475*	.397*	.428*	.056	.320*	.132	.320*
FSRQ	.219*	.083	.218*	.294*	.060	.076	.152
MDTMQ	-.608*	-.523*	-.525*	-.211*	-.422*	-.129	-.502*
LSA							
LSAPFE	.420*	.286**	.594*	.127	.250*	.186*	.203*
LSAGD	.523*	.239*	.166	.215*	.215*	-.082	.250*
LSATTA	.551*	.379*	.579*	-.001	.392*	.225*	.408*
LSAOPS	.377*	.455*	.236*	.013	.601*	.105	.333*
LSAWPC	.250*	.325*	.222*	-.128	.239*	.208*	.195*

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LSAVS	.133	.164	.109	.045	.115	.010	.035
TMB							
TMBGOAL	.629*	.493*	.367*	-.037	.413*	.187	.394*
TMBMECH	.486*	.704*	.258*	-.053	.505*	.211*	.420*
TMBORGA	.383*	.451*	.222*	.058	.486*	.000	.359*
TMBCONT	.450*	.382*	.585*	.087	.299*	.144	.321*
TMQ							
TMQSHOR	-.524*	-.651*	-.297*	.075	-.443*	-.157	-.441*
TMQATTI	-.417*	-.306*	-.598*	-.111	-.259*	-.110	-.264*
TMQLONG	-.379*	-.371*	-.399*	.099	-.373*	-.232*	-.292*
TMQTOTAL	-.601*	-.638*	-.530*	.039	-.491*	-.213*	-.465
TSQ							
TSQSE	.450*	.285*	.368*	.198	.237*	-.082	.241*
TSQST	.556*	.543*	.333*	.066	.471*	.143	.613*
TSQPR	-.099	-.048	.372*	-.136	-.058	.097	-.051

TSQEF	.534*	.406*	.524*	.125	.390*	.065	.378*
TSQPE	.483*	.335*	.416*	.133	.266*	.012	.215*

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Note. HTMS = Hawaii Time Management Scale; HTMSPSGS = HTMS Problem Solving/Goal Setting subscale; HTMSR = HTMS

Reminders subscale; HTMSNWT = HTMS Not Wasting Time subscale; HTMSPAB = HTMS Pleasure Activities/Breaks subscale; HTMSO =

HTMS Organization subscale; HTMSD= HTMS Delegation subscale; HTMSRP = HTMS Routines/Predictability subscale; GPA = Grade

Point Average; FSRQ = Frequency of Self-Reinforcement Questionnaire (Heiby, 1982, 1983a); MDTMQ = Modified Diabetes Time

Management Questionnaire for Diabetes (Gafarian et al., 1995; Gafarian et al., 1999; Shumay et al., 2002) with diabetes-specific items

omitted; LSA = Lifestyle Approaches Questionnaire (Williams et al., 1992); LSAPFE = LSA Performance Focus and Efficient Subscale;

LSAGD = LSA Goal Directedness subscale; LSATTA = LSA Timeliness of Task Accomplishment subscale; LSAOPS = LSA Organization

of Physical Space subscale; LSAWPS = LSA Written Plans for change Subscale; LSAVS = LSA Verbal Support Subscale; TMB = Time

Management Behavior Scale (Macan et al., 1990); TMBGOAL = TMB Setting Goals and Priorities subscale; TMBMECH = TMB Mechanics

of Time Management subscale; TMBORGA = TMB Preference for Organization subscale; TMBCONT = TMB Perceived Control of Time

subscale; TMQ = Time Management Questionnaire (Britton & Glynn, 1989; Britton & Tesser, 1991); TMQSHOR = TMQ Short-Range

Planning subscale; TMQATTI = TMQ Time Attitudes subscale; TMQLONG = TMQ Long-Range Planning subscale; TMQTOTAL = TMQ

Total Score; TSQ = Time Structure Questionnaire (Bond & Feather, 1988); TSQSE = TSQ Sense of Purpose subscale; TSQST = TSQ

Structured Routine subscale; TSQPR = TSQ Present Orientation subscale; TSQEF = TSQ Effective Organization subscale; TSQPE = TSQ

Persistence subscale \* = correlation significant at  $p < .001$ .

Table 7

Correlations Between the HTMS and Divergent Validity Indices

Table 7

*Relationships Between HTMS Subscales and Divergent Validity Indices*

Validity Indices	HTMSPSGS	HTMSR	HTMSNWT	HTMSPAB	HTMSO	HTMSD	HTMSRP
CI							
CIIDC	.238*	.192*	.077	.026	.427*	.063	.299*
CIDP	-.037	.051	-.358*	-.051	.104	-.052	.021
CIOR	.209*	.201*	-.053	-.066	.299*	.031	.234*
CITOTAL	.150	.182*	-.206*	-.041	.352*	.006	.221*
MCSD	-.222*	-.144	-.374*	.024	-.182*	-.154	-.121
RS-PVS	-.013	-.035	-.140	.033	-.103	-.043	-.006
SAS	-.104	-.130	-.014	-.092	-.011	-.036	.012

Note. HTMS = Hawaii Time Management Scale; HTMSPSGS = HTMS Problem Solving/Goal Setting subscale; HTMSR = HTMS Reminders subscale; HTMSNWT = HTMS Not Wasting Time subscale; HTMSPAB = HTMS Pleasure Activities/Breaks subscale; HTMSO = HTMS Organization subscale; HTMSD = HTMS Delegation subscale; HTMSRP = HTMS Routines/Predictability subscale; CI = The Compulsiveness Inventory (Kagan &

Squires, 1985); CIIDC = CI Indecision and Double-Checking subscale; CIDP = CI Detail and Perfectionism subscale; CIOR = CI Order and Regularity subscale; CITOTAL = CI Total Score; MCSD = Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960); RS-PVS = short form of the Religiousness Value Scale from the Personal Value Scales (Robinson, Shaver, & Wrightsman, 1991); SAS = Sexual Attitude Scale (Fisher & Corcoran, 1994; Hudson, 1992). \* = correlation significant at  $p < .001$ .

Table 8

Correlations Between the HTMS and the BSI, HPLP-II, and PLQ

Table 8

*Relationships Between HTMS Subscales and Health as Measured by the BSI, HPLP-II, and PLQ*

Validity	HTMSPSGS	HTMSR	HTMSNWT	HTMSPAB	HTMSO	HTMSD	HTMSRP
Indices							
BSI							
Global	-.188*	-.042	-.342*	-.259*	-.054	-.018	-.076
Severity							
Index							
Positive	-.185*	-.070	-.325*	-.252*	-.018	-.009	-.081
Symptom							
Distress Index							
Positive	-.099	.012	-.335*	-.194*	-.029	-.040	-.021
Symptom							
Total							
HPLP-II							

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Health-Promoting Lifestyle	.411*	.273*	.326*	.199*	.228*	.188*	.258*
Health Responsibility	.295*	.256*	.314*	.002	.260*	.258*	.187*
Physical Activity	.216*	.148	.233*	.086	.083	.173	.173
Nutrition	.230*	.123	.175	.105	.092	.126	.192*
Spiritual Growth	.457*	.264*	.330*	.200*	.228*	.081	.195*
Interpersonal Relations	.384*	.281*	.168	.270*	.207*	.075	.235*
Stress Management	.264*	.153	.251*	.252*	.167	.142	.184*
PLQ							

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Exercise	.155	.088	.161	.017	.043	.145	.162
Nutrition	.243*	.094	.183*	.162	.102	.062	.219*
Relaxation	.181*	.138	.111	.266*	.141	.115	.166
Safety	.203*	.157	.126	.139	.246	.132	.205*
Substance	.076	.009	-.056	.130	.035	-.035	.099
Use							
Health	.214*	.125	.118	.041	.129	.106	.173
Promotion							

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Note. HTMS = Hawaii Time Management Scale; HTMSPSGS = HTMS Problem Solving/Goal Setting subscale; HTMSR = HTMS Reminders subscale; HTMSNWT = HTMS Not Wasting Time subscale; HTMSPAB = HTMS Pleasure Activities/Breaks subscale; HTMSO = HTMS Organization subscale; HTMSD= HTMS Delegation subscale; HTMSRP = HTMS Routines/Predictability subscale; BSI = Brief Symptom Inventory (Derogotis & Melisaratos, 1983); HPLP-II = Health Promoting Lifestyle Profile II (Susan Walker, personal communication, November, 2001); PLQ = Personal Lifestyle Activities Questionnaire (Brown, Muhlenkamp, Fox, & Osborn, 1983). \* = correlation significant at  $p < .001$ .

Table 9

Correlations Between the HTMS and HBS-II items

Table 9

*Relationships Between HTMS Subscales and Engaging in Healthy Behaviors, as Measured by the HBS-II*

HBS-II Item and N	HTMSPSGS	HTMSR	HTMSNWT	HTMSPAB	HTMSO	HTMSD	HTMSRP
Breast Self-Exam (N=267)	.233*	.193	.132	-.004	.231*	.152	.091
Pap Smear (N=264)	.131	.119	.036	.005	.169	.011	.047
Taking Medications (N=231)	.113	.042	.028	.107	.090	.082	.193
Not Smoking (N=273)	.096	.003	-.037	-.067	-.001	-.038	.034
Bike Helmet (N=133)	.174	.110	.130	-.070	.200	.219	.177
Skin Protection (N=394)	.131	.086	.158	.003	.120	.063	.115

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Flossing (N=399)	.158	.060	.171	-.007	.085	.050	.048
Seat-Belt (N=399)	.090	.093	.073	.057	.073	.087	.108
Limiting Alcohol (N=397)	.053	.043	.001	.010	.105	.052	.086
Safe-Sex (N=398)	.117	.069	.032	.136	.057	-.004	.098
Exercise (N=398)	.123	.085	.224*	.042	.034	.139	.133
Healthy Diet (N=398)	.259*	.155	.231*	-.007	.103	.078	.202*

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Note. HTMS = Hawaii Time Management Scale; HTMSPSGS = HTMS Problem Solving/Goal Setting subscale;

HTMSR = HTMS Reminders subscale; HTMSNWT = HTMS Not Wasting Time subscale; HTMSPAB = HTMS

Pleasure Activities/Breaks subscale; HTMSO = HTMS Organization subscale; HTMSD= HTMS Delegation subscale;

HTMSRP = HTMS Routines/Predictability subscale; HBS-II = Health Behavior Schedule-II (Frank, 2000). \* = correlation significant at  $p < .001$ .

Table 10

Incremental Validity Analyses

Table 10

*Incremental Validity for the HTMS, relative to previously published TM instruments.*

Dependent Variable	R <sup>2</sup> for Model		Difference in R <sup>2</sup>
	1	2	
GPA	.414	.419	.006
Self-Efficacy	.270	.332	.061*
FSRQ	.317	.344	.027
BSI			
Global Severity Index	.303	.337	.035*
Positive Symptom Distress Index	.354	.362	.008
Positive Symptom Total	.355	.426	.071*
HPLP-II			
Health Promoting Lifestyle	.216	.231	.015
Health Responsibility	.490	.713	.223*
Physical Activity	.301	.342	.041*
Nutrition	.431	.435	.004
Spiritual Growth	.329	.345	.016
Interpersonal Relations	.334	.389	.055*
Stress Management	.495	.709	.232*
PLQ			
Exercise	.256	.272	.016
Nutrition	.249	.316	.068*

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Relaxation	.163	.181	.018
Safety	.069	.101	.031
Substance Use	.113	.166	.053*
Health Promotion	.193	.251	.059*
HBS-II			
Breast Self-Exam	.417	.630	.213*
Pap Smear	.155	.306	.150*
Taking Medications	.187	.203	.016
Not Smoking	.753	1.000	.247*
Bike Helmet	.199	.229	.030
Skin Protection	.317	.408	.091*
Flossing	.078	.081	.003
Seat-Belt	.200	.250	.050*
Limiting Alcohol	.105	.159	.054*
Safe-Sex	.278	.371	.092*
Exercise	.278	.371	.092*
Healthy Diet	.278	.310	.032*

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Note: GPA = Grade Point Average; FSRQ= Frequency of Self-

Reinforcement Questionnaire (Heiby, 1982, 1983a); BSI = Brief Symptom

Inventory (Derogotis & Melisaratos, 1983); HPLP-II = Health Promoting

Lifestyle Profile II (Susan Walker, personal communication, November,

2001); PLQ = Personal Lifestyle Activities Questionnaire (Brown,

Muhlenkamp, Fox, & Osborn, 1983). Model 1 = multiple regression based on all subscales from all previously published Time Management (TM) Instruments (Time Structure Questionnaire, Bond & Feather, 1988; Time Management Behavior Scale, Macan et al., 1990; Lifestyle Approaches Questionnaire, Williams et al., 1992; and Modified Diabetes Time Management Questionnaire, Gafarian et al, 1995). Model 2 = addition of all Hawaii Time Management Scale (HTMS) subscales to the regression equation (HTMS Problem Solving/Goal Setting subscale; HTMS Reminders subscale; HTMS Not Wasting Time subscale; HTMS Pleasure Activities/Breaks subscale; HTMS Organization subscale; HTMS Delegation subscale; HTMS Routines/Predictability subscale). \* = correlation significant at  $p < .001$ .

Table 11

Test-Retest Reliability and Descriptive Data

Table 11

*Test-Retest Reliability for TM Instruments Descriptive Statistics from the Two**Measurement Times*

TM scales	Mean, Time 1	Standard Deviation, Time 1	Mean, Time 2	Standard Deviation, Time 2	Test-Retest Reliability
HTMS					
HTMSPSGS	3.88	0.51	3.84	0.55	.416
HTMSR	3.53	0.95	3.54	0.98	.731*
HTMSNWT	2.60	0.77	2.60	0.71	.726*
HTMSPAB	3.92	0.72	3.89	0.69	.673*
HTMSO	3.50	0.91	3.50	0.89	.677*
HTMSD	2.68	.72	2.76	0.72	.425
HTMSRP	3.73	.78	3.76	0.82	.574*
MDTMQ	103.62	13.21	102.77	14.85	.762*
LSA					
LSAPFE	11.71	4.03	10.92	3.72	.677*
LSAGD	12.35	2.81	12.60	2.72	.620*
LSATTA	9.02	2.76	9.88	2.48	.695*
LSAOPS	7.42	2.95	7.58	3.13	.867*
LSAWPC	4.77	2.87	5.38	2.72	.747*
LSAVS	5.77	2.63	6.38	2.46	.441

TMB					
TMBGOAL	31.85	7.65	32.46	6.77	.794*
TMBMECH	34.58	8.64	35.56	8.51	.799*
TMBORGA	30.75	6.26	28.85	6.24	.641*
TMBCONT	16.12	3.61	16.69	3.47	.734*
TMQ					
TMQSHOR	18.50	6.95	17.75	6.69	.895*
TMQATTI	16.96	2.88	16.75	3.20	.730*
TMQLONG	16.35	3.53	16.29	3.40	.727*
TMQTOTAL	51.81	10.83	50.79	10.74	.893*
TSQ					
TSQSE	23.81	5.56	24.04	5.58	.657*
TSQST	23.65	5.66	24.92	5.22	.646*
TSQPR	8.81	2.77	8.63	2.79	.701*
TSQEF	17.87	4.67	17.81	4.40	.632*
TSQPE	14.62	2.82	14.56	2.99	.547*

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Note. HTMS = Hawaii Time Management Scale; HTMSPSGS = HTMS Problem

Solving/Goal Setting subscale; HTMSR = HTMS Reminders subscale;

HTMSNWT = HTMS Not Wasting Time subscale; HTMSPAB = HTMS Pleasure

Activities/Breaks subscale; HTMSO = HTMS Organization subscale; HTMSD=

HTMS Delegation subscale; HTMSRP = HTMS Routines/Predictability subscale;

TSQ = Time Structure Questionnaire (Bond & Feather, 1988); TSQSE = TSQ

Sense of Purpose subscale; TSQST = TSQ Structured Routine subscale; TSQPR = TSQ Present Orientation subscale; TSQEF = TSQ Effective Organization subscale; TSQPE = TSQ Persistence subscale; TMB = Time Management Behavior Scale (Macan et al., 1990); TMBGOAL = TMB Setting Goals and Priorities subscale; TMBMECH = TMB Mechanics of Time Management subscale; TMBORGA = TMB Preference for Organization subscale; TMBCONT = TMB Perceived Control of Time subscale; LSA = Lifestyle Approaches Questionnaire (Williams et al., 1992); LSAPFE = LSA Performance Focus and Efficient Subscale; LSAGD = LSA Goal Directedness subscale; LSATTA = LSA Timeliness of Task Accomplishment subscale; LSAOPS = LSA Organization of Physical Space subscale; LSAWPS = LSA Written Plans for change Subscale; LSAVS = LSA Verbal Support Subscale; MDTMQ = Modified Diabetes Time Management Questionnaire for Diabetes (Gafarian et al., 1995; Gafarian et al., 1999; Shumay et al., 2002) with diabetes-specific items omitted. \* = correlation significant at  $p < .001$ .

Appendix A

Hawaii Time Management Scale Items from Study 1

1) Sense of time being structured

1. I structure my time
2. My time lacks structure
3. I view my time as structured
4. I associate time with order
5. I see my time as structured
6. I usually have something planned
7. I check the clock to stay on schedule
8. Structuring my day saves time
9. I wish my time had more structure
10. I allocate time to specific tasks

2) Sense of orientation in the present

1. I focus on the past
2. I live for the moment
3. I ignore what goes on around me
4. I focus on the "here and now"
5. I try to focus on the present
6. I usually know the current time
7. I orient myself to the present
8. I daydream often
9. I focus more on the future than on the present
10. I focus more on the past than on the present

3) Problem solving

1. I resolve problems with time
2. I find solutions to my problems with time
3. I figure out ways to deal with time constraints
4. I can deal with time-related problems
5. I find it easy to solve problems regarding time
6. I try to resolve time conflicts as quickly as possible
7. I save time by problem solving
8. I use problem solving skills to overcome my difficulties with time
9. I make plans to overcome potential problems
10. I plan ahead to avoid problems with time

4) Prioritizing or ranking of goals

1. I arrange goals in order of importance
2. I rank goals by levels of importance
3. I identify important goals as my highest priority
4. I rank my goals in order to determine their importance
5. I sort goals by their importance
6. I treat important goals differently than unimportant goals

7. I rank my objectives
8. I see some goals as more important than others
9. I focus more on some goals than others
10. I work toward my important goals first

5) Decisiveness

1. I see myself as a decisive person
2. I often change my mind
3. I act decisively
4. I easily make decisions when it comes to scheduling time
5. I enjoy making time-related decisions
6. I waste time by changing my mind before acting on a decision
7. I often change my mind after hearing other's ideas
8. I save time by following through with my decisions
9. I successfully make decisions about my time use
10. I can make quick decisions when necessary

6) Linking short-term to long-term goals

1. I rely on short-term goals to achieve long-term goals
2. Completing short-term goals help me reach my long-term goals
3. I break down a long-term goal into several short-term goals
4. I connect my short-term goals with my long-term goals
5. I work in the present to reach goals in the future
6. My future goals guide my current goals
7. I create short-term goals in order to accomplish my long-term goals
8. I reach my long-term goals by completing short-term goals
9. I identify my short terms goals based on my long-term goals
10. I break large goals into several smaller goals

7) Task analysis of goals

1. I review what I need to do to reach my goals
2. I pay attention to which tasks prove most effective in reaching my goals
3. When choosing goals, I think about the tasks involved in reaching them
4. I break down goals into specific tasks
5. I ask myself which tasks to complete in order to reach a goal
6. I plan what I need to do to reach my goals
7. I understand what it takes to reach my goals
8. I plan the steps needed to reach my goals
9. When unable to reach my goals, I review what could have done to succeed
10. I know the tasks I must accomplish to reach my goals

8) Setting short-term goals

1. I develop short-term goals
2. I create goals for the near future

3. I often think about goals that I need to fulfill in the near future
4. I regularly set short-term goals
5. I set short-term goals in order to save time
6. I know the goals I want to achieve in the near future
7. I have weekly goals
8. I set goals at the beginning of each day
9. I make goals for each day
10. I know my goals for each week

9) Setting long-term goals

1. I develop long-term goals
2. I create goals for the future
3. I know what I would like to accomplish several months from now
4. I plan for the future
5. I set long-term goals
6. I know what I want to achieve in the next five years
7. I set goals for the far future
8. I have long-term goals
9. I have goals that I wish to reach in the next couple of years
10. I know what I want to achieve during my lifetime

10) Setting goals with deadlines

1. I create deadlines for my goals
2. Deadlines motivate me to reach my goals
3. I find it helpful to have deadlines for my goals
4. I schedule due dates for my goals
5. I add deadlines to my goals
6. I set deadlines for reaching some of my goals
7. I like meeting goals with deadlines
8. Deadlines help me set appropriate goals
9. I identify deadlines by which to complete specific goals
10. I make plans to finish tasks by certain dates

11) Monitoring goals

1. I regularly look over my list of goals
2. From time to time, I re-evaluate my goals to see if they remain important
3. I regularly check progress towards reaching my goals
4. I check my progress toward reaching goals
5. I monitor my goals
6. I evaluate goals to assure success in obtaining them
7. I monitor progress toward my goals
8. I make sure my goals remain realistic for me
9. I make sure I accomplish everything I set out to do

10. I regularly consider whether I should change any of my goals

12) Monitoring effective use of time

1. I check to make sure that I use my time productively
2. I rarely check to see if I finish things on time
3. I monitor time to make sure I use it efficiently
4. I often check to see whether I make effective use of my time
5. I often look for ways to improve my use of my time
6. I make sure I use my time wisely
7. I monitor my days to ensure effective use of time
8. I look for ways to avoid wasting time
9. I look for ways to use my time more effectively
10. I make sure that I use my time to achieve my goals

13) Monitoring daily schedule

1. I check my schedule every day to stay on task
2. I look at my agenda for the day to stay focused
3. I keep track of my daily schedule
4. During the day, I keep track of my daily duties
5. I often check my daily schedule
6. Monitoring my daily schedule allows me to make adjustments
7. At the end of each day, I review my schedule to see if I have completed everything
8. I use my daily schedule to guide my behaviors
9. At the end of the day, I know how I spent my time
10. I check my daily activities to ensure that I stay on schedule

14) Values time

1. I value my time
2. I dislike wasting a minute of my day
3. I waste time on a daily basis
4. I greatly value time
5. I dislike people who waste my time
6. I value every moment
7. I avoid wasting time
8. The day feels too short to waste any of it
9. I see time as a valuable commodity
10. I consider time important

15) Preference for organization

1. I prefer order in my daily routine
2. I like to use organizational skills
3. I value organization when dealing with time
4. I find effective ways to organize my time
5. I like to organize my time

6. I prefer to organize my tasks
7. I like to do things on the spur of the moment
8. I save time by keeping my environment organized
9. I use time more efficiently when I allow some disorganization in my life
10. I organize my activities

16) Low anxiety when schedule changes

1. I worry when something unexpected happens
2. Changes to my schedule make me anxious
3. I find it scary to change my schedule
4. I seldom feel upset when my schedule changes
5. I adapt well to changes in my schedule
6. I avoid anxiety by planning for changes in my schedule
7. I become nervous when things go off schedule
8. Unexpected schedule changes make me anxious
9. I worry when people ask me to change my schedule
10. I find schedule changes exciting

17) Low anger when schedule changes

1. Schedule changes make me angry
2. I feel mad when my schedule changes
3. I feel angry when I must change my routine
4. Changes in my schedule make me angry
5. I often lose my temper when my schedule changes
6. I avoid anger by planning for schedule changes
7. Unexpected schedule changes make me angry
8. I feel angry when people ask me to change my schedule
9. I feel irritated when something interferes with my schedule
10. I remain calm when I face unexpected schedule changes

18) Not bored

1. I sometimes feel bored during the day
2. I often experience boredom
3. I keep myself busy to avoid boredom
4. I try to schedule my day to prevent boredom
5. I often feel bored over the course of a day
6. When not keeping myself busy, I feel bored
7. My busy schedule prevents feelings of boredom
8. I often feel bored with my scheduled activities
9. I find that most of my activities interest me
10. When I have nothing to do, I find interesting activities to fill my time

19) Self control/self management/self reinforcement

1. I have control over my own time

2. I give myself rewards for doing a job well
3. I motivate myself to use time more effectively
4. I feel in control of my time
5. I reward myself after a busy day
6. I reward myself for reaching goals
7. I motivate myself to finish tasks
8. I put off enjoyable activities until appropriate times
9. I control each step in my life
10. I have enough discipline to stay on task while working

20) Organizes tasks by preference

1. I organize tasks by what I like and dislike
2. I organize tasks by preference
3. I organize tasks by my preference for them
4. I complete important tasks before enjoyable tasks
5. I prefer to complete interesting tasks first
6. I complete things as they come
7. I accomplish my preferred tasks first
8. I order my tasks by preference
9. I save my least favorite tasks for last
10. I finish less liked tasks before finishing tasks I enjoy

21) Perceives Days As Predictable

1. Daily events surprise me
2. When the day starts, I know what I will accomplish
3. I rarely encounter scheduling surprises during my day
4. Each morning I know what I will do during the day
5. I can predict what will happen during the day
6. I see my days as unpredictable
7. I tend to know ahead of time what will happen during the day
8. I can tell what each new day will bring
9. I like to know that events will occur in the way I have planned them
10. My days seem to quite similar to each other

22) Identifies Needs and Wants

1. I separate what I need to do from what I want to do with my time
2. I know what I need to accomplish with my time
3. I know what I want to achieve with my time
4. I know what I want to do with my time
5. I take time to think about what I really want
6. I take time to think about what I really need
7. I understand what I need out of life

8. I know what I want out of today
9. My desires guide my use of time
10. I manage my time to meet my needs

23) Self-Efficacy in Meeting goals

1. I feel confident that I can meet my goals
2. I believe I can achieve my goals, even if they appear difficult
3. I give up when it appears hard to reach my objectives
4. I can reach my goals
5. I have the confidence to reach my goals
6. I have the determination to reach my goals
7. I lack the confidence to meet my goals
8. I feel I can accomplish my goals
9. I know I can achieve my chosen goals
10. I know I have what it takes to reach my goals

24) Deals with Procrastination

1. I try to start tasks long before their deadlines
2. I wait until the "last minute" to start projects
3. I actively avoid procrastination
4. I work best when doing things at the last minute
5. I tend to do things at the last minute
6. I start tasks early to avoid rushing at the last moment
7. I often put things off until later
8. I seldom do important tasks when I should
9. I complete jobs in a timely manner
10. I can procrastinate and still meet my deadlines

25) Perceives Use of Time to be Purposive

1. I use my time to work toward specific goals
2. I spend much of my time working on important tasks
3. I feel that I waste most of my time doing unimportant jobs
4. I use my time in a meaningful way
5. I fill my time with useful tasks
6. I use my time to reach my goals
7. I feel my time use has purpose
8. I feel I can do a lot with my time
9. I use my time for important tasks
10. I use my time to complete important tasks

26) Handling Incoming Information

1. I save time by organizing information as it comes to me
2. I take time to understand new ideas
3. I feel overwhelmed when I receive lots of information in a short period of time

4. When I receive new information, I deal with it right away
5. I handle new information as soon as it arrives
6. To save time, I focus on information that I perceive as important
7. I feel the less time I have, the less information I can process
8. I take the time to learn from new information I receive each day
9. I have trouble handling new information
10. I adjust quickly to incoming information

27) Assertiveness

1. I find it difficult to refuse requests for my time
2. I refuse to take on more work when I have many tasks to complete
3. I control my time by only agreeing to requests that fit my schedule
4. I behave assertively when it concerns my schedule
5. I make my schedule clear to others
6. I challenge demands made on my time
7. I explain the limits of my time to others
8. I refrain from allowing others to influence my use of time
9. I can say "yes" and "no" with confidence when necessary
10. I act assertively when it comes to my time use

28) Organization of Work Space

1. I save time by keeping my desk organized
2. I spend part of each day organizing my work area
3. Keeping my office clean helps me use my time efficiently
4. I keep my workspace organized to get more things done
5. I organize my work space in order to complete tasks efficiently
6. I know where to put my things in order to find them quickly
7. I feel that having an organized work space saves me time
8. I organize my work space on a weekly basis
9. I have a disorderly work space almost every day
10. Keeping my work space organized saves me time

29) Balancing Solitary and Group Time

1. I spend time alone and in groups, depending on what seems most effective for my current task
2. When appropriate, I take time to work alone, rather than in a group
3. When appropriate, I take time to work with groups of people, rather than alone
4. I balance time alone and time with others
5. I sometimes work alone to finish tasks more effectively
6. I sometimes work with others to finish tasks more effectively
7. I have difficulty balancing time alone and time spent with others
8. I seldom have difficulty balancing time alone and time spent with others
9. I find it difficult to keep time spent alone balanced with time spent with others

10. I create a balance between solitary and group time

30) Taking Breaks

11. I put breaks into my schedule

12. Taking breaks allows me to focus better on important tasks

I take breaks to increase my efficiency

When I feel exhausted, I prefer to keep on working to finish the task sooner

I usually have too little time to take breaks

I often take breaks between tasks to help me focus on the next one

13. I manage my time to allow breaks from work

14. I remember to rest during the day

15. I take several breaks during the day

16. I feel that taking breaks wastes time

31) Sort Mail Daily

17. I schedule time for sorting mail each day

18. To save time, I throw away "junk mail" as soon as it arrives

19. To save time, I pay bills as soon as they arrive

20. I sort incoming mail on the day it arrives to speed up my work

21. I handle incoming mail by sorting it the day it arrives

22. I sort my mail daily so I know what to handle first

23. My mail usually stacks up until I have the time to sort through it

24. I take time to sort my mail each day

25. I seldom sort my mail

26. Looking for misplaced mail consumes my time

32) Files Papers

1. I file papers to avoid wasting time looking for them later

2. I save time by waiting until I have a stack of papers before filing them

3. I work efficiently by filing related papers together

4. I use a filing system to organize my papers for quick access

5. I make sure I keep documents on my computer organized so I can find them quickly

6. I file my papers into categories to deal with them more efficiently

7. I take time during the day to file papers

8. I save time by filing my papers

9. I rarely have the time to file papers

10. I keep my papers filed to save time when looking for them

33) Follow-Through of Plans

1. Once I make plans, I set aside the time to finish them

2. I save time by carrying out my plans, rather than changing them

3. Once I have decided on a plan, I follow through with it

4. I often find it hard to stay focused on my original plans

5. Once I make a plan, I follow through with it
6. I rarely follow through with my plans
7. I make sure I allocate enough time to follow-through with my plans
8. I have too little time to follow through with all my plans
9. I follow through with my decisions
10. Once I decide to do something, I do it

34) Meets Deadlines

1. Deadlines motivate me to finish jobs
2. I do well at meeting deadlines
3. I complete tasks by their deadlines
4. I finish jobs in the required amount of time
5. My schedule helps me to meet my deadlines
6. Good time management allows me to meet my deadlines
7. I seldom finish things on time
8. I plan my time to make sure I meet deadlines
9. I usually have enough time to meet all my deadlines
10. I make sure I complete my goals within a specific time frame

35) Makes lists/Environmental Cues

1. I put up notes to remind me of appointments
2. I remind myself of important work by keeping it in places I see often
3. I use reminders to stay aware of my tasks
4. I use "to-do" lists to make sure I finish everything in time
5. I post notes for myself to remind me of what I have to do
6. I make a list of what I need to accomplish for the day
7. I seldom need reminders to manage my day
8. Making lists helps me to organize my time
9. Making lists helps me to allocate time to tasks
10. I effectively monitor my time by making lists

36) Has Routines

1. I organize my day so that important activities occur in a regular order
2. I try to have each week follow the same pattern of activities
3. I make my life more efficient by using routines
4. I prefer to keep old routines rather than developing new ones
5. I try to avoid performing the same daily routines
6. I make sure I have enough time to do my daily routines
7. I have a routine that I follow
8. I prefer spontaneous days where anything can happen
9. Following routines helps me plan my time
10. I have a daily routine

37) Schedules Events Weekly

1. I manage my time by setting a schedule at the beginning of each week
2. I try to schedule important activities at least a week in advance
3. I make large changes to my routine at the beginning of the week
4. I schedule events on a weekly basis
5. I rarely know what I will do during the following week
6. I prefer scheduling events at least a week in advance
7. I schedule events each week to help me manage my time
8. I seldom know what events will take place during the week
9. I keep a schedule of weekly events
10. I keep my week scheduled to know how much time I have to finish things

38) Schedules Time Daily

1. I organize my time daily
2. I plan my activities at the start of the day
3. I schedule events at a certain time each day
4. I schedule events on a daily basis
5. I schedule my day to use my time efficiently
6. I review my schedule each day to see if I need to make changes
7. I often schedule my time on a day-to-day basis
8. I rarely schedule events on a daily basis
9. I schedule my day to know how much free time I have
10. I schedule my day to know how much time I have to finish everything

39) Organizes Paperwork

1. I put related papers together so I can quickly locate them
2. I put important papers aside so I can easily find them
3. I work efficiently by gathering related papers together
4. When I do paperwork, I organize it first
5. To handle my paperwork more efficiently, I organize everything before I start
6. I take time to organize my paperwork
7. I often forget where I put important documents
8. I save time by organizing my paperwork
9. I organize my paperwork to save time during the day
10. I spend lots of time looking for paperwork

40) Sets Clothing Out Nightly

1. I pick out my clothes the night before to save time in the morning
2. I pick out my clothes ahead of time so I can sleep longer
3. When I plan to exercise the next day, I set out my exercise clothing
4. I set out clothing nightly so that I have more time in the morning
5. I decide what to wear each morning
6. I set out my clothes nightly to make my mornings less rushed
7. I spend too much time deciding what to wear in the morning
8. I take time every night to prepare my outfit for the next day

9. I set the next days clothes out the night before
10. I set my clothing out nightly to save time in the morning

41) Uses a Daily Planner/Calendar

1. I use a calendar to keep track of my appointments
2. I use a daily planner to schedule my time
3. I keep track of my time with a daily planner
4. I use a daily calendar to manage my time
5. I use a daily planner to organize my day
6. I use a daily calendar to keep track of my tasks
7. I use a daily planner to structure my day
8. I use a calendar to plan my day
9. I use a daily planner to help me use time efficiently
10. I use a daily planner to help manage my time

42) Delegates Responsibilities and Tasks

1. I ask other people to take over my normal duties when I feel overwhelmed
2. I assign duties to co-workers in order to finish everything
3. I use my time efficiently by assigning tasks to others
4. I divide tasks among others to ensure a timely completion
5. To manage my own time, I provide others with tasks to do
6. Whenever a task is outside my area of work, I hand it over to another person
7. I make use of co-workers when I feel I lack the skills to complete a task
8. I use others as a resource to finish tasks
9. When possible, I assign responsibilities to others so I can stay on task
10. I divide responsibilities instead of doing everything myself

43) Minimizes Interruptions

1. I work on important jobs in places where people have trouble finding me
2. Turning off my telephone helps me focus on important tasks
3. I complete important tasks in places with the least amount of potential distractions
4. I try to avoid interruptions in order to finish tasks
5. To work efficiently, I choose an environment with the least amount of interruptions
6. I try to avoid interruptions while working on important tasks
7. When I work on important tasks I ask others not to interrupt me
8. While working on tasks I set up an environment that minimizes interruptions
9. When interrupted, I try to refocus quickly
10. I minimize interruptions to save time

44) Uses Reminders

1. I put out books to remind me to return them on time
2. I set out letters as a reminder to mail them on time
3. I ask people to remind me of tasks that I might forget
4. I have a place where I put things that I must remember

5. I save time by using notes as reminders
6. I keep reminders to inform me of important events
7. I use reminders to make sure I finish scheduled tasks
8. I seldom use reminders to help me manage my time
9. Reminders reduce my time spent thinking of what to do next
10. I keep reminders around to help me use time efficiently

45) Writes Down Ideas

1. I write down ideas to avoid wasting time remembering them
2. Writing down ideas helps me move on to new material
3. I outline ideas to help me work efficiently
4. I take the time to write down my ideas when they occur
5. I write down ideas for future use
6. I feel that writing down my ideas wastes time
7. Writing down my ideas helps me stay organized
8. Whenever I have a good idea, I jot it down so I can work on it later
9. To save time, I write down ideas instead of trying to recall them
10. I waste time trying to remember ideas

46) Stays on Task

1. I work on a job until I finish
2. I do my best to stay focused on activities until I finish them
3. I remain focused on a task once I begin
4. I rarely become distracted while working on a task
5. I complete a task before starting another
6. I seldom stay on task while working
7. When working on a task, I often get sidetracked
8. When I try to work, I often feel distracted
9. The way I manage times allows me to stay on task
10. I stay on task by managing my time wisely

47) Keeps Daily Log

1. I keep a record of how I use my time each day
2. I document my activities each day
3. I take time to write about my day
4. I keep a diary describing my activities for the day
5. I keep a daily log to stay organized
6. I use a daily log to help me save time
7. I seldom rely on a daily log for organization
8. I use a daily log to keep track of my time use
9. Keeping a daily log allows me to see how I spend my day
10. Keeping a daily log lets me review and improve my time use

48) Manages Meetings

1. I direct meetings to make sure they run efficiently
2. I arrange the times for meetings to avoid scheduling conflicts
3. I plan what I will present before meetings start
4. I manage meetings to prevent disorder
5. I manage meetings to save time
6. When I run a meeting, I keep everyone focused on the main topics
7. I manage my time by controlling the scheduling of meetings
8. Before attending a meeting, I check to see if I have enough time
9. I manage meetings for time efficiency
10. I have no control over my time in meetings

49) Engages in Pleasure Activities

1. My schedule allows me time to play
2. My weekly schedule includes time for things that I enjoy
3. I take time to enjoy the good things in life
4. I engage in enjoyable activities during the day
5. I seldom make time for things that I enjoy
6. I engage in leisure activities to reduce stress
7. Engaging in leisure activities allows me to work more efficiently
8. I arrange my schedule to allow time for leisure activities
9. I engage in pleasure activities when time allows
10. I engage in enjoyable activities whenever my responsibilities allow it

Appendix B

Hawaii Time Management Scale Items from Study 2

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.

1	2	3	4	5
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me

1) Sense of time being structured

1. I structure my time
2. I check the clock to stay on schedule
3. Structuring my day saves time
4. I wish my time had more structure
5. I allocate time to specific tasks

2) Sense of orientation in the present

1. I focus on the past
2. I focus on the “here and now”
3. I try to focus on the present
4. I daydream often
5. I focus more on the future than on the present

3) Problem solving

1. I figure out ways to deal with time constraints
2. I find it easy to solve problems regarding time
3. I try to resolve time conflicts as quickly as possible
4. I save time by problem solving
5. I plan ahead to avoid problems with time

4) Prioritizing or ranking of goals

1. I arrange goals in order of importance
2. I identify important goals as my highest priority
3. I rank my objectives
4. I see some goals as more important than others
5. I work toward my important goals first

5) Decisiveness

1. I often change my mind
2. I act decisively
3. I make decisions easily when it comes to scheduling time.
4. I often change my mind after hearing other’s ideas
5. I save time by following through with my decisions

- 6) Linking short-term to long-term goals
  1. I break down a long-term goal into several short-term goals
  2. My future goals guide my current goals
  3. I create short-term goals in order to accomplish my long-term goals
  4. I break large goals into more manageable goals
  5. I connect my short-term goals with my long-term goals
  
- 7) Task analysis of goals
  1. I break down goals into specific tasks
  2. I plan what I need to do to reach my goals
  3. I understand what it takes to reach my goals
  4. When unable to reach my goals, I review what could have done to succeed
  5. I know the tasks I must accomplish to reach my goals
  
- 8) Setting short-term goals
  1. I often think about goals that I need to fulfill in the near future
  2. I regularly set short-term goals
  3. I set short-term goals in order to save time
  4. I have weekly goals
  5. I make goals for each day
  
- 9) Setting long-term goals
  1. I create goals for the future
  2. I know what I would like to accomplish several months from now
  3. I set long-term goals
  4. I know what I want to achieve in the next five years
  5. I know what I want to achieve during my lifetime
  
- 10) Setting goals with deadlines
  1. I find it helpful to have deadlines for my goals
  2. I add deadlines to my goals
  3. Deadlines help me set appropriate goals
  4. I identify deadlines by which to complete specific goals
  5. I make plans to finish tasks by certain dates
  
- 11) Monitoring goals
  1. From time to time, I re-evaluate my goals to see if they remain important
  2. I regularly check progress towards reaching my goals
  3. I make sure my goals remain realistic for me
  4. I regularly consider whether I should change any of my goals
  5. I regularly look over my list of goals
  
- 12) Monitoring effective use of time

1. I check to make sure that I use my time productively
2. I rarely check to see if I finish things on time
3. I use my time wisely
4. I look for ways to avoid wasting time
5. I look for ways to use my time more effectively

13) Monitoring daily schedule

1. I check my schedule every day to stay on task
2. I keep track of my daily schedule
3. I often check my daily schedule
4. Monitoring my daily schedule allows me to make adjustments
5. At the end of each day, I review my schedule to see if I have completed everything

14) Values time

1. I waste time on a daily basis
2. I avoid wasting time
3. I consider time important
4. I dislike wasting a minute of my day
5. I think time is too valuable to waste

15) Preference for organization

1. I prefer order in my daily routine
2. I find effective ways to organize my time
3. I like to organize my time
4. I prefer to organize my tasks
5. I save time by keeping my environment organized

16) Low anxiety when schedule changes

1. I seldom feel upset when my schedule changes
2. I adapt well to changes in my schedule
3. I avoid anxiety by planning for changes in my schedule
4. Unexpected schedule changes make me anxious
5. I become nervous when things go off schedule

17) Low anger when schedule changes

1. Changes in my schedule make me angry
2. I avoid anger by planning for schedule changes
3. Unexpected schedule changes make me angry
4. I feel irritated when something interferes with my schedule
5. I feel angry when I must change my routine

18) Not bored

1. I often feel bored during the day
2. I keep myself busy to avoid boredom
3. I try to schedule my day to prevent boredom
4. My busy schedule prevents feelings of boredom
5. I find that most of my activities interest me

19) Self control/self management/self reinforcement

1. I feel in control of my time
2. I reward myself for reaching goals
3. I motivate myself to finish tasks
4. I have enough discipline to stay on task while working
5. I put off enjoyable activities until appropriate times

20) Organizes tasks by preference

1. I organize tasks by what I like and dislike
2. I prefer to complete interesting tasks first
3. I complete things as they come
4. I order my tasks by preference
5. I save my least favorite tasks for last

21) Perceives Days As Predictable

1. I rarely encounter scheduling surprises during my day
2. Each morning I know what I will do during the day
3. I can predict what will happen during the day
4. My days are predictable
5. I have a predictable daily routine

22) Identifies Needs and Wants

1. I take time to think about what I really want
2. I take time to think about what I really need
3. I separate what I need to do from what I want to do
4. I know what I need to accomplish
5. I know what I want out of life

23) Self-Efficacy in Meeting goals

1. I am confident I can meet my goals
2. I give up when the going gets tough
3. I lack the confidence to meet my goals
4. I can accomplish my goals
5. I have what it takes to succeed

24) Deals with Procrastination

1. I work best when doing things at the last minute
2. I tend to do things at the last minute

3. I start tasks early to avoid rushing at the last moment
4. I often put things off until later
5. I seldom do important tasks when I should

25) Perceives Use of Time to be Purposive

1. I use my time to reach my goals
2. I waste my time doing unimportant things
3. I use my time in a meaningful way
4. I feel I can do a lot with my time
5. I use my time to complete important tasks

26) Handling Incoming Information

1. I save time by organizing information as it comes to me
2. I feel overwhelmed when I receive lots of new information
3. To save time, I focus on information that I perceive as important
4. I have trouble handling new information
5. I adjust quickly to new incoming information

27) Assertiveness

1. I find it difficult to refuse requests for my time
2. I refuse to take on more work than I can handle
3. I only agree to requests that fit my schedule
4. I am assertive when it comes to my schedule
5. I do not let others influence my use of time

28) Organization of Work Space

1. I spend part of each day organizing my work area
2. I organize my work space in order to complete tasks efficiently
3. I know where to put my things in order to find them quickly
4. I organize my work space on a regular basis
5. I save time by keeping my desk organized

29) Balancing Solitary and Group Time

1. When I need to, I work alone rather than in a group
2. I sometimes work alone to finish tasks more effectively
3. I sometimes work with others to finish tasks more effectively
4. I have difficulty balancing time alone and time spent with others
5. When I need to, I work with groups of people rather than alone

30) Taking Breaks

1. I put breaks into my schedule
2. I take several breaks during the day
3. I feel that taking breaks wastes time
4. I usually have too little time to take breaks

5. Taking breaks allows me to focus better on important tasks

31) Sort Mail Daily

1. I seldom sort my mail
2. I handle incoming mail by sorting it the day it arrives
3. To save time, I throw away "junk mail" as soon as it arrives
4. My mail usually stacks up until I have the time to sort through it
5. I take time to sort my mail each day

32) Files Papers

1. I rarely have the time to file papers
2. I keep my papers filed to save time when looking for them
3. I use a filing system to organize my papers for quick access
4. I take time during the day to file papers
5. I make sure I keep documents on my computer organized so I can find them quickly

33) Follow-Through of Plans

1. Once I make plans, I set aside the time to finish them
2. I have too little time to follow through with all my plans
3. I rarely follow through with my plans
4. I often find it hard to stay focused on my original plans
5. Once I make a plan, I follow through with it

34) Meets Deadlines

1. I am good at meeting my deadlines
2. I seldom finish things on time
3. I plan my time to make sure I meet deadlines
4. I usually have enough time to meet all my deadlines
5. Deadlines help motivate me to finish jobs on time

35) Makes lists/Environmental Cues

1. I remind myself of important work by keeping it in places I see often
2. I make "to-do" lists on a regular basis
3. I post notes for myself to remind me of what I have to do
4. Making lists helps me to organize my time
5. I make a list of what I need to accomplish for the day

36) Has Routines

1. I have a daily routine
2. I try to have each week follow the same pattern of activities
3. I make my life more efficient by using routines
4. I prefer to keep old routines rather than developing new ones
5. I try to avoid performing the same daily routines

37) Schedules Events Weekly

1. I schedule events each week to help me manage my time
2. I keep a schedule of weekly events
3. I try to schedule important activities at least a week in advance
4. I schedule events on a weekly basis
5. I rarely know what I will do during the following week

38) Schedules Time Daily

1. I organize my time daily
2. I plan my activities at the start of the day
3. I schedule events at a certain time each day
4. Keeping a daily schedule is not important to me
5. I schedule my day to know how much time I have to finish everything

39) Organizes Paperwork

1. I put related papers together so I can quickly locate them
2. I put important papers aside so I can easily find them
3. I often forget where I put important documents
4. I save time by organizing my paperwork
5. I spend lots of time looking for paperwork

40) Sets Clothing Out Nightly

1. I pick out my clothes the night before to save time in the morning
2. I decide what to wear each morning
3. I spend too much time deciding what to wear in the morning
4. I take time every night to prepare my outfit for the next day
5. I pack my briefcase or bag the night before

41) Uses a Daily Planner/Calendar

1. I use a calendar to keep track of my appointments
2. I keep track of my time with a daily planner
3. I use a daily planner to organize my day
4. I use a daily calendar to keep track of my tasks
5. I use a calendar to plan my day

42) Delegates Responsibilities and Tasks

1. I ask other people to help me when I feel overwhelmed
2. I use my time efficiently by assigning tasks to others
3. I make use of co-workers when I feel I lack the skills to complete a task
4. I use others as a resource to finish tasks
5. I divide responsibilities instead of doing everything myself

43) Minimizes Interruptions

1. I work on important jobs in places where people can not disturb me

2. I try to avoid interruptions while working on important tasks
3. When I work on important tasks I ask others not to interrupt me
4. While working on tasks I set up an environment that minimizes interruptions
5. When interrupted, I try to refocus quickly

44) Uses Reminders

1. I have a place where I put things so that I will not forget about them
2. I set out letters as a reminder to mail them on time
3. I save time by using notes as reminders
4. I seldom use reminders to help me manage my time
5. I put out books to remind me to return them on time

45) Writes Down Ideas

1. I take the time to write down my ideas when they occur
2. I feel that writing down my ideas wastes time
3. Writing down my ideas helps me stay organized
4. Whenever I have a good idea, I jot it down so that I will remember it
5. I waste a lot of time trying to remember things

46) Stays on Task

1. I work on a job until I finish it
2. I complete one task before starting another
3. I seldom stay on task while working
4. When working on a task, I often get sidetracked
5. When I try to work, I often feel distracted

47) Keeps Daily Log

1. I document my activities each day
2. I take time to write about my day
3. I keep a daily log to stay organized
4. Keeping a daily log allows me to see how I spend my time
5. Keeping a daily log lets me review and improve my time use

48) Manages Meetings

1. I direct meetings to make sure they run efficiently
2. I arrange the times for meetings to avoid scheduling conflicts
3. I plan what I will present before meetings start
4. I keep everyone focused when I run a meeting
5. I prefer meetings with an agenda

49) Engages in Pleasure Activities

1. My schedule allows me time to play
2. My weekly schedule includes time for things that I enjoy
3. I take time to enjoy the good things in life

4. I engage in enjoyable activities during the day
5. I seldom make time for things that I enjoy

Appendix C

Informed Consent, Study 3

Informed Consent

Time Management and Health Related Behaviors (Item Analysis)

Karl Nelson, Department of Psychology, University of Hawaii at Manoa, Gartley Hall,  
Rm. 104.

Phone: 956-8414. E-mail: karln@hawaii.edu

This is a research project exploring the relationships between time management skills and healthy behaviors (for example, eating habits, regular exercise). This section of the study focuses on analysis of items to assess time-management skills. Your participation in this study involves completion of this questionnaire packet during the week following your receipt of the packets. The packet will take approximately two hours to complete. By participating in this project, you can be eligible for class credit.

The information you provide will be kept confidential the extent allowed by law. Efforts to maintain the confidentiality of your responses to questionnaire items include the physical protection of files (i.e., storage in a locked room), and the use of code numbers (i.e., the last four digits of your social security number). Following the assignment of course credit, the page with the last four digits of your SSN will be discarded so that your questionnaire will no longer contain information that can be directly linked to you.

Your completion of these questionnaires may provide benefits both for yourself and for others. Information elicited by the questionnaire items may provide you with further insight about yourself. Moreover, your responses to these questionnaires may enable the development of more effective treatment and training programs across diverse applications, thus potentially improving the lives of others.

At the same time, the completion of questionnaire items may cause you distress. If after completing the questionnaires you experience feelings of wanting to harm yourself or others, it is very important that you call the Crisis Line phone number at 521-4555. However, if after completing the questionnaires you are left feeling troubles or upset, we encourage you to contact the principle investigator, Karl Nelson, by telephone: 956-8414, or e-mail: karln@hawaii.edu; or the faculty advisor, Dr. Elaine Heiby, by telephone: 956-8414, or e-mail: heiby@hawaii.edu.

Participation in this study is absolutely voluntary. Whether you participate in this research study or not has no effect on your grade in this class. Participation in this study is strictly an opportunity to obtain extra credit, and you may obtain equivalent extra credit by completing an alternative project provided by your instructor.

For the results of this study to be useful to others, it is crucial that guidelines be followed. Thus it is very important that the directions for each section be read carefully, and that all pages be completed in their entirety. Also, the questionnaire packet must be returned

within one week of when it is assigned. Finally, by signing this consent form you indicate that it is you who will complete the questionnaire packet, and not another individual. If it is unlikely that you will be able to follow these guidelines, the choice of an alternative method to achieve course credit is requested and strongly encouraged.

If you have any questions, comments, or concerns about this research project, you may contact Karl nelson by telephone: 956-8414, or e-mail: karln@hawaii.edu; or Dr. Elaine Heiby, by telephone: 956-8414, or e-mail: heiby@hawaii.edu.

I herewith give my consent to participate in this project with the understanding that such consent does not waive any of my legal rights, nor does it release the principle investigator or the institution or any employee or agent thereof from liability for negligence.

\_\_\_\_\_ (Name, please print)      \_\_\_\_\_ (Date)

\_\_\_\_\_ (Signature)      \_\_\_\_\_ (Course # for Class Credit)

\_\_\_\_\_ (Instructors Name for  
Credit)

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this study, contact: Committee on Human Studies, University of Hawaii, 2540 Maile Way, Honolulu, Hawaii, 96822. Phone: 808-956-5007)

c: Signed copy to subject

Appendix D

Demographics Sheet



Appendix E

245 Item HTMS-1A Presented in Study 3

## HTMS-1A

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.					
1	2	3	4	5	
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me	
1. I structure my time	1	2	3	4	5
2. I focus on the past	1	2	3	4	5
3. I figure out ways to deal with time constraints	1	2	3	4	5
4. I arrange goals in order of importance	1	2	3	4	5
5. I often change my mind	1	2	3	4	5
6. I break down a long-term goal into several short-term goals	1	2	3	4	5
7. I break down goals into specific tasks	1	2	3	4	5
8. I often think about goals that I need to fulfill in the near future	1	2	3	4	5
9. I create goals for the future	1	2	3	4	5
10. I find it helpful to have deadlines for my goals	1	2	3	4	5
11. From time to time, I re-evaluate my goals to see if they remain important	1	2	3	4	5
12. I check to make sure that I use my time productively	1	2	3	4	5
13. I check my schedule every day to stay on task	1	2	3	4	5
14. I waste time on a daily basis	1	2	3	4	5
15. I prefer order in my daily routine	1	2	3	4	5
16. I seldom feel upset when my schedule changes	1	2	3	4	5
17. Changes in my schedule make me angry	1	2	3	4	5
18. I often feel bored during the day	1	2	3	4	5
19. I feel in control of my time	1	2	3	4	5
20. I organize tasks by what I like and dislike	1	2	3	4	5
21. I rarely encounter scheduling surprises during my day	1	2	3	4	5
22. I take time to think about what I really want	1	2	3	4	5
23. I am confident I can meet my goals	1	2	3	4	5
24. I work best when doing things at the last minute	1	2	3	4	5
25. I use my time to reach my goals	1	2	3	4	5
26. I save time by organizing information as it comes to me	1	2	3	4	5
27. I find it difficult to refuse requests for my time	1	2	3	4	5
28. I spend part of each day organizing my work area	1	2	3	4	5
29. When I need to, I work alone rather than in a group	1	2	3	4	5
30. I put breaks into my schedule	1	2	3	4	5
31. I seldom sort my mail	1	2	3	4	5
32. I rarely have the time to file papers	1	2	3	4	5
33. Once I make plans, I set aside the time to finish them	1	2	3	4	5
34. I am good at meeting my deadlines	1	2	3	4	5
35. I remind myself of important work by keeping it in places I see often	1	2	3	4	5
36. I have a daily routine	1	2	3	4	5
37. I schedule events each week to help me manage my time	1	2	3	4	5

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.					
1	2	3	4	5	
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me	
38. I organize my time daily	1	2	3	4	5
39. I put related papers together so I can quickly locate them	1	2	3	4	5
40. I pick out my clothes the night before to save time in the morning	1	2	3	4	5
41. I use a calendar to keep track of my appointments	1	2	3	4	5
42. I ask other people to help me when I feel overwhelmed	1	2	3	4	5
43. I work on important jobs in places where people can not disturb me	1	2	3	4	5
44. I have a place where I put things so that I will not forget about them	1	2	3	4	5
45. I take the time to write down my ideas when they occur	1	2	3	4	5
46. I work on a job until I finish it	1	2	3	4	5
47. I document my activities each day	1	2	3	4	5
48. I direct meetings to make sure they run efficiently	1	2	3	4	5
49. My schedule allows me time to play	1	2	3	4	5
50. I check the clock to stay on schedule	1	2	3	4	5
51. I focus on the "here and now"	1	2	3	4	5
52. I find it easy to solve problems regarding time	1	2	3	4	5
53. I identify important goals as my highest priority	1	2	3	4	5
54. I act decisively	1	2	3	4	5
55. My future goals guide my current goals	1	2	3	4	5
56. I plan what I need to do to reach my goals	1	2	3	4	5
57. I regularly set short-term goals	1	2	3	4	5
58. I know what I would like to accomplish several months from now	1	2	3	4	5
59. I add deadlines to my goals	1	2	3	4	5
60. I regularly check progress towards reaching my goals	1	2	3	4	5
61. I rarely check to see if I finish things on time	1	2	3	4	5
62. I keep track of my daily schedule	1	2	3	4	5
63. I avoid wasting time	1	2	3	4	5
64. I find effective ways to organize my time	1	2	3	4	5
65. I adapt well to changes in my schedule	1	2	3	4	5
66. I avoid anger by planning for schedule changes	1	2	3	4	5
67. I keep myself busy to avoid boredom	1	2	3	4	5
68. I reward myself for reaching goals	1	2	3	4	5
69. I prefer to complete interesting tasks first	1	2	3	4	5
70. Each morning I know what I will do during the day	1	2	3	4	5
71. I take time to think about what I really need	1	2	3	4	5
72. I give up when the going gets tough	1	2	3	4	5
73. I tend to do things at the last minute	1	2	3	4	5
74. I waste my time doing unimportant things	1	2	3	4	5
75. I feel overwhelmed when I receive lots of new information	1	2	3	4	5
76. I refuse to take on more work than I can handle	1	2	3	4	5

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.					
1	2	3	4	5	
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me	
77. I organize my work space in order to complete tasks efficiently	1	2	3	4	5
78. I sometimes work alone to finish tasks more effectively	1	2	3	4	5
79. I take several breaks during the day	1	2	3	4	5
80. I handle incoming mail by sorting it the day it arrives	1	2	3	4	5
81. I keep my papers filed to save time when looking for them	1	2	3	4	5
82. I have too little time to follow through with all my plans	1	2	3	4	5
83. I seldom finish things on time	1	2	3	4	5
84. I make "to-do" lists on a regular basis	1	2	3	4	5
85. I try to have each week follow the same pattern of activities	1	2	3	4	5
86. I keep a schedule of weekly events	1	2	3	4	5
87. I plan my activities at the start of the day	1	2	3	4	5
88. I put important papers aside so I can easily find them	1	2	3	4	5
89. I decide what to wear each morning	1	2	3	4	5
90. I keep track of my time with a daily planner	1	2	3	4	5
91. I use my time efficiently by assigning tasks to others	1	2	3	4	5
92. I try to avoid interruptions while working on important tasks	1	2	3	4	5
93. I set out letters as a reminder to mail them on time	1	2	3	4	5
94. I feel that writing down my ideas wastes time	1	2	3	4	5
95. I complete one task before starting another	1	2	3	4	5
96. I take time to write about my day	1	2	3	4	5
97. I arrange the times for meetings to avoid scheduling conflicts	1	2	3	4	5
98. My weekly schedule includes time for things that I enjoy	1	2	3	4	5
99. Structuring my day saves time	1	2	3	4	5
100. I try to focus on the present	1	2	3	4	5
101. I try to resolve time conflicts as quickly as possible	1	2	3	4	5
102. I rank my objectives	1	2	3	4	5
103. I make decisions easily when it comes to scheduling time	1	2	3	4	5
104. I create short-term goals in order to accomplish my long-term goals	1	2	3	4	5
105. I understand what it takes to reach my goals	1	2	3	4	5
106. I set short-term goals in order to save time	1	2	3	4	5
107. I set long-term goals	1	2	3	4	5
108. Deadlines help me set appropriate goals	1	2	3	4	5
109. I make sure my goals remain realistic for me	1	2	3	4	5
110. I use my time wisely	1	2	3	4	5
111. I often check my daily schedule	1	2	3	4	5
112. I consider time important	1	2	3	4	5
113. I like to organize my time	1	2	3	4	5
114. I avoid anxiety by planning for changes in my schedule	1	2	3	4	5
115. Unexpected schedule changes make me angry	1	2	3	4	5

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.					
1	2	3	4	5	
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me	
116. I try to schedule my day to prevent boredom	1	2	3	4	5
117. I motivate myself to finish tasks	1	2	3	4	5
118. I complete things as they come	1	2	3	4	5
119. I can predict what will happen during the day	1	2	3	4	5
120. I separate what I need to do from what I want to do	1	2	3	4	5
121. I lack the confidence to meet my goals	1	2	3	4	5
122. I start tasks early to avoid rushing at the last moment	1	2	3	4	5
123. I use my time in a meaningful way	1	2	3	4	5
124. To save time, I focus on information that I perceive as important	1	2	3	4	5
125. I only agree to requests that fit my schedule	1	2	3	4	5
126. I know where to put my things in order to find them quickly	1	2	3	4	5
127. I sometimes work with others to finish tasks more effectively	1	2	3	4	5
128. I feel that taking breaks wastes time	1	2	3	4	5
129. To save time, I throw away “junk mail” as soon as it arrives	1	2	3	4	5
130. I use a filing system to organize my papers for quick access	1	2	3	4	5
131. I rarely follow through with my plans	1	2	3	4	5
132. I plan my time to make sure I meet deadlines	1	2	3	4	5
133. I post notes for myself to remind me of what I have to do	1	2	3	4	5
134. I make my life more efficient by using routines	1	2	3	4	5
135. I try to schedule important activities at least a week in advance	1	2	3	4	5
136. I schedule events at a certain time each day	1	2	3	4	5
137. I often forget where I put important documents	1	2	3	4	5
138. I spend too much time deciding what to wear in the morning	1	2	3	4	5
139. I use a daily planner to organize my day	1	2	3	4	5
140. I make use of co-workers when I feel I lack the skills to complete a task	1	2	3	4	5
141. When I work on important tasks I ask others not to interrupt me	1	2	3	4	5
142. I save time by using notes as reminders	1	2	3	4	5
143. Writing down my ideas helps me stay organized	1	2	3	4	5
144. I seldom stay on task while working	1	2	3	4	5
145. I keep a daily log to stay organized	1	2	3	4	5
146. I plan what I will present before meetings start	1	2	3	4	5
147. I take time to enjoy the good things in life	1	2	3	4	5
148. I wish my time had more structure	1	2	3	4	5
149. I daydream often	1	2	3	4	5
150. I save time by problem solving	1	2	3	4	5
151. I see some goals as more important than others	1	2	3	4	5
152. I often change my mind after hearing other’s ideas	1	2	3	4	5
153. I break large goals into more manageable goals	1	2	3	4	5
154. When unable to reach my goals, I review what could have done to succeed	1	2	3	4	5

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.					
1	2	3	4	5	
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me	
155. I have weekly goals	1	2	3	4	5
156. I know what I want to achieve in the next five years	1	2	3	4	5
157. I identify deadlines by which to complete specific goals	1	2	3	4	5
158. I regularly consider whether I should change any of my goals	1	2	3	4	5
159. I look for ways to avoid wasting time	1	2	3	4	5
160. Monitoring my daily schedule allows me to make adjustments	1	2	3	4	5
161. I dislike wasting a minute of my day	1	2	3	4	5
162. I prefer to organize my tasks	1	2	3	4	5
163. Unexpected schedule changes make me anxious	1	2	3	4	5
164. I feel irritated when something interferes with my schedule	1	2	3	4	5
165. My busy schedule prevents feelings of boredom	1	2	3	4	5
166. I have enough discipline to stay on task while working	1	2	3	4	5
167. I order my tasks by preference	1	2	3	4	5
168. My days are predictable	1	2	3	4	5
169. I know what I need to accomplish	1	2	3	4	5
170. I can accomplish my goals	1	2	3	4	5
171. I often put things off until later	1	2	3	4	5
172. I feel I can do a lot with my time	1	2	3	4	5
173. I have trouble handling new information	1	2	3	4	5
174. I am assertive when it comes to my schedule	1	2	3	4	5
175. I organize my work space on a regular basis	1	2	3	4	5
176. I have difficulty balancing time alone and time spent with others	1	2	3	4	5
177. I usually have too little time to take breaks	1	2	3	4	5
178. My mail usually stacks up until I have the time to sort through it	1	2	3	4	5
179. I take time during the day to file papers	1	2	3	4	5
180. I often find it hard to stay focused on my original plans	1	2	3	4	5
181. I usually have enough time to meet all my deadlines	1	2	3	4	5
182. Making lists helps me to organize my time	1	2	3	4	5
183. I prefer to keep old routines rather than developing new ones	1	2	3	4	5
184. I schedule events on a weekly basis	1	2	3	4	5
185. Keeping a daily schedule is not important to me	1	2	3	4	5
186. I save time by organizing my paperwork	1	2	3	4	5
187. I take time every night to prepare my outfit for the next day	1	2	3	4	5
188. I use a daily calendar to keep track of my tasks	1	2	3	4	5
189. I use others as a resource to finish tasks	1	2	3	4	5
190. While working on tasks I set up an environment that minimizes interruptions	1	2	3	4	5
191. I seldom use reminders to help me manage my time	1	2	3	4	5
192. Whenever I have a good idea, I jot it down so that I will remember it	1	2	3	4	5
193. When working on a task, I often get sidetracked	1	2	3	4	5

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.					
1	2	3	4	5	
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me	
194. Keeping a daily log allows me to see how I spend my time	1	2	3	4	5
195. I keep everyone focused when I run a meeting	1	2	3	4	5
196. I engage in enjoyable activities during the day	1	2	3	4	5
197. I allocate time to specific tasks	1	2	3	4	5
198. I focus more on the future than on the present	1	2	3	4	5
199. I plan ahead to avoid problems with time	1	2	3	4	5
200. I work toward my important goals first	1	2	3	4	5
201. I save time by following through with my decisions	1	2	3	4	5
202. I connect my short-term goals with my long-term goals	1	2	3	4	5
203. I know the tasks I must accomplish to reach my goals	1	2	3	4	5
204. I make goals for each day	1	2	3	4	5
205. I know what I want to achieve during my lifetime	1	2	3	4	5
206. I make plans to finish tasks by certain dates	1	2	3	4	5
207. I regularly look over my list of goals	1	2	3	4	5
208. I look for ways to use my time more effectively	1	2	3	4	5
209. At the end of each day, I review my schedule to see if I have completed everything	1	2	3	4	5
210. I think time is too valuable to waste	1	2	3	4	5
211. I save time by keeping my environment organized	1	2	3	4	5
212. I become nervous when things go off schedule	1	2	3	4	5
213. I feel angry when I must change my routine	1	2	3	4	5
214. I find that most of my activities interest me	1	2	3	4	5
215. I put off enjoyable activities until appropriate times	1	2	3	4	5
216. I save my least favorite tasks for last	1	2	3	4	5
217. I have a predictable daily routine	1	2	3	4	5
218. I know what I want out of life	1	2	3	4	5
219. I have what it takes to succeed	1	2	3	4	5
220. I seldom do important tasks when I should	1	2	3	4	5
221. I use my time to complete important tasks	1	2	3	4	5
222. I adjust quickly to new incoming information	1	2	3	4	5
223. I do not let others influence my use of time	1	2	3	4	5
224. I save time by keeping my desk organized	1	2	3	4	5
225. When I need to, I work with groups of people rather than alone	1	2	3	4	5
226. Taking breaks allows me to focus better on important tasks	1	2	3	4	5
227. I take time to sort my mail each day	1	2	3	4	5
228. I make sure I keep documents on my computer organized so I can find them quickly	1	2	3	4	5
229. Once I make a plan, I follow through with it	1	2	3	4	5
230. Deadlines help motivate me to finish jobs on time	1	2	3	4	5
231. I make a list of what I need to accomplish for the day	1	2	3	4	5

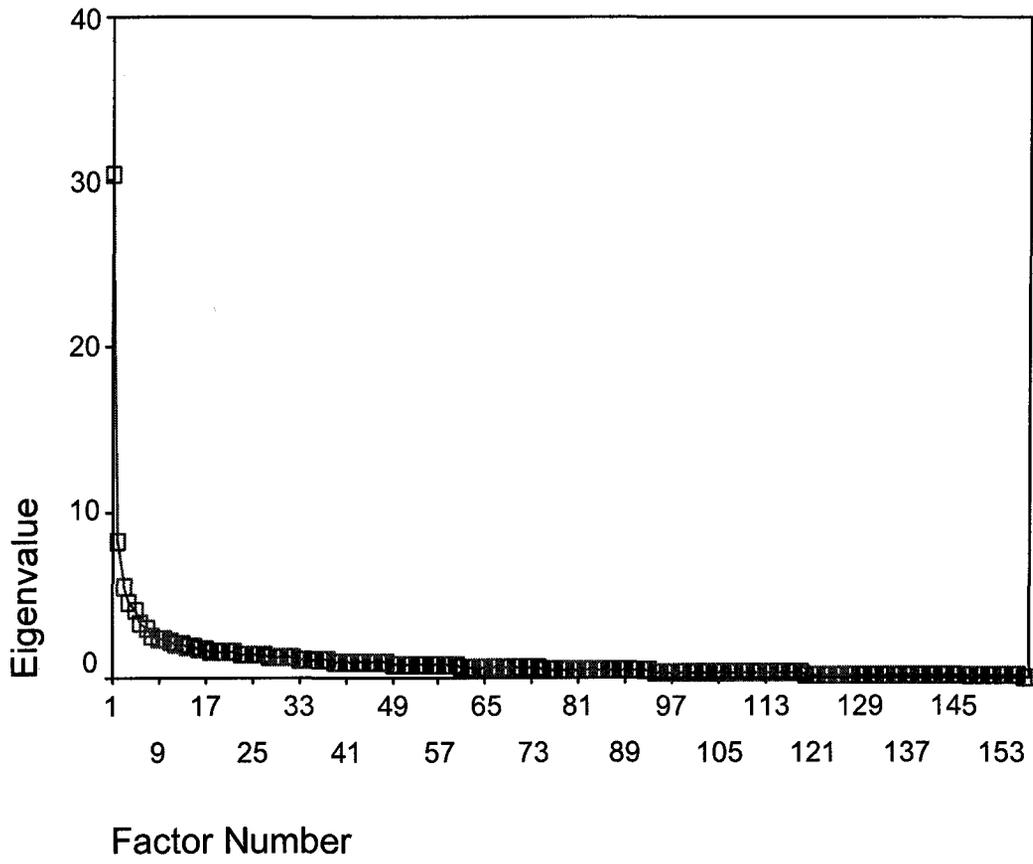
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For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.					
1	2	3	4	5	
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me	
232. I try to avoid performing the same daily routines	1	2	3	4	5
233. I rarely know what I will do during the following week	1	2	3	4	5
234. I schedule my day to know how much time I have to finish everything	1	2	3	4	5
235. I spend lots of time looking for paperwork	1	2	3	4	5
236. I pack my briefcase or bag the night before	1	2	3	4	5
237. I use a calendar to plan my day	1	2	3	4	5
238. I divide responsibilities instead of doing everything myself	1	2	3	4	5
239. When interrupted, I try to refocus quickly	1	2	3	4	5
240. I put out books to remind me to return them on time	1	2	3	4	5
241. I waste a lot of time trying to remember things	1	2	3	4	5
242. When I try to work, I often feel distracted	1	2	3	4	5
243. Keeping a daily log lets me review and improve my time use	1	2	3	4	5
244. I prefer meetings with an agenda	1	2	3	4	5
245. I seldom make time for things that I enjoy	1	2	3	4	5

Appendix F

6 Factor Exploratory Factor Analysis, Study 3

### Scree Plot



Pattern Matrix Indicating Interpreted Factor Loadings for 6 Factor Solution

Item	Factor					
	1	2	3	4	5	6
HTMS1.99	.384	.379	-3.946E-02	3.034E-02	4.561E-02	1.756E-02
HTM1.197	.377	.192	.122	6.362E-02	7.170E-02	7.961E-02
HTMS1.15	.267	.207	-.150	-1.406E-02	-.105	.332
HTMS1.2	.238	7.003E-02	<b><u>-.543</u></b>	-8.816E-03	-.229	6.704E-02
HTMS1.51	.137	-.212	4.546E-02	.215	.276	.194
HTM1.100	.290	-.116	.123	.156	.180	8.931E-02
HTMS1.3	<b><u>.549</u></b>	-7.489E-02	.106	2.888E-02	-3.554E-02	3.185E-02
HTMS1.52	.207	-3.743E-02	.177	.305	.286	1.452E-02
HTM1.101	<b><u>.529</u></b>	3.304E-02	-1.148E-02	6.595E-02	-4.261E-02	-1.598E-02
HTM1.150	<b><u>.515</u></b>	-9.959E-02	3.398E-02	5.013E-02	.148	-.169
HTM1.199	.406	.190	.144	-.105	8.066E-02	7.038E-02
HTMS1.4	<b><u>.564</u></b>	-2.594E-02	3.180E-02	2.948E-02	-9.969E-02	8.671E-03

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HTMS1.53	<u>.670</u>	-.147	1.901E-02	.109	-2.424E-03	8.273E-03
HTM1.102	.494	.149	-.110	7.552E-02	5.238E-02	-6.899E-02
HTM1.151	<u>.645</u>	-3.941E-03	-.210	.177	-.300	-.105
HTM1.200	<u>.734</u>	-.135	1.345E-02	5.903E-02	-2.845E-02	6.916E-03
HTR1.5	-.102	3.825E-02	<u>.443</u>	-.148	7.320E-02	1.498E-02
HTMS1.54	.429	-.102	.153	1.434E-02	.284	1.461E-02
HTM1.103	.439	8.300E-02	.157	4.178E-02	.117	7.264E-02
HTM1.152	-.135	5.355E-02	<u>-.425</u>	9.406E-02	-1.955E-02	.167
HTM1.201	<u>.539</u>	-1.999E-02	.108	5.623E-03	7.272E-02	.143
HTMS1.55	<u>.650</u>	.113	-4.237E-02	.128	7.536E-03	-.108
HTMS1.7	.386	.200	8.145E-03	4.220E-02	8.031E-02	-6.383E-02
HTM1.154	<u>.715</u>	-6.757E-02	-.150	.135	-2.848E-02	-.164
HTMS1.8	<u>.656</u>	.123	-.137	2.835E-02	-.142	-.216
HTMS1.57	.367	9.084E-02	2.897E-02	8.555E-02	.205	2.801E-02
HTM1.106	.285	.168	7.264E-02	8.084E-02	.292	5.689E-02

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HTM1.155	.299	.303	-1.680E-02	-4.308E-02	.174	8.200E-03
HTMS1.9	<u>.535</u>	8.424E-02	-4.411E-02	.109	-1.833E-02	-.199
HTMS1.58	.447	.175	-7.207E-02	8.738E-02	.101	-7.963E-02
HTM1.205	.445	4.250E-02	-5.193E-02	.267	6.359E-02	-7.973E-03
HTMS1.10	<u>.678</u>	-3.383E-02	-.115	-4.327E-02	-.150	2.315E-03
HTM1.157	<u>.546</u>	.124	9.546E-03	-3.583E-02	-5.342E-02	2.176E-02
HTMS1.11	.517	.131	-.104	4.965E-02	.203	-.124
HTMS1.60	.471	.108	-1.943E-02	6.270E-02	.215	-9.285E-03
HTM1.109	.397	1.087E-02	6.239E-02	.320	.202	.160
HTM1.158	.313	8.196E-02	-.271	-1.007E-02	7.925E-02	-5.562E-02
HTM1.207	.273	.454	-3.660E-02	-.118	.234	-.145
HTMS1.12	.451	5.630E-02	7.977E-02	-.188	.145	.136
HTM1.110	.358	4.602E-02	.372	-8.652E-02	.160	.203
HTM1.159	<u>.573</u>	-9.819E-02	4.238E-03	-.194	.132	3.474E-02
HTM1.209	.285	.379	2.141E-03	-.184	.104	-.153

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HTMS1.87	.196	.337	-7.132E-02	8.312E-03	.109	5.468E-02
HTM1.136	-3.972E-03	.308	-7.367E-02	6.495E-02	.347	.238
HTR1.14	-1.361E-02	8.706E-02	<u>.507</u>	-.208	7.255E-02	.132
HTMS1.63	.293	-7.003E-02	.275	-.273	.169	.247
HTM1.112	.454	3.709E-02	-3.623E-02	-.174	-.109	8.999E-02
HTM1.161	.236	-4.052E-02	-7.188E-02	-.433	7.649E-02	4.646E-02
HTM1.210	.428	-4.879E-02	-8.447E-02	-.317	2.138E-02	4.977E-02
HTMS1.16	.173	-.133	.126	.182	5.766E-02	-.146
HTMS1.65	.199	-.156	.299	.371	.220	-.213
HTR1.212	-.247	2.238E-02	.558	.320	.144	-.369
HTR1.17	-.131	3.307E-02	.433	.170	5.985E-02	-.333
HTR1.213	-.145	9.711E-03	.464	.298	6.214E-03	-.377
HTMS1.67	<u>.400</u>	9.400E-03	-.129	-4.272E-02	.113	1.782E-02
HTM1.116	.393	6.253E-02	-.281	5.748E-03	.132	3.446E-02
HTM1.165	.474	-2.230E-02	-7.625E-02	-.211	5.668E-03	-5.942E-02

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HTM1.117	<u>.569</u>	2.094E-02	.135	-3.270E-02	-6.907E-02	2.296E-02
HTM1.166	.510	-.116	.332	-2.829E-02	3.359E-02	6.380E-02
HTM1.215	.284	-8.363E-03	.148	-.295	7.696E-02	.108
HTMS1.69	.121	7.645E-03	-.389	.391	9.498E-02	.142
HTR1.118	-.256	6.511E-02	-.201	-5.807E-02	-.112	-.145
HTM1.167	.349	-.166	-.306	.297	.111	.228
HTM1.216	4.023E-02	-.199	-.374	.193	.102	.217
HTMS1.21	-4.493E-02	8.529E-02	4.477E-02	.160	7.610E-02	.282
HTMS1.70	.316	.177	-7.904E-03	1.087E-03	3.027E-02	.294
HTM1.119	6.710E-02	3.530E-02	8.818E-02	.206	.186	.397
HTM1.217	.109	.156	-.128	.176	8.399E-02	<u>.527</u>
HTMS1.22	<u>.435</u>	4.282E-02	-.134	.115	.116	-.121
HTMS1.71	.427	.112	-6.704E-03	.125	.194	-4.079E-02
HTM1.169	<u>.574</u>	3.340E-02	6.616E-02	.228	-.147	5.796E-02
HTM1.218	.434	4.454E-02	3.353E-02	.267	8.052E-02	-3.082E-03

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HTR1.72	.316	-5.621E-02	.429	-1.849E-02	-.163	-.155
HTR1.121	.261	-.118	.450	.189	8.395E-02	-4.050E-02
HTM1.219	.468	-6.523E-02	.108	.248	6.977E-03	-2.326E-02
HTR1.171	2.093E-03	.190	<u>.556</u>	-.227	.117	8.640E-02
HTR1.220	7.755E-02	.145	.405	-2.222E-02	-.237	2.002E-02
HTMS1.25	<u>.503</u>	-5.434E-02	.141	-.115	3.519E-02	7.020E-02
HTR1.74	.112	5.227E-02	<u>.621</u>	-.278	7.590E-02	-6.972E-02
HTM1.221	<u>.524</u>	-3.279E-02	.218	-9.017E-02	-6.580E-02	7.692E-02
HTMS1.75	-1.178E-03	.128	<u>-.518</u>	-7.004E-02	-.188	.240
HTR.173	.219	-2.149E-02	.347	.201	-.151	-.322
HTM1.222	.390	-6.955E-02	.205	.265	.156	-.182
HTM1.125	8.503E-03	3.349E-02	-8.188E-02	7.957E-02	.249	.298
HTM1.174	<u>.472</u>	9.165E-02	4.230E-02	-5.877E-02	7.997E-02	6.451E-02
HTM1.223	.119	-6.306E-02	.136	2.741E-02	.311	.246
HTMS1.28	-2.677E-02	.411	-.144	-3.317E-02	.130	.168

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HTM1.126	5.080E-02	.530	9.820E-02	.176	-2.556E-02	.132
HTM1.175	4.478E-02	<u>.626</u>	-6.558E-02	3.620E-02	5.501E-02	.113
HTMS1.29	.463	-3.079E-02	-.145	-8.488E-02	-.269	-2.051E-02
HTMS1.78	.595	-2.028E-02	-.196	1.327E-02	-.333	.128
HTMS1.30	8.355E-02	7.951E-02	-.296	.423	2.700E-02	.250
HTMS1.79	3.542E-02	.112	-.390	.571	.148	.131
HTR1.128	4.880E-02	-1.693E-02	-1.393E-02	<u>.578</u>	-6.478E-02	8.438E-02
HTM1.226	.242	6.099E-02	-.209	.384	.168	4.890E-02
HTR1.31	-.148	.416	6.505E-02	9.737E-02	-3.565E-03	.134
HTMS1.80	-.184	<u>.625</u>	9.491E-03	6.485E-02	6.691E-02	.157
HTR1.178	-.167	.416	.243	.226	-.256	.271
HTR1.32	-.388	.519	.232	.243	8.284E-02	.185
HTMS1.81	-3.126E-02	<u>.709</u>	-6.185E-02	8.948E-02	-1.719E-02	8.494E-02
HTM1.228	4.306E-02	<u>.486</u>	3.830E-02	6.121E-02	-.137	4.967E-02
HTMS1.33	.426	4.804E-02	9.533E-02	7.982E-02	-7.862E-02	.153

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HTR1.131	.334	3.714E-03	.331	7.463E-02	-.243	6.276E-02
HTR1.180	.114	-4.437E-02	<u>.506</u>	2.711E-02	3.008E-03	7.954E-02
HTM1.229	.437	3.751E-02	.202	-7.195E-03	-.116	.111
HTMS1.34	<u>.489</u>	-3.473E-02	.161	6.681E-02	-.243	.194
HTR1.83	.230	-4.550E-02	.362	-1.254E-02	-.357	.148
HTM1.132	<u>.536</u>	.112	.183	-.157	-.118	7.336E-02
HTM1.181	.408	-8.394E-02	.221	.162	-7.057E-02	.172
HTM1.230	<u>.744</u>	-3.942E-02	-5.790E-02	-7.785E-02	-.228	-5.562E-02
HTMS1.35	.360	.284	-1.633E-02	-.120	-.194	-5.162E-02
HTMS1.82	.200	4.982E-02	-.443	-.176	-6.538E-02	-.202
HTMS1.36	.168	.204	-2.390E-02	.179	1.905E-02	<u>.522</u>
HTMS1.85	-6.142E-02	.298	-.162	7.628E-03	.189	.407
HTM1.183	.102	-1.478E-02	-.425	-7.988E-02	-8.453E-02	.408
HTR1.232	-.183	9.612E-02	-9.514E-03	.128	-.228	.484
HTMS1.37	.303	.340	1.877E-02	-.159	7.748E-02	3.168E-02

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HTM1.135	.256	.302	-3.466E-02	-.101	.116	8.947E-02
HTR1.233	9.679E-02	.305	.178	-1.537E-02	-2.793E-02	.210
HTMS1.88	.197	.483	2.578E-04	8.730E-02	-4.990E-02	2.081E-03
HTR1.137	.188	.401	.251	7.674E-02	-.245	-.101
HTM1.186	4.182E-02	<b>.672</b>	1.544E-02	.139	6.199E-02	.105
HTR1.235	-1.243E-03	.337	.353	.220	-.251	.130
HTMS1.40	-.148	.420	-5.692E-02	-1.123E-02	.115	.169
HTM1.236	-5.421E-02	<b>.519</b>	-.139	1.653E-02	-5.112E-02	.156
HTMS1.41	7.592E-02	<b>.542</b>	7.594E-02	-.122	-6.473E-02	-1.778E-02
HTM1.139	8.657E-02	<b>.476</b>	2.841E-02	-.177	.172	-.209
HTMS1.42	-4.666E-02	8.428E-02	9.012E-03	.235	.423	4.601E-02
HTMS1.91	2.973E-02	9.201E-03	-1.307E-02	8.415E-02	<b>.584</b>	-7.247E-02
HTM1.140	-1.031E-02	2.735E-02	1.808E-02	.195	.394	3.277E-02
HTM1.189	-.138	-3.276E-02	1.890E-02	.200	<b>.611</b>	9.758E-02
HTM1.238	-6.403E-02	-8.335E-02	5.517E-02	.168	<b>.597</b>	6.960E-02

Time Management and Health 179

HTMS1.43	.320	-4.068E-02	-4.887E-02	.100	-7.483E-02	.184
HTMS1.92	.452	-6.382E-02	5.083E-02	-5.378E-02	-1.095E-02	.205
HTM1.141	.346	-.167	-7.036E-02	-.174	7.082E-02	9.484E-02
HTM1.239	<u>.513</u>	-8.754E-02	.102	-.167	4.940E-02	.113
HTMS1.44	.130	.473	-1.325E-02	9.403E-02	-4.257E-02	.158
HTMS1.93	.168	.320	-4.293E-02	-.127	-2.880E-03	-2.457E-02
HTM1.142	.114	<u>.544</u>	4.676E-02	-.155	-2.215E-02	-.110
HTR1.191	-4.209E-02	<u>.500</u>	.112	-.117	-.163	-.149
HTM1.240	.272	.338	-.101	2.361E-03	-.184	-5.446E-02
HTR1.94	.139	.239	.117	6.223E-02	-.201	-.122
HTM1.192	6.163E-02	.382	-.103	-7.531E-02	.161	-1.568E-02
HTMS1.46	.415	-6.845E-02	.140	-9.468E-02	-8.920E-02	.142
HTMS1.95	8.670E-02	-1.894E-02	.134	6.582E-02	.138	.240
HTR1.144	.203	-2.104E-02	.515	-8.689E-02	-.161	.100
HTR1.193	3.579E-02	-2.795E-02	<u>.637</u>	-.261	6.182E-02	5.284E-02

Time Management and Health 180

HTMS1.96	-.186	.219	1.304E-02	-5.191E-02	.482	-2.412E-02
HTM1.145	-3.083E-03	.431	3.370E-03	-.181	.362	-.151
HTMS1.48	.184	.163	3.037E-02	-.160	.264	-.159
HTMS1.97	.370	.183	6.661E-05	-.120	1.432E-02	2.566E-03
HTM1.146	.338	.149	.141	7.269E-02	-.154	-8.612E-02
HTM1.195	.448	7.665E-02	6.199E-02	3.242E-04	8.893E-02	-.222
HTM1.244	<b><u>.476</u></b>	.106	-5.494E-02	-2.492E-02	-.156	9.385E-02
HTMS1.49	-5.151E-02	1.328E-02	-9.957E-02	<b><u>.691</u></b>	.220	.125
HTMS1.98	.112	4.381E-02	-8.880E-02	<b><u>.607</u></b>	.229	.123
HTM1.147	.180	-7.879E-02	-2.661E-02	<b><u>.691</u></b>	.240	.133
HTR1.245	-8.922E-02	1.388E-02	.124	<b><u>.545</u></b>	2.653E-02	.154

Note: Loadings underlined and bolded (columns 2 – 7) were the interpreted factor loadings. The number after the decimal in the first column indicates item number on the 245 item version of the HTMS.

Structure Matrix Indicating Item-Factor Correlations for 6 Factor Solution

Item	Factor					
	1	2	3	4	5	6
HTMS1.99	.619	.616	.199	-.102	.310	.295
HTM1.197	.595	.483	.331	-4.486E-02	.271	.318
HTMS1.15	.435	.410	6.239E-02	-.180	.149	.466
HTMS1.2	7.926E-03	4.497E-02	-.414	-7.498E-02	-7.129E-02	4.448E-02
HTMS1.51	.194	-6.830E-03	.107	7.877E-02	.234	.180
HTM1.100	.359	.145	.242	6.657E-02	.221	.185
HTMS1.3	.542	.273	.315	-8.610E-03	.152	.245
HTMS1.52	.337	.171	.285	.212	.250	8.140E-02
HTM1.101	.512	.320	.210	1.556E-02	.152	.186
HTM1.150	.449	.201	.182	1.800E-02	.266	4.058E-02
HTM1.199	.650	.529	.337	-.213	.344	.384
HTMS1.4	.521	.287	.255	1.081E-03	.107	.215

## Time Management and Health 182

HTMS1.53	.579	.245	.264	5.224E-02	.183	.214
HTM1.102	.524	.405	.111	-1.691E-02	.259	.155
HTM1.151	.377	.184	6.011E-02	.206	-.118	4.657E-03
HTM1.200	.642	.293	.279	1.391E-03	.202	.253
HTR1.5	.146	.125	.389	-.106	7.777E-02	.131
HTMS1.54	.544	.279	.289	-9.829E-02	.414	.251
HTM1.103	.622	.434	.360	-6.450E-02	.312	.327
HTM1.152	-.215	-8.880E-02	-.420	-1.196E-02	-3.258E-02	1.241E-02
HTM1.201	.659	.395	.337	-.113	.306	.401
HTMS1.55	.643	.442	.234	6.095E-02	.236	.156
HTMS1.7	.509	.432	.193	-3.884E-02	.267	.169
HTM1.154	.519	.247	.104	.103	.160	4.049E-02
HTMS1.8	.525	.370	.116	3.231E-02	.106	3.743E-02
HTMS1.57	.516	.377	.200	-4.653E-02	.355	.235
HTM1.106	.545	.451	.230	-8.587E-02	.439	.282

## Time Management and Health 183

HTM1.155	.553	.542	.154	-.190	.403	.282
HTMS1.9	.464	.310	.163	9.970E-02	.142	7.527E-03
HTMS1.58	.520	.420	.134	-1.048E-02	.289	.146
HTM1.205	.440	.274	.165	.181	.165	.108
HTMS1.10	.560	.309	.142	-8.680E-02	.129	.242
HTM1.157	.617	.451	.250	-.109	.218	.297
HTMS1.11	.577	.434	.101	-7.325E-02	.409	.147
HTMS1.60	.603	.441	.186	-8.216E-02	.413	.249
HTM1.109	.538	.326	.287	.158	.288	.278
HTM1.158	.266	.218	-.146	-.108	.232	7.570E-02
HTM1.207	.576	.654	.116	-.255	.491	.201
HTMS1.12	.654	.462	.258	-.334	.431	.458
HTM1.110	.691	.471	.539	-.205	.373	.504
HTM1.159	.606	.329	.177	-.303	.402	.345
HTM1.209	.511	.563	.137	-.259	.361	.176

## Time Management and Health 184

HTMS1.87	.436	.488	8.557E-02	-.133	.303	.254
HTM1.136	.385	.462	3.079E-02	-.192	.475	.375
HTR1.14	.346	.288	.512	-.214	.170	.334
HTMS1.63	.563	.340	.371	-.398	.397	.532
HTM1.112	.478	.324	.143	-.234	.162	.325
HTM1.161	.285	.191	-4.825E-02	-.507	.316	.287
HTM1.210	.434	.261	3.203E-02	-.398	.297	.316
HTMS1.16	7.996E-02	-5.893E-02	.161	.232	-1.339E-02	-.142
HTMS1.65	.173	-2.835E-02	.348	.415	6.740E-02	-.202
HTR1.212	-.156	-.125	.440	.507	-.160	-.444
HTR1.17	-8.173E-02	-6.352E-02	.351	.339	-.131	-.345
HTR1.213	-.154	-.139	.385	.511	-.251	-.452
HTMS1.67	.414	.269	2.032E-02	-.155	.299	.208
HTM1.116	.388	.287	-.114	-.149	.326	.198
HTM1.165	.433	.262	6.048E-02	-.257	.248	.196

## Time Management and Health 185

HTM1.117	.621	.384	.363	-6.896E-02	.173	.294
HTM1.166	.613	.299	.510	-5.548E-02	.209	.323
HTM1.215	.449	.299	.229	-.369	.303	.373
HTMS1.69	2.585E-02	7.440E-03	-.261	.237	6.287E-02	1.085E-02
HTR1.118	-.394	-.204	-.316	2.006E-02	-.197	-.275
HTM1.167	.236	3.574E-02	-.127	.120	.162	.191
HTM1.216	-.114	-.187	-.339	5.494E-02	5.661E-02	5.844E-02
HTMS1.21	.155	.156	.118	3.585E-02	9.102E-02	.259
HTMS1.70	.557	.468	.206	-.177	.275	.490
HTM1.119	.341	.246	.217	6.593E-03	.238	.423
HTM1.217	.390	.359	6.679E-02	-8.969E-02	.238	.557
HTMS1.22	.389	.254	3.431E-02	3.930E-02	.242	3.993E-02
HTMS1.71	.537	.395	.186	4.493E-03	.348	.176
HTM1.169	.558	.330	.347	.194	2.442E-02	.215
HTM1.218	.472	.295	.247	.187	.175	.128

Time Management and Health 186

HTR1.72	.320	.132	.515	.124	-.101	1.135E-02
HTR1.121	.358	.122	.543	.229	5.926E-02	6.907E-02
HTM1.219	.434	.196	.308	.223	8.023E-02	9.224E-02
HTR1.171	.442	.413	.576	-.244	.246	.353
HTR1.220	.239	.218	.478	7.804E-02	-.168	.129
HTMS1.25	.583	.330	.319	-.182	.266	.341
HTR1.74	.418	.302	.619	-.209	.187	.221
HTM1.221	.607	.349	.418	-.120	.170	.347
HTMS1.75	-8.865E-02	4.247E-02	-.448	-.186	-4.978E-02	.168
HTR.173	.118	6.365E-03	.405	.391	-.224	-.275
HTM1.222	.380	.159	.340	.270	.152	-5.721E-02
HTM1.125	.214	.179	-1.595E-02	-.125	.305	.324
HTM1.174	.610	.439	.245	-.172	.327	.341
HTM1.223	.359	.208	.204	-.145	.378	.360
HTMS1.28	.292	.461	-4.339E-02	-.217	.300	.301

## Time Management and Health 187

HTM1.126	.433	.589	.286	6.462E-02	.124	.274
HTM1.175	.461	.686	.114	-.134	.281	.319
HTMS1.29	.283	.139	2.369E-02	-5.974E-02	-6.484E-02	.111
HTMS1.78	.428	.230	7.069E-02	-1.636E-02	-7.081E-02	.262
HTMS1.30	8.334E-02	8.600E-02	-.139	.262	1.109E-02	.117
HTMS1.79	-2.086E-03	4.539E-02	-.250	.397	5.127E-02	-5.349E-02
HTR1.128	-2.568E-02	-7.394E-02	.105	.566	-.225	-.116
HTM1.226	.239	.167	-4.322E-02	.241	.174	3.822E-02
HTR1.31	.172	.368	.139	1.487E-02	5.971E-02	.181
HTMS1.80	.281	.577	.112	-8.547E-02	.198	.271
HTR1.178	.164	.341	.364	.209	-.221	.242
HTR1.32	9.645E-02	.383	.262	.152	3.741E-02	.160
HTMS1.81	.390	.685	.112	-4.996E-02	.180	.251
HTM1.228	.309	.484	.187	1.481E-02	1.805E-02	.178
HTMS1.33	.517	.337	.315	8.837E-03	.108	.324

## Time Management and Health 188

HTR1.131	.385	.211	.494	.143	-.135	.188
HTR1.180	.316	.158	.559	6.673E-02	2.083E-02	.198
HTM1.229	.540	.345	.404	-3.472E-02	8.656E-02	.323
HTMS1.34	.510	.272	.399	5.162E-02	-4.586E-02	.346
HTR1.83	.266	.112	.482	8.894E-02	-.259	.224
HTM1.132	.678	.486	.411	-.198	.190	.400
HTM1.181	.469	.218	.419	.123	3.950E-02	.289
HTM1.230	.593	.319	.211	-7.396E-02	7.174E-02	.216
HTMS1.35	.439	.439	.168	-.127	6.582E-02	.188
HTMS1.82	-3.316E-02	1.512E-02	-.415	-.182	6.351E-02	-.135
HTMS1.36	.491	.444	.208	-6.256E-02	.205	.597
HTMS1.85	.303	.412	-5.273E-02	-.259	.351	.485
HTM1.183	7.931E-02	6.903E-02	-.322	-.265	8.674E-02	.379
HTR1.232	-2.802E-02	4.772E-02	5.812E-02	4.324E-02	-.207	.340
HTMS1.37	.577	.584	.190	-.283	.362	.344

## Time Management and Health 189

HTM1.135	.520	.528	.128	-.253	.365	.349
HTR1.233	.429	.463	.320	-.111	.148	.380
HTMS1.88	.457	.573	.199	4.541E-03	.148	.199
HTR1.137	.377	.450	.416	.146	-.106	7.232E-02
HTM1.186	.505	.731	.217	-2.557E-02	.261	.305
HTR1.235	.268	.344	.494	.259	-.208	.170
HTMS1.40	.201	.409	2.755E-03	-.164	.228	.258
HTM1.236	.248	.487	-1.205E-02	-.115	.122	.256
HTMS1.41	.412	.598	.207	-.176	.166	.229
HTM1.139	.384	.549	9.548E-02	-.243	.365	8.384E-02
HTMS1.42	.167	.166	3.410E-02	7.167E-02	.361	6.640E-02
HTMS1.91	.221	.168	-2.599E-02	-9.308E-02	.555	4.009E-02
HTM1.140	.160	.126	3.764E-02	5.185E-02	.339	5.963E-02
HTM1.189	.110	7.654E-02	-2.124E-02	-1.358E-02	.500	9.710E-02
HTM1.238	.154	7.023E-02	2.308E-02	-2.739E-02	.503	9.934E-02

## Time Management and Health 190

HTMS1.43	.314	.161	.118	2.241E-02	4.898E-02	.248
HTMS1.92	.523	.289	.242	-.157	.210	.403
HTM1.141	.308	.104	1.530E-02	-.257	.239	.252
HTM1.239	.588	.321	.276	-.255	.303	.392
HTMS1.44	.448	.571	.186	-3.726E-02	.158	.319
HTMS1.93	.347	.422	6.981E-02	-.194	.201	.184
HTM1.142	.422	.605	.169	-.201	.216	.169
HTR1.191	.188	.421	.169	-6.784E-02	-2.391E-02	1.704E-02
HTM1.240	.340	.405	7.751E-02	-1.777E-02	2.023E-02	.110
HTR1.94	.188	.238	.220	.135	-.125	-3.099E-02
HTM1.192	.318	.453	-1.573E-02	-.206	.330	.175
HTMS1.46	.465	.244	.301	-.132	.111	.336
HTMS1.95	.277	.171	.211	-5.055E-02	.191	.303
HTR1.144	.380	.211	.601	-1.267E-02	-5.845E-02	.269
HTR1.193	.345	.211	.613	-.206	.138	.279

Time Management and Health 191

HTMS1.96	.138	.259	-4.408E-02	-.215	.487	9.202E-02
HTM1.145	.358	.521	2.732E-02	-.316	.521	.127
HTMS1.48	.350	.336	7.349E-02	-.237	.405	9.012E-02
HTMS1.97	.501	.429	.166	-.199	.258	.263
HTM1.146	.376	.297	.307	.111	-2.353E-02	7.271E-02
HTM1.195	.459	.317	.208	-9.365E-03	.239	2.470E-02
HTM1.244	.500	.366	.174	-8.689E-02	9.750E-02	.296
HTMS1.49	-2.424E-02	-4.009E-02	-1.371E-03	.564	4.126E-03	-.101
HTMS1.98	.175	.107	6.627E-02	.454	.116	9.836E-03
HTM1.147	.192	3.218E-02	.142	.552	8.703E-02	-5.226E-03
HTR1.245	-2.148E-02	-3.999E-02	.200	.510	-.158	-3.867E-02

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Factor Correlation Matrix Showing Correlations Between 6 Retained Factors

Factor	Factor					
	1	2	3	4	5	6
1	1.000	.601	.388	-.120	.397	.428
2	.601	1.000	.221	-.156	.308	.318
3	.388	.221	1.000	.148	-4.396E-02	.183
4	-.120	-.156	.148	1.000	-.334	-.344
5	.397	.308	-4.396E-02	-.334	1.000	.220
6	.428	.318	.183	-.344	.220	1.000

Appendix G

5 Factor Exploratory Factor Analysis, Study 3

Pattern Matrix Indicating Interpreted Factor Loadings for 5 Factor Solution

Items	Factor				
	1	2	3	4	5
HTMS1.99	.344	.398	-.037	.073	.087
HTM1.197	.437	.210	.088	.061	.031
HTMS1.15	.398	.242	-.271	-.158	-.004
HTMS1.2	.112	.065	-.494	-.184	.199
HTMS1.51	.291	-.206	.057	.190	.096
HTM1.100	<b><u>.391</u></b>	-.113	.126	.135	.073
HTMS1.3	<b><u>.601</u></b>	-.077	.061	-.029	.032
HTMS1.52	.257	-.033	.285	.256	.184
HTM1.101	<b><u>.507</u></b>	.032	.001	-.017	.117
HTM1.150	.439	-.128	.099	.210	.109
HTM1.199	.482	.204	.027	.079	-.108
HTMS1.4	<b><u>.571</u></b>	-.028	.009	-.074	.072
HTMS1.53	<b><u>.686</u></b>	-.159	.035	.021	.140
HTM1.102	.404	.143	-.045	.109	.169
HTM1.151	.490	-.014	-.084	-.222	.322
HTM1.200	<b><u>.750</u></b>	-.146	.001	-.002	.111
HTR1.5	.035	.051	.302	.045	-.286
HTMS1.54	<b><u>.503</u></b>	-.112	.119	.284	-.023
HTM1.103	<b><u>.519</u></b>	.093	.108	.107	.003

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HTM1.152	<u>-.157</u>	.063	<u>-.373</u>	-.055	.168
HTM1.201	<u>.664</u>	-.010	.010	.044	-.021
HTMS1.55	<u>.548</u>	.106	.044	.076	.215
HTMS1.7	.327	.205	.040	.119	.090
HTM1.154	<u>.566</u>	-.090	-.026	.059	.270
HTMS1.8	.458	.105	-.041	-.022	.202
HTMS1.57	.384	.097	.045	.208	.079
HTM1.106	.334	.178	.071	.276	.044
HTM1.155	.283	.312	-.042	.197	.002
HTMS1.9	.377	.070	.076	.074	.211
HTMS1.58	.355	.172	.003	.158	.162
HTM1.205	.400	.045	.071	.079	.279
HTMS1.10	<u>.645</u>	-.044	-.148	-.099	.078
HTM1.157	<u>.548</u>	.130	-.041	-.024	.026
HTMS1.11	.408	.116	-.028	.271	.152
HTMS1.60	.457	.106	.004	.237	.098
HTM1.109	.495	.031	.123	.141	.223
HTM1.158	.206	.069	-.219	.130	.127
HTM1.207	.154	.453	-.029	.305	-.012
HTMS1.12	<u>.575</u>	.062	-.093	.131	-.176
HTM1.110	<u>.592</u>	.071	.175	.094	-.220
HTM1.159	<u>.632</u>	-.113	-.125	.155	-.124

Time Management and Health 196

HTM1.209	.177	.377	-.030	.179	-.071
HTMS1.87	.177	.354	-.076	.123	.044
HTM1.136	.106	.337	-.112	.279	.009
HTR1.14	.211	.114	.276	.014	-.377
HTMS1.63	.557	-.055	-.009	.100	-.362
HTM1.112	<b><u>.504</u></b>	.039	-.171	-.094	-.099
HTM1.161	.292	-.057	-.290	.103	-.322
HTM1.210	.472	-.063	-.259	.049	-.203
HTMS1.16	.119	-.148	.242	.082	.153
HTMS1.65	.143	-.171	<b><u>.508</u></b>	.245	.254
HTR1.212	-.352	.015	.783	.189	.133
HTR1.17	-.237	.022	<b><u>.584</u></b>	.116	.062
HTR1.213	-.283	.000	<b><u>.687</u></b>	.066	.167
HTMS1.67	.389	.000	-.151	.134	.038
HTM1.116	.342	.053	-.258	.161	.124
HTM1.165	.440	-.043	-.160	.064	-.085
HTM1.117	<b><u>.617</u></b>	.024	.059	-.054	-.017
HTM1.166	<b><u>.656</u></b>	-.112	.213	.010	-.108
HTM1.215	.424	-.005	-.072	.057	-.294
HTMS1.69	.077	.017	-.201	.058	.417
HTR1.118	<b><u>-.407</u></b>	.050	-.125	-.055	.042
HTM1.167	.406	-.164	-.220	.057	.305

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HTM1.216	.083	-.198	-.307	.044	.216
HTMS1.21	.120	.117	.007	-.016	.037
HTMS1.70	.474	.207	-.131	-.027	-.036
HTM1.119	<b><u>.316</u></b>	.076	.018	.057	.031
HTM1.217	.366	.205	-.228	-.054	.062
HTMS1.22	.319	.027	-.025	.174	.207
HTMS1.71	.390	.108	.059	.224	.150
HTM1.169	<b><u>.594</u></b>	.046	.111	-.147	.215
HTM1.218	.417	.048	.141	.088	.246
HTR1.72	.329	-.061	.395	-.120	-.083
HTR1.121	.356	-.116	.470	.064	.025
HTM1.219	.469	-.065	.194	.012	.213
HTR1.171	.207	.219	.325	.070	-.393
HTR1.220	.170	.170	.308	-.256	-.133
HTMS1.25	<b><u>.602</u></b>	-.055	.013	.035	-.114
HTR1.74	.254	.059	.414	.080	-.409
HTM1.221	<b><u>.639</u></b>	-.026	.080	-.076	-.111
HTMS1.75	-.006	.146	<b><u>-.570</u></b>	-.220	.075
HTR.173	.084	-.036	<b><u>.503</u></b>	-.066	.157
HTM1.222	.325	-.084	.357	.197	.218
HTM1.125	.176	.057	-.146	.151	.003
HTM1.174	<b><u>.522</u></b>	.096	-.035	.088	-.033

Time Management and Health 198

HTM1.223	.327	-.044	.030	.221	-.096
HTMS1.28	.006	.444	-.196	.097	-.013
HTM1.126	.077	<b><u>.586</u></b>	.116	-.058	.107
HTM1.175	.027	<b><u>.675</u></b>	-.077	.043	.053
HTMS1.29	.406	-.041	-.178	-.214	.048
HTMS1.78	.606	-.016	-.246	-.322	.123
HTMS1.30	.117	.105	-.152	-.047	.386
HTMS1.79	-.035	.129	-.111	.096	<b><u>.558</u></b>
HTR1.128	.046	.002	.220	-.119	.456
HTM1.226	.192	.067	-.023	.147	.385
HTR1.31	-.100	<b><u>.458</u></b>	.054	-.050	.027
HTMS1.80	-.157	<b><u>.683</u></b>	-.010	.023	.015
HTR1.178	-.018	.482	.202	-.350	.047
HTR1.32	-.286	<b><u>.578</u></b>	.258	-.004	.050
HTMS1.81	-.087	<b><u>.768</u></b>	-.035	-.023	.104
HTM1.228	.014	<b><u>.528</u></b>	.041	-.137	.060
HTMS1.33	<b><u>.529</u></b>	.070	.033	-.113	.042
HTR1.131	.436	.022	.264	-.261	-.023
HTR1.180	.297	-.024	.396	-.049	-.161
HTM1.229	<b><u>.547</u></b>	.056	.097	-.138	-.052
HTMS1.34	<b><u>.634</u></b>	-.010	.057	-.288	.011
HTR1.83	.398	-.020	.217	-.401	-.131

Time Management and Health 199

HTM1.132	<u>.628</u>	.124	.019	-.116	-.143
HTM1.181	<u>.563</u>	-.065	.168	-.128	.052
HTM1.230	<u>.692</u>	-.051	-.103	-.164	.057
HTMS1.35	.292	.295	-.068	-.139	-.016
HTMS1.82	-.033	.020	<u>-.381</u>	.041	.088
HTMS1.36	.438	.261	-.143	-.118	.042
HTMS1.85	.123	.338	-.278	.087	-.048
HTM1.183	.242	.006	<u>-.559</u>	-.161	-.011
HTR1.232	.067	.149	-.129	<u>-.357</u>	-.020
HTMS1.37	.309	.354	-.079	.101	-.102
HTM1.135	.289	.317	-.120	.113	-.061
HTR1.233	.237	.342	.058	-.079	-.103
HTMS1.88	.134	<u>.518</u>	.034	-.031	.116
HTR1.137	.123	.431	.277	-.203	.056
HTM1.186	.025	<u>.731</u>	.042	.042	.112
HTR1.235	.096	.392	.343	-.304	.056
HTMS1.40	-.097	<u>.459</u>	-.109	.069	-.036
HTM1.236	-.056	.563	-.166	-.076	.042
HTMS1.41	.037	<u>.570</u>	.011	-.038	-.082
HTM1.139	-.053	.472	.029	.254	-.078
HTMS1.42	-.017	.094	.109	<u>.374</u>	.148
HTMS1.91	.015	-.008	.068	<u>.580</u>	.060

Time Management and Health 200

HTM1.140	.023	.030	.100	<u>.351</u>	.119
HTM1.189	-.042	-.031	.086	<u>.530</u>	.078
HTM1.238	.030	-.086	.108	<u>.527</u>	.053
HTMS1.43	<u>.417</u>	-.029	-.090	-.123	.084
HTMS1.92	<u>.608</u>	-.055	-.092	-.058	-.071
HTM1.141	.431	-.184	-.199	.060	-.119
HTM1.239	<u>.640</u>	-.090	-.063	.036	-.155
HTMS1.44	.159	<u>.521</u>	-.033	-.073	.079
HTMS1.93	.121	<u>.330</u>	-.093	.028	-.050
HTM1.142	.020	<u>.560</u>	.006	.033	-.074
HTR1.191	-.154	<u>.514</u>	.101	-.100	-.067
HTM1.240	.165	.353	-.077	-.134	.104
HTR1.94	.053	.249	.166	-.156	.077
HTM1.192	.004	.395	-.114	.181	-.008
HTMS1.46	<u>.550</u>	-.059	-.008	-.116	-.116
HTMS1.95	.274	.006	.043	.049	-.055
HTR1.144	.400	7.671E-05	.334	-.205	-.244
HTR1.193	.265	-.015	.386	.020	-.443
HTMS1.96	-.183	.218	.018	.473	-.078
HTM1.145	-.098	.427	-.007	.418	-.109
HTMS1.48	.112	.148	.012	<u>.320</u>	-.089
HTMS1.97	.367	.187	-.075	.039	-.053

Time Management and Health 201

HTM1.146	.292	.158	.166	-.121	.084
HTM1.195	.329	.058	.122	.167	.080
HTM1.244	<b><u>.506</u></b>	.116	-.123	-.152	.036
HTMS1.49	-.047	.037	.195	.134	<b><u>.536</u></b>
HTMS1.98	.121	.065	.160	.160	.482
HTM1.147	.221	-.060	.239	.154	<b><u>.527</u></b>
HTR1.245	-.010	.043	.301	-.061	.345

Note: Loadings underlined and bolded (columns 2 – 6) were the interpreted factor loadings. The number after the decimal in the first column indicates item number on the 245 item version of the HTMS.

Structure Matrix Indicating Item-Factor Correlations for 5 Factor Solution

Items	Factor				
	1	2	3	4	5
HTMS1.99	.607	.629	.034	.301	-.065
HTM1.197	.606	.514	.168	.238	-.090
HTMS1.15	.454	.447	-.143	.115	-.120
HTMS1.2	-.038	.026	-.406	-.029	.155
HTMS1.51	.210	.028	.063	.193	.057
HTM1.100	.371	.177	.168	.184	.012
HTMS1.3	.548	.309	.186	.123	-.055
HTMS1.52	.340	.190	.282	.226	.127

Time Management and Health 202

HTM1.101	.501	.340	.115	.139	.021
HTM1.150	.422	.209	.134	.271	.028
HTM1.199	.667	.567	.100	.306	-.244
HTMS1.4	.518	.314	.145	.090	-.016
HTMS1.53	.569	.276	.168	.166	.043
HTM1.102	.494	.409	.025	.268	.048
HTM1.151	.333	.180	.094	-.094	.262
HTM1.200	.633	.328	.151	.180	.001
HTR1.5	.195	.153	.277	.036	-.285
HTMS1.54	.549	.315	.137	.386	-.129
HTM1.103	.635	.471	.185	.274	-.118
HTM1.152	-.237	-.104	-.373	-.015	.164
HTM1.201	.677	.446	.126	.256	-.146
HTMS1.55	.612	.452	.153	.241	.087
HTMS1.7	.493	.442	.088	.263	-.023
HTM1.154	.471	.250	.087	.181	.172
HTMS1.8	.476	.362	.074	.138	.098
HTMS1.57	.510	.400	.075	.338	-.038
HTM1.106	.547	.476	.074	.413	-.087
HTM1.155	.544	.556	-.026	.393	-.142
HTMS1.9	.423	.305	.150	.165	.123
HTMS1.58	.491	.424	.050	.300	.041

Time Management and Health 203

HTM1.205	.418	.284	.152	.161	.191
HTMS1.10	.541	.332	.008	.124	-.029
HTM1.157	.613	.478	.080	.199	-.098
HTMS1.11	.539	.437	-.002	.422	.012
HTMS1.60	.587	.462	.043	.401	-.041
HTM1.109	.544	.364	.202	.245	.114
HTM1.158	.227	.212	-.201	.256	.039
HTM1.207	.549	.647	-.061	.501	-.173
HTMS1.12	.673	.510	-.027	.388	-.321
HTM1.110	.744	.538	.251	.295	-.343
HTM1.159	.605	.369	-.057	.377	-.252
HTM1.209	.491	.559	-.033	.368	-.203
HTMS1.87	.428	.497	-.056	.300	-.079
HTM1.136	.396	.485	-.150	.442	-.125
HTR1.14	.414	.339	.288	.102	-.417
HTMS1.63	.618	.410	.043	.322	-.470
HTM1.112	.484	.355	-.054	.141	-.198
HTM1.161	.291	.216	-.288	.306	-.404
HTM1.210	.433	.291	-.199	.282	-.306
HTMS1.16	.068	-.063	.249	-.010	.165
HTMS1.65	.161	-.031	.485	.068	.263
HTR1.212	-.152	-.154	.676	-.146	.228

Time Management and Health 204

HTR1.17	-.082	-.088	.513	-.117	.130
HTR1.213	-.159	-.171	.628	-.231	.264
HTMS1.67	.397	.285	-.107	.295	-.066
HTM1.116	.356	.293	-.221	.336	.006
HTM1.165	.417	.277	-.100	.249	-.180
HTM1.117	.630	.421	.193	.140	-.122
HTM1.166	.646	.353	.325	.150	-.193
HTM1.215	.479	.344	-.028	.257	-.385
HTMS1.69	-.009	-.001	-.167	.077	.376
HTR1.118	-.423	-.248	-.185	-.145	.105
HTM1.167	.218	.056	-.138	.150	.235
HTM1.216	-.132	-.182	-.293	.059	.207
HTMS1.21	.186	.184	.042	.050	-.004
HTMS1.70	.582	.513	-.026	.228	-.167
HTM1.119	.383	.298	.071	.173	-.049
HTM1.217	.427	.409	-.129	.176	-.053
HTMS1.22	.351	.250	.010	.260	.115
HTMS1.71	.518	.407	.093	.344	.029
HTM1.169	.559	.358	.284	-.003	.129
HTM1.218	.459	.309	.220	.163	.158
HTR1.72	.342	.151	.481	-.123	-.082
HTR1.121	.387	.153	.520	.018	.009

Time Management and Health 205

HTM1.219	.428	.216	.297	.061	.153
HTR1.171	.509	.463	.325	.178	-.457
HTR1.220	.284	.243	.404	-.210	-.132
HTMS1.25	.600	.375	.110	.227	-.219
HTR1.74	.474	.343	.413	.134	-.446
HTM1.221	.634	.398	.215	.120	-.206
HTMS1.75	-.106	.039	-.502	-.040	.038
HTR.173	.108	-.010	.548	-.206	.199
HTM1.222	.363	.164	.383	.150	.172
HTM1.125	.234	.212	-.149	.263	-.075
HTM1.174	.614	.472	.045	.301	-.163
HTM1.223	.393	.257	.027	.321	-.179
HTMS1.28	.295	.472	-.204	.286	-.128
HTM1.126	.449	.604	.178	.096	.002
HTM1.175	.462	.693	-.052	.267	-.091
HTMS1.29	.266	.147	-.041	-.056	-.001
HTMS1.78	.420	.254	-.035	-.085	.045
HTMS1.30	.070	.090	-.082	.003	.340
HTMS1.79	-.042	.027	-.093	.068	.516
HTR1.128	-.032	-.079	.296	-.230	.483
HTM1.226	.209	.165	.009	.177	.313
HTR1.31	.192	.374	.068	.037	-.028

Time Management and Health 206

HTMS1.80	.297	.583	-.018	.178	-.088
HTR1.178	.218	.364	.313	-.271	.030
HTR1.32	.136	.389	.230	.002	.016
HTMS1.81	.388	.684	-.007	.174	-.023
HTM1.228	.316	.487	.105	.007	-.017
HTMS1.33	.537	.378	.172	.065	-.048
HTR1.131	.421	.246	.417	-.179	-.046
HTR1.180	.372	.203	.453	-.039	-.173
HTM1.229	.567	.389	.238	.039	-.134
HTMS1.34	.542	.322	.256	-.102	-.055
HTR1.83	.321	.155	.389	-.315	-.122
HTM1.132	.702	.532	.166	.142	-.263
HTM1.181	.502	.266	.313	-.017	-.006
HTM1.230	.575	.342	.078	.064	-.044
HTMS1.35	.431	.446	.036	.064	-.108
HTMS1.82	-.096	-.021	-.390	.123	.054
HTMS1.36	.537	.502	-.013	.134	-.081
HTMS1.85	.330	.443	-.267	.309	-.169
HTM1.183	.087	.097	-.470	.067	-.077
HTR1.232	.028	.084	-.018	-.254	-.016
HTMS1.37	.579	.604	-.040	.344	-.247
HTM1.135	.524	.549	-.085	.343	-.200

Time Management and Health 207

HTR1.233	.468	.497	.130	.102	-.194
HTMS1.88	.451	.576	.098	.142	.002
HTR1.137	.386	.452	.376	-.115	.006
HTM1.186	.509	.741	.074	.242	-.032
HTR1.235	.313	.367	.462	-.254	.039
HTMS1.40	.214	.418	-.130	.209	-.123
HTM1.236	.251	.489	-.131	.112	-.054
HTMS1.41	.419	.599	.045	.155	-.189
HTM1.139	.361	.529	-.035	.384	-.193
HTMS1.42	.161	.172	.023	.346	.085
HTMS1.91	.200	.168	-.076	.555	-.024
HTM1.140	.155	.133	.023	.324	.063
HTM1.189	.112	.089	-.057	.473	.017
HTM1.238	.156	.087	-.023	.475	-.009
HTMS1.43	.325	.191	.029	.015	.024
HTMS1.92	.548	.339	.034	.157	-.171
HTM1.141	.312	.133	-.147	.215	-.188
HTM1.239	.608	.370	.036	.257	-.266
HTMS1.44	.458	.588	.044	.132	-.039
HTMS1.93	.340	.425	-.068	.199	-.146
HTM1.142	.415	.597	.018	.218	-.187
HTR1.191	.186	.399	.112	-.011	-.111

Time Management and Health 208

HTM1.240	.321	.399	.013	.030	.023
HTR1.94	.184	.229	.233	-.119	.058
HTM1.192	.303	.449	-.145	.332	-.119
HTMS1.46	.493	.291	.118	.064	-.188
HTMS1.95	.312	.213	.080	.137	-.110
HTR1.144	.443	.261	.446	-.125	-.259
HTR1.193	.418	.264	.397	.068	-.462
HTMS1.96	.132	.254	-.139	.487	-.156
HTM1.145	.339	.508	-.127	.533	-.235
HTMS1.48	.331	.335	-.051	.411	-.185
HTMS1.97	.499	.448	-.010	.242	-.167
HTM1.146	.374	.306	.268	-.035	.032
HTM1.195	.431	.316	.151	.247	-.008
HTM1.244	.502	.392	.023	.073	-.065
HTMS1.49	-.040	-.046	.194	-.003	.533
HTMS1.98	.159	.110	.182	.104	.436
HTM1.147	.181	.043	.281	.064	.493
HTR1.245	-.006	-.034	.344	-.182	.371

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Factor Correlation Matrix Showing Correlations Between 5 Retained Factors

	Factor				
Factor	1	2	3	4	5
1	1.000	.661	.195	.324	-.184
2	.661	1.000	.040	.301	-.187
3	.195	.040	1.000	-.262	.079
4	.324	.301	-.262	1.000	-.153
5	-.184	-.187	.079	-.153	1.000

Appendix H

4 Factor Exploratory Factor Analysis, Study 3

Pattern Matrix Indicating Interpreted Factor Loadings for 4 Factor Solution

Items	Factor			
	1	2	3	4
HTMS1.99	.391	.381	-.028	.087
HTM1.197	.452	.197	.114	.056
HTMS1.15	.314	.255	-.111	-.050
HTMS1.2	.036	.088	<b><u>-.400</u></b>	.103
HTMS1.51	.379	-.209	-.035	.120
HTM1.100	<b><u>.433</u></b>	-.117	.084	.108
HTMS1.3	<b><u>.538</u></b>	-.068	.144	.052
HTMS1.52	.367	-.055	.131	.248
HTM1.101	<b><u>.461</u></b>	.038	.056	.125
HTM1.150	<b><u>.538</u></b>	-.144	.013	.144
HTM1.199	<b><u>.521</u></b>	.193	.082	-.087
HTMS1.4	<b><u>.488</u></b>	-.019	.106	.082
HTMS1.53	<b><u>.648</u></b>	-.151	.077	.164
HTM1.102	.459	.133	-.076	.172
HTM1.151	.308	.008	.034	.298
HTM1.200	<b><u>.700</u></b>	-.138	.072	.128
HTR1.5	.048	.035	.331	-.224
HTMS1.54	<b><u>.647</u></b>	-.126	.032	.022

Time Management and Health 212

HTM1.103	<u>.553</u>	.084	.120	.037
HTM1.152	-.153	.077	-.379	.092
HTM1.201	<u>.657</u>	-.007	.081	-.001
HTMS1.55	<u>.557</u>	.099	.037	.236
HTMS1.7	.386	.192	.011	.105
HTM1.154	<u>.562</u>	-.087	-.045	.274
HTMS1.8	.421	.105	-.006	.199
HTMS1.57	<u>.494</u>	.082	-.027	.103
HTM1.106	.493	.154	-.030	.075
HTM1.155	.419	.286	-.094	.007
HTMS1.9	.390	.062	.042	.233
HTMS1.58	.441	.157	-.062	.175
HTM1.205	.411	.038	.025	.304
HTMS1.10	<u>.558</u>	-.026	-.024	.059
HTM1.157	<u>.512</u>	.132	.049	.030
HTMS1.11	<u>.567</u>	.095	-.142	.165
HTMS1.60	<u>.586</u>	.091	-.075	.118
HTM1.109	<u>.532</u>	.025	.069	.260
HTM1.158	.306	.062	-.277	.097
HTM1.207	.376	.409	-.145	-.002
HTMS1.12	<u>.656</u>	.056	-.040	-.171
HTM1.110	<u>.618</u>	.061	.248	-.168

## Time Management and Health 213

HTM1.159	<u>.719</u>	-.112	-.098	-.125
HTM1.209	.312	.348	-.067	-.064
HTMS1.87	.271	.335	-.106	.040
HTM1.136	.309	.312	-.224	.004
HTR1.14	.207	.099	.366	-.315
HTMS1.63	.614	-.056	.086	-.340
HTM1.112	<u>.442</u>	.053	-.024	-.124
HTM1.161	.397	-.053	-.230	-.354
HTM1.210	<u>.523</u>	-.055	-.174	-.231
HTMS1.16	.126	-.155	.162	.194
HTMS1.65	.217	-.196	.310	.345
HTR1.212	-.294	-.034	<u>.560</u>	.257
HTR1.17	-.210	-.013	.447	.155
HTR1.213	-.305	-.035	.538	.271
HTMS1.67	.478	-.004	-.175	.025
HTM1.116	.461	.045	-.312	.092
HTM1.165	<u>.489</u>	-.044	-.116	-.098
HTM1.117	<u>.545</u>	.029	.173	.004
HTM1.166	.604	-.110	.306	-.054
HTM1.215	.464	-.002	.018	-.293
HTMS1.69	.110	.022	-.301	.383
HTR1.118	-.405	.051	-.154	.010

Time Management and Health 214

HTM1.167	.428	-.154	-.261	.276
HTM1.216	.124	-.181	-.363	.167
HTMS1.21	.104	.115	.027	.037
HTMS1.70	.457	.209	-.031	-.050
HTM1.119	<u>.334</u>	.075	.027	.043
HTM1.217	.341	.211	-.143	.026
HTMS1.22	.411	.016	-.115	.214
HTMS1.71	<u>.508</u>	.088	-.035	.175
HTM1.169	.440	.058	.222	.237
HTM1.218	.426	.038	.096	.282
HTR1.72	.195	-.067	.498	-.007
HTR1.121	.319	-.129	.457	.120
HTM1.219	.416	-.067	.195	.255
HTR1.171	.237	.195	.395	-.318
HTR1.220	-.031	.173	.490	-.083
HTMS1.25	<u>.599</u>	-.054	.095	-.095
HTR1.74	.279	.033	.471	-.316
HTM1.221	<u>.550</u>	-.016	.225	-.086
HTMS1.75	-.087	.176	-.434	-.035
HTR.173	-.031	-.047	.491	.238
HTM1.222	.381	-.102	.230	.289
HTM1.125	.282	.055	-.191	-.012

Time Management and Health 215

HTM1.174	<u>.564</u>	.090	.005	-.021
HTM1.223	<u>.451</u>	-.051	-.024	-.070
HTMS1.28	.107	.432	-.213	-.043
HTM1.126	.035	<u>.571</u>	.159	.123
HTM1.175	.084	<u>.656</u>	-.072	.039
HTMS1.29	.260	-.017	-.017	.013
HTMS1.78	<u>.378</u>	.021	-.010	.074
HTMS1.30	.078	.112	-.177	.359
HTMS1.79	.010	.127	-.265	<u>.537</u>
HTR1.128	-.088	.006	.187	.485
HTM1.226	.258	.060	-.147	.388
HTR1.31	-.122	<u>.448</u>	.084	.034
HTMS1.80	-.113	<u>.665</u>	-.011	.007
HTR1.178	-.255	.483	.389	.066
HTR1.32	-.290	<u>.555</u>	.231	.089
HTMS1.81	-.076	<u>.753</u>	-.016	.091
HTM1.228	-.068	<u>.522</u>	.126	.056
HTMS1.33	.420	.081	.159	.056
HTR1.131	.213	.033	.455	.023
HTR1.180	.210	-.030	.480	-.086
HTM1.229	.420	.066	.252	-.028
HTMS1.34	.395	.020	.290	.023

Time Management and Health 216

HTR1.83	.092	.005	<b><u>.498</u></b>	-.097
HTM1.132	<b><u>.529</u></b>	.131	.200	-.130
HTM1.181	.420	-.051	.291	.089
HTM1.230	<b><u>.553</u></b>	-.029	.066	.044
HTMS1.35	.204	.299	.065	-.029
HTMS1.82	.036	.029	<b><u>-.409</u></b>	.018
HTMS1.36	.358	.272	-.011	.021
HTMS1.85	.221	.332	-.269	-.089
HTM1.183	.185	.039	-.411	-.107
HTR1.232	-.151	.173	.085	-.054
HTMS1.37	.389	.338	-.048	-.106
HTM1.135	.376	.307	-.105	-.074
HTR1.233	.188	.333	.165	-.092
HTMS1.88	.112	<b><u>.507</u></b>	.069	.118
HTR1.137	-.034	.421	.397	.098
HTM1.186	.064	<b><u>.707</u></b>	.036	.120
HTR1.235	-.136	.388	.508	.104
HTMS1.40	-.019	<b><u>.446</u></b>	-.121	-.055
HTM1.236	-.066	<b><u>.555</u></b>	-.105	.005
HTMS1.41	.034	<b><u>.552</u></b>	.084	-.082
HTM1.139	.142	<b><u>.428</u></b>	-.072	-.066
HTMS1.42	.199	.074	-.112	.174

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HTMS1.91	.372	-.040	-.240	.090
HTM1.140	.224	.013	-.101	.143
HTM1.189	.278	-.057	-.207	.108
HTM1.238	.342	-.108	-.174	.090
HTMS1.43	<u>.312</u>	-.007	.019	.070
HTMS1.92	<u>.546</u>	-.038	.039	-.076
HTM1.141	.469	-.171	-.146	-.141
HTM1.239	<u>.644</u>	-.083	.033	-.150
HTMS1.44	.115	<u>.518</u>	.041	.071
HTMS1.93	.160	.322	-.062	-.062
HTM1.142	.066	<u>.537</u>	.034	-.075
HTR1.191	-.198	.495	.170	-.058
HTM1.240	.083	<u>.356</u>	.013	.084
HTR1.94	-.065	.243	.243	.097
HTM1.192	.150	.375	-.181	-.023
HTMS1.46	<u>.448</u>	-.043	.149	-.107
HTMS1.95	.288	.005	.065	-.038
HTR1.144	.220	.004	<u>.534</u>	-.180
HTR1.193	.246	-.029	.488	-.358
HTMS1.96	.152	.170	-.226	-.056
HTM1.145	.212	.373	-.193	-.091
HTMS1.48	<u>.322</u>	.123	-.112	-.071

Time Management and Health 218

HTMS1.97	.392	.183	-.024	-.059
HTM1.146	.178	.158	.252	.106
HTM1.195	<b><u>.406</u></b>	.043	.060	.111
HTM1.244	<b><u>.392</u></b>	.132	.030	.015
HTMS1.49	-.016	.029	.004	<b><u>.571</u></b>
HTMS1.98	.174	.053	-.012	<b><u>.516</u></b>
HTM1.147	.247	-.070	.068	<b><u>.576</u></b>
HTR1.245	-.105	.040	.249	.391

Note: Loadings underlined and bolded (columns 2 – 5) were the interpreted factor loadings. The number after the decimal in the first column indicates item number on the 245 item version of the HTMS.

Structure Matrix Indicating Item-Factor Correlations for 4 Factor Solution

Items	Factor			
	1	2	3	4
HTMS1.99	.619	.618	.128	-.005
HTM1.197	.602	.494	.259	-.002
HTMS1.15	.455	.450	-.008	-.130
HTMS1.2	-.021	.053	-.367	.034
HTMS1.51	.222	.016	.054	.098
HTM1.100	.368	.158	.196	.086

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HTMS1.3	.525	.288	.281	.020
HTMS1.52	.338	.167	.252	.231
HTM1.101	.486	.326	.195	.077
HTM1.150	.433	.186	.153	.103
HTM1.199	.675	.547	.226	-.156
HTMS1.4	.494	.297	.240	.044
HTMS1.53	.552	.254	.247	.120
HTM1.102	.506	.398	.080	.095
HTM1.151	.289	.175	.154	.268
HTM1.200	.616	.305	.252	.077
HTR1.5	.180	.131	.317	-.189
HTMS1.54	.572	.291	.185	-.031
HTM1.103	.633	.448	.276	-.018
HTM1.152	-.210	-.075	-.396	.049
HTM1.201	.673	.424	.248	-.063
HTMS1.55	.604	.433	.223	.167
HTMS1.7	.501	.429	.146	.041
HTM1.154	.465	.237	.126	.216
HTMS1.8	.464	.351	.141	.139
HTMS1.57	.529	.385	.123	.034
HTM1.106	.576	.458	.124	-.002
HTM1.155	.578	.544	.047	-.086

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HTMS1.9	.415	.290	.180	.188
HTMS1.58	.507	.412	.093	.099
HTM1.205	.408	.268	.176	.257
HTMS1.10	.528	.322	.123	-.004
HTM1.157	.606	.463	.199	-.036
HTMS1.11	.573	.424	.036	.071
HTMS1.60	.613	.445	.102	.032
HTM1.109	.537	.344	.243	.207
HTM1.158	.265	.216	-.178	.018
HTM1.207	.602	.634	-.002	-.112
HTMS1.12	.701	.493	.110	-.256
HTM1.110	.739	.506	.390	-.210
HTM1.159	.636	.354	.056	-.205
HTM1.209	.526	.549	.044	-.149
HTMS1.87	.454	.492	.007	-.044
HTM1.136	.452	.484	-.109	-.098
HTR1.14	.399	.311	.388	-.300
HTMS1.63	.638	.388	.191	-.389
HTM1.112	.483	.348	.078	-.182
HTM1.161	.344	.217	-.183	-.423
HTM1.210	.468	.287	-.079	-.307
HTMS1.16	.046	-.078	.203	.220

Time Management and Health 221

HTMS1.65	.133	-.061	.390	.386
HTR1.212	-.201	-.188	.516	.370
HTR1.17	-.122	-.115	.412	.240
HTR1.213	-.219	-.200	.494	.382
HTMS1.67	.427	.279	-.050	-.052
HTM1.116	.400	.294	-.177	-.007
HTM1.165	.442	.268	-.010	-.163
HTM1.117	.607	.398	.316	-.037
HTM1.166	.617	.319	.440	-.066
HTM1.215	.500	.332	.096	-.341
HTMS1.69	.005	.013	-.218	.327
HTR1.118	-.413	-.228	-.250	.028
HTM1.167	.232	.058	-.132	.211
HTM1.216	-.104	-.163	-.329	.125
HTMS1.21	.181	.181	.072	.016
HTMS1.70	.589	.505	.103	-.130
HTM1.119	.385	.288	.127	.001
HTM1.217	.437	.411	-.028	-.056
HTMS1.22	.368	.241	.022	.151
HTMS1.71	.536	.390	.128	.103
HTM1.169	.507	.338	.373	.211
HTM1.218	.443	.289	.248	.243

Time Management and Health 222

HTR1.72	.280	.117	.539	.047
HTR1.121	.339	.114	.540	.162
HTM1.219	.394	.193	.328	.243
HTR1.171	.498	.430	.434	-.314
HTR1.220	.215	.220	.491	-.033
HTMS1.25	.599	.353	.229	-.142
HTR1.74	.455	.303	.503	-.287
HTM1.221	.607	.373	.352	-.115
HTMS1.75	-.081	.074	-.441	-.106
HTR.173	.038	-.039	.510	.314
HTM1.222	.342	.135	.355	.290
HTM1.125	.269	.215	-.115	-.076
HTM1.174	.625	.455	.156	-.094
HTM1.223	.420	.244	.076	-.118
HTMS1.28	.335	.481	-.142	-.135
HTM1.126	.428	.597	.251	.073
HTM1.175	.482	.697	.030	-.057
HTMS1.29	.243	.147	.049	-.017
HTMS1.78	.381	.254	.099	.028
HTMS1.30	.064	.099	-.096	.313
HTMS1.79	-.036	.040	-.175	.485
HTR1.128	-.091	-.086	.232	.519

Time Management and Health 223

HTM1.226	.216	.164	-.021	.332
HTR1.31	.183	.375	.109	.006
HTMS1.80	.310	.590	.037	-.060
HTR1.178	.146	.356	.388	.090
HTR1.32	.116	.385	.233	.088
HTMS1.81	.393	.692	.063	.008
HTM1.228	.294	.487	.176	.019
HTMS1.33	.506	.362	.283	.021
HTR1.131	.347	.219	.516	.057
HTR1.180	.323	.170	.519	-.040
HTM1.229	.530	.368	.363	-.048
HTMS1.34	.479	.304	.396	.017
HTR1.83	.233	.133	.508	-.040
HTM1.132	.679	.509	.332	-.177
HTM1.181	.452	.242	.404	.088
HTM1.230	.546	.329	.210	-.005
HTMS1.35	.416	.441	.148	-.078
HTMS1.82	-.052	.003	-.394	-.045
HTMS1.36	.528	.498	.115	-.052
HTMS1.85	.375	.454	-.187	-.189
HTM1.183	.117	.123	-.374	-.188
HTR1.232	-.012	.092	.059	-.046

Time Management and Health 224

HTMS1.37	.606	.595	.076	-.195
HTM1.135	.554	.544	.016	-.166
HTR1.233	.455	.484	.239	-.129
HTMS1.88	.442	.573	.172	.056
HTR1.137	.327	.433	.450	.106
HTM1.186	.514	.738	.150	.035
HTR1.235	.231	.347	.532	.143
HTMS1.40	.243	.427	-.082	-.122
HTM1.236	.262	.499	-.057	-.067
HTMS1.41	.420	.594	.145	-.140
HTM1.139	.406	.518	.005	-.142
HTMS1.42	.199	.168	-.029	.128
HTMS1.91	.275	.161	-.137	.020
HTM1.140	.191	.128	-.023	.103
HTM1.189	.177	.085	-.128	.055
HTM1.238	.218	.080	-.087	.041
HTMS1.43	.305	.187	.107	.039
HTMS1.92	.540	.326	.164	-.127
HTM1.141	.337	.130	-.065	-.192
HTM1.239	.616	.352	.168	-.207
HTMS1.44	.450	.588	.139	.003
HTMS1.93	.358	.425	.008	-.126

Time Management and Health 225

HTM1.142	.428	.593	.103	-.141
HTR1.191	.170	.395	.169	-.071
HTM1.240	.306	.401	.087	.034
HTR1.94	.143	.218	.268	.109
HTM1.192	.347	.453	-.103	-.108
HTMS1.46	.471	.275	.244	-.132
HTMS1.95	.312	.202	.134	-.062
HTR1.144	.379	.228	.566	-.132
HTR1.193	.392	.228	.499	-.316
HTMS1.96	.210	.249	-.175	-.123
HTM1.145	.413	.498	-.108	-.185
HTMS1.48	.380	.325	-.026	-.137
HTMS1.97	.511	.440	.089	-.127
HTM1.146	.332	.289	.330	.102
HTM1.195	.436	.297	.184	.069
HTM1.244	.482	.385	.147	-.041
HTMS1.49	-.060	-.048	.081	.570
HTMS1.98	.148	.103	.109	.489
HTM1.147	.155	.029	.202	.566
HTR1.245	-.059	-.044	.280	.431

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Factor Correlation Matrix Showing Correlations Between 4 Retained Factors

	Factor			
Factor	1	2	3	4
1	1.000	.642	.255	-.111
2	.642	1.000	.115	-.118
3	.255	.115	1.000	.136
4	-.111	-.118	.136	1.000

Appendix I

Informed Consent, Study 4

Informed Consent

Time Management and Health Related Behaviors (Validation)

Karl Nelson, Department of Psychology, University of Hawaii at Manoa, Gartley Hall,  
Rm. 104.

Phone: 956-8414. E-mail: karln@hawaii.edu

This is a research project exploring the relationships between time management skills and healthy behaviors (for example, eating habits, regular exercise). Your participation in this study involves completion of a questionnaire packet during the week following your receipt of the packets. The packets contain questionnaires that measure time management skills and health related behaviors. You will be asked to complete the packets twice, with a three-week interval between completion of the packets. By participating in this project, you can be eligible for class credit.

The information you provide will be kept confidential the extent allowed by law. Efforts to maintain the confidentiality of your responses to questionnaire items include the physical protection of files (i.e., storage in a locked room), and the use of code numbers (i.e., the last four digits of your social security number). Following the assignment of course credit, the page with the last four digits of your SSN will be discarded so that your questionnaire will no longer contain information that can be directly linked to you.

Your completion of these questionnaires may provide benefits both for yourself and for others. Information elicited by the questionnaire items may provide you with further insight about yourself. Moreover, your responses to these questionnaires may enable the development of more effective treatment and training programs across diverse applications, thus potentially improving the lives of others.

At the same time, the completion of questionnaire items may cause you distress. If after completing the questionnaires you experience feelings of wanting to harm yourself or others, it is very important that you call the Crisis Line phone number at 521-4555. However, if after completing the questionnaires you are left feeling troubles or upset, we encourage you to contact the principle investigator, Karl Nelson, by telephone: 956-8414, or e-mail: karln@hawaii.edu; or the faculty advisor, Dr. Elaine Heiby, by telephone: 956-8414, or e-mail: heiby@hawaii.edu.

Participation in this study is absolutely voluntary. Whether you participate in this research study or not has no effect on your grade in this class. Participation in this study is strictly an opportunity to obtain extra credit, and you may obtain equivalent extra credit by completing an alternative project provided by your instructor.

For the results of this study to be useful to others, it is crucial that guidelines be followed. Thus it is very important that the direction for each questionnaire be read carefully, and

that questionnaires be completed in their entirety. Also, the questionnaire packet must be returned within one week of when it is assigned. Finally, by signing this consent form you indicate that it is you who will complete both questionnaire packets, and not another individual. If it is unlikely that you will be able to follow these guidelines, the choice of an alternative method to achieve course credit is requested and strongly encouraged.

If you have any questions, comments, or concerns about this research project, you may contact Karl nelson by telephone: 956-8414, or e-mail: [karln@hawaii.edu](mailto:karln@hawaii.edu); or Dr. Elaine Heiby, by telephone: 956-8414, or e-mail: [heiby@hawaii.edu](mailto:heiby@hawaii.edu).

I herewith give my consent to participate in this project with the understanding that such consent does not waive any of my legal rights, nor does it release the principle investigator or the institution or any employee or agent thereof from liability for negligence.

\_\_\_\_\_ (Name, please print)      \_\_\_\_\_ (Date)

\_\_\_\_\_ (Signature)      \_\_\_\_\_ (Course # for Class Credit)

\_\_\_\_\_ (Instructors Name for  
Credit)

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this study, contact: Committee on Human Studies, University of Hawaii, 2540 Maile Way, Honolulu, Hawaii, 96822. Phone: 808-956-5007)

c: Signed copy to subject

Appendix J

69-Item HTMS

HTMS-2

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.					
1	2	3	4	5	
very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me	
1. I focus on the past	1	2	3	4	5
2. I figure out ways to deal with time constraints	1	2	3	4	5
3. I arrange goals in order of importance	1	2	3	4	5
4. I often change my mind	1	2	3	4	5
5. I often think about goals that I need to fulfill in the near future	1	2	3	4	5
6. I create goals for the future	1	2	3	4	5
7. I find it helpful to have deadlines for my goals	1	2	3	4	5
8. I regularly re-evaluate my goals to see if they remain important	1	2	3	4	5
9. I waste time on a daily basis	1	2	3	4	5
10. I take time to think about what I really want	1	2	3	4	5
11. I use my time to reach my goals	1	2	3	4	5
12. I am good at meeting my deadlines	1	2	3	4	5
13. I have a daily routine	1	2	3	4	5
14. I use a calendar to keep track of my appointments	1	2	3	4	5
15. My schedule allows me time to play	1	2	3	4	5
16. I identify important goals as my highest priority	1	2	3	4	5
17. My future goals guide my current goals	1	2	3	4	5
18. I keep myself busy to avoid boredom	1	2	3	4	5
19. I waste my time doing unimportant things	1	2	3	4	5
20. I feel overwhelmed when I receive lots of new information	1	2	3	4	5
21. Depending on the best way to finish tasks, I work alone or with others people	1	2	3	4	5
22. I handle incoming mail by sorting it the day it arrives	1	2	3	4	5
23. I keep my papers filed to save time when looking for them	1	2	3	4	5
24. I keep organized by planning my activities at the start of the day	1	2	3	4	5
25. I use my time efficiently by assigning tasks to others	1	2	3	4	5
26. My weekly schedule includes time for things that I enjoy	1	2	3	4	5
27. I try to resolve time conflicts as quickly as possible	1	2	3	4	5
28. I motivate myself to finish tasks	1	2	3	4	5
29. I use routines to make my days predictable	1	2	3	4	5
30. I use a daily planner to organize my day	1	2	3	4	5
31. I feel that taking breaks wastes time	1	2	3	4	5
32. I plan my time to make sure I meet deadlines	1	2	3	4	5
33. I save time by using notes as reminders	1	2	3	4	5
34. I keep organized by using a daily log	1	2	3	4	5

For each of the following statements, please indicate how well each one describes you by circling a number from 1 – 5.

	1	2	3	4	5
	very unlike me	somewhat unlike me	neither like me nor unlike me	somewhat like me	very like me
35. I take time to enjoy the good things in life	1	2	3	4	5
36. I save time by problem solving	1	2	3	4	5
37. I see some goals as more important than others	1	2	3	4	5
38. I often change my mind after hearing other's ideas	1	2	3	4	5
39. When unable to reach my goals, I review what could have done to succeed	1	2	3	4	5
40. I identify deadlines by which to complete specific goals	1	2	3	4	5
41. I look for ways to avoid wasting time	1	2	3	4	5
42. I know what I need to accomplish	1	2	3	4	5
43. I often put things off until later	1	2	3	4	5
44. I am assertive when it comes to my schedule	1	2	3	4	5
45. I organize my work space on a regular basis	1	2	3	4	5
46. I often find it hard to stay focused on my original plans	1	2	3	4	5
47. Making lists helps me to organize my time	1	2	3	4	5
48. I save time by organizing my paperwork	1	2	3	4	5
49. I use others as a resource to finish tasks	1	2	3	4	5
50. I seldom use reminders to help me manage my time	1	2	3	4	5
51. I write down my good ideas so I will remember them later	1	2	3	4	5
52. When working on a task, I often get sidetracked	1	2	3	4	5
53. I allocate time to specific goals	1	2	3	4	5
54. I work toward my important goals first	1	2	3	4	5
55. I save time by following through with my decisions	1	2	3	4	5
56. I feel nervous when my schedule changes	1	2	3	4	5
57. Changing my routine makes me angry	1	2	3	4	5
58. I waste time when I do my least favorite tasks last	1	2	3	4	5
59. I have a predictable daily routine	1	2	3	4	5
60. I have what it takes to reach my goals	1	2	3	4	5
61. I use my time to complete important tasks	1	2	3	4	5
62. I make sure I keep documents on my computer organized so I can find them quickly	1	2	3	4	5
63. Deadlines help motivate me to finish jobs on time	1	2	3	4	5
64. I rarely organize enough to know what I will do during the following week	1	2	3	4	5
65. I pack my briefcase or bag the night before	1	2	3	4	5
66. I divide responsibilities instead of doing everything myself	1	2	3	4	5
67. When interrupted, I try to refocus quickly	1	2	3	4	5
68. I prefer meetings with an agenda	1	2	3	4	5
69. I seldom make time for things that I enjoy	1	2	3	4	5

Appendix K

Modified Diabetes Time Management Questionnaire

1 MDTMQ

MDTMQ

Instructions: Please answer the statements below by circling the number that best describes you based on the following rating scale:					
	1	2	3	4	5
	Often		Sometimes		Never
1. I have enough time to accomplish my daily responsibilities.	1	2	3	4	5
2. I use my time effectively and efficiently.	1	2	3	4	5
3. I am concerned about how I manage my time.	1	2	3	4	5
4. I wake up and go to sleep at approximately the same time every day and night.	1	2	3	4	5
5. I meet deadlines (e.g., paying bills on time, showing up for appointments on time).	1	2	3	4	5
6. I schedule exercise into my routine at least three or more times per week.	1	2	3	4	5
7. I put off doing things I want to get done even when I have the time to do them.	1	2	3	4	5
8. I have more to do than I can accomplish in a day, I prioritize things so the most important ones can be done first.	1	2	3	4	5
9. I feel overwhelmed by what I need to do in a day.	1	2	3	4	5
10. When I have more to do than I can accomplish in a day, I can't seem to figure out where to begin.	1	2	3	4	5
11. I procrastinate (put things off).	1	2	3	4	5
12. When I have a lot of things to do, I like to get the hardest tasks out of the way first.	1	2	3	4	5
13. When I exercise, it is at approximately the same time each week.	1	2	3	4	5
14. I make a list of things to do each day.	1	2	3	4	5
15. I make lists of things that I have to get done eventually.	1	2	3	4	5
16. I get upset when I can't get the things done I had wanted to do that day	1	2	3	4	5
17. When something unexpected interrupts my plans, I reschedule for another time, the things I had planned to do.	1	2	3	4	5
18. If things aren't done myself, they are rarely done right.	1	2	3	4	5
19. I organize my schedule with a planner or calendar.	1	2	3	4	5
20. I accomplish what I set out to do on a daily basis.	1	2	3	4	5
21. When I have a lot of things to do, I like to start with the easiest things first.	1	2	3	4	5
22. I set specific goals (e.g., I am going to jog three miles every morning at 7:00 am) rather than general goals (e.g., I am going to start exercising more often).	1	2	3	4	5

2 MDTMQ

	1 Often	2	3 Sometimes	4	5 Never
23. When there is someone to help me out on a task or project, I will let that person do a share of the work.	1	2	3	4	5
24. I set goals that are reasonable (e.g., on the first day of a new exercise plan, jogging 1/2 a mile instead of 3 miles).	1	2	3	4	5
25. When a task seems too large or difficult, I cut it down to size.	1	2	3	4	5
26. I feel guilty when I don't finish a task.	1	2	3	4	5
27. I reward myself with something special when I finish a task.	1	2	3	4	5
28. I feel like there is not enough time in the day.	1	2	3	4	5
29. I am able to find a balance between both work and leisure time.	1	2	3	4	5
30. I do not feel in control of my time.	1	2	3	4	5
31. I know where my time goes.	1	2	3	4	5
32. I keep my things in an organized place where I can always find them.	1	2	3	4	5
33. When I don't accomplish my goals, I know the reason why.	1	2	3	4	5
34. I feel good when I finish a task.	1	2	3	4	5
35. I often find myself doing things which interfere with my schedule simply because I hate to say "NO" to people.	1	2	3	4	5
36. I plan my day before I start it.	1	2	3	4	5
37. I find myself waiting a lot without anything to do.	1	2	3	4	5
38. I find myself rushing to get things done at the last minute.	1	2	3	4	5
39. There is room for improvement in the way I manage my time.	1	2	3	4	5

Appendix L

Lifestyle Approaches Questionnaire

LSQ

Instructions: Please circle the response that best describes you for each of the following statements.

A Very Different from me      B Somewhat Different from me      C Uncertain      D Somewhat Similar to me      E Very Similar to me

1. In most situations, I have a clear sense of what behaviors would be right or wrong for me.	A	B	C	D	E
2. When confronted with many different things I do, I have difficulty deciding what is most important to do.	A	B	C	D	E
3. After making a decision about what is most important to do at any given time, I easily get sidetracked from that activity.	A	B	C	D	E
4. Once I decide what is most important to do at any given time, I start on that task right way.	A	B	C	D	E
5. I write down the pro's and con's of any behavior change I am considering.	A	B	C	D	E
6. I have difficulty judging how long it will take me to complete a task.	A	B	C	D	E
7. I seldom analyze what I am saying to myself regarding problem areas in my life.	A	B	C	D	E
8. I have written down my life goals.	A	B	C	D	E
9. When I begin a personal change project, I generally keep my plans to myself.	A	B	C	D	E
10. I keep my workspace well organized.	A	B	C	D	E
11. I have a clear sense of what I most want to experience in my life.	A	B	C	D	E
12. I seldom ask for feedback from others about behaviors I need to change and how best to change those behaviors.	A	B	C	D	E
13. I complete tasks at the time I say that I am going to complete them.	A	B	C	D	E
14. I seldom write down my yearly goals.	A	B	C	D	E
15. I am confused as to the kind of personal qualities I want to develop in my life.	A	B	C	D	E
16. I have difficulty matching various tasks with my energy level.	A	B	C	D	E
17. I subdivide big tasks into a series of smaller tasks.	A	B	C	D	E
18. I have little idea as to what I most want to achieve in life.	A	B	C	D	E
19. I actively work to make the place where I spend a lot of time more attractive.	A	B	C	D	E
20. I complete major tasks well in advance of deadlines.	A	B	C	D	E
21. When I deviate from my selected goals, I have a hard time getting back on track.	A	B	C	D	E
22. My living space is quite messy.	A	B	C	D	E

Appendix M

Time Management Behavior Scale

## TMB

TO WHAT EXTENT DO EACH OF THE STATEMENTS ON THE FOLLOWING PAGES ACCURATELY DESCRIBE YOUR ACTIVITIES AND EXPERIENCES IN YOUR WORK? Indicate how accurately each statement describes you by choosing ONE of the alternatives on the scale below and circling the corresponding letter on the blank line next to each item. Mark all your responses directly on the form. THIS IS NOT A TEST. THERE ARE NO RIGHT OR WRONG ANSWERS. Please respond to all the items.

A	B	C	D	E
SELDOM TRUE	OCCASIONALLY TRUE	TRUE ABOUT AS OFTEN AS NOT	FREQUENTLY TRUE	VERY OFTEN TRUE

- A B C D E 1. I underestimate the time it will take to accomplish tasks.
- A B C D E 2. At the end of the workday, I leave a clear, well-organized workspace.
- A B C D E 3. I carry a notebook to jot down notes and ideas.
- A B C D E 4. When I decide on what I will try to accomplish in the short term, I keep in mind my long-term objectives.
- A B C D E 5. I review my goals to determine if they need revising.
- A B C D E 6. I schedule activities at least a week in advance.
- A B C D E 7. When I make a things-to-do list at the beginning of the day, it is forgotten or set aside by the end of the day.
- A B C D E 8. I feel in control of my time.
- A B C D E 9. I can find the things I need for my work more easily when my workspace is messy and disorganized than when it is neat and organized.
- A B C D E 10. When I find that I am frequently contacting someone, I record that person's name, address, and phone number in a special file.
- A B C D E 11. I break complex, difficult projects down into smaller manageable tasks.
- A B C D E 12. I set short-term goals for what I want to accomplish in a few days or weeks.
- A B C D E 13. I block out time in my daily schedule for regularly scheduled events.
- A B C D E 14. The time I spend scheduling and organizing my workday is time wasted.
- A B C D E 15. I must spend a lot of time on unimportant tasks.
- A B C D E 16. My workdays are too unpredictable for me to plan and manage my time to any great extent.
- A B C D E 17. I write notes to remind myself of what I need to do.
- A B C D E 18. I set deadlines for myself when I set out to accomplish a task.
- A B C D E 19. I make a list of things to do each day and check off each task as it is accomplished.
- A B C D E 20. I have some of my most creative ideas when I am disorganized.
- A B C D E 21. I find it difficult to keep to a schedule because others take me away from my work.
- A B C D E 22. When I am somewhat disorganized I am better able to adjust to unexpected events.
- ~~A B C D~~ E 23. I carry an appointment book with me.

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A	B	C	D	E
SELDOM	OCCASIONALLY	TRUE ABOUT	FREQUENTLY	VERY OFTEN
TRUE	TRUE	AS OFTEN AS NOT	TRUE	TRUE

- A B C D E 24. I look for ways to increase the efficiency with which I perform my work activities.
- A B C D E 25. I finish top priority tasks before going on to less important ones.
- A B C D E 26. I keep a daily log of my activities.
- A B C D E 27. I find that I can do a better job if I put off tasks that I don't feel like doing than if I try to get them done in the order of their importance.
- A B C D E 28. I find myself procrastinating on tasks that I don't like but that must be done.
- A B C D E 29. I review my daily activities to see where I am wasting time.
- A B C D E 30. I use an in-basket and out-basket for organizing paperwork.
- A B C D E 31. During a workday, I evaluate how well I am following the schedule I have set down for myself.
- A B C D E 32. I set priorities to determine the order in which I will perform tasks each day.
- A B C D E 33. I find places to work that will allow me to avoid interruptions and distractions.
- A B C D E 34. If I know I will have to spend time waiting, I bring along something I can work on.

Appendix N

Time Management Questionnaire

Time-Management Questionnaire

Instructions: This questionnaire includes 18 items that might be descriptive of you. Please read each question and then circle the response next to the question, corresponding to the category that best describes how the question applies to you. For example, if the first question *always* applies to you, circle the 1 to indicate "always." Remember, we are interested in how you think you actually are, not in how you would like to be. Be sure to answer all 18 questions.

1 = always, 2 = frequently, 3 = sometimes, 4 = infrequently, 5 = never

	1	2	3	4	5
1. Do you make a list of the things you have to do each day?	1	2	3	4	5
2. Do you plan your day before you start it?	1	2	3	4	5
3. Do you make a schedule of the activities you have to do on work days?	1	2	3	4	5
4. Do you write a set of goals for yourself for each day?	1	2	3	4	5
5. Do you spend time each day planning?	1	2	3	4	5
6. Do you have a clear idea of what you want to accomplish during the next week?	1	2	3	4	5
7. Do you set and honor priorities?	1	2	3	4	5
8. Do you often find yourself doing things which interfere with your schoolwork simply because you hate to say "no" to people?	1	2	3	4	5
9. Do you feel you are in charge of your own time, by and large?	1	2	3	4	5
10. On an average class day do you spend more time with personal grooming than doing schoolwork?	1	2	3	4	5
11. Do you believe that there is room for improvement in the way you manage your time?	1	2	3	4	5
12. Do you make constructive use of your time?	1	2	3	4	5
13. Do you continue unprofitable routines or activities?	1	2	3	4	5
14. Do you usually keep your desk clear of everything other than what you are currently working with?	1	2	3	4	5
15. Do you have a set of goals for the entire quarter?	1	2	3	4	5
16. The night before a major assignment is due, are you usually still working on it?	1	2	3	4	5
17. When you have several things to do, do you think it is best to do a little bit of work on each one?	1	2	3	4	5
18. Do you regularly review your class notes, even when a test is not imminent?	1	2	3	4	5

Appendix O

Time Structure Questionnaire

**TSQ**

Here are some questions about how you spend your time during a typical day, that is, in general. Please circle a number between 1 and 7 to indicate your answer to each question.

	1	2	3	4	5	6	7
	Yes, Always			No, Never			
1. Do you ever have trouble organizing the things you have to do?	1	2	3	4	5	6	7
2. Do you ever find that time just seems to slip away?	1	2	3	4	5	6	7
3. Do you have a daily routine which you follow?	1	2	3	4	5	6	7
4. Do you often feel that your life is aimless, with no definite purpose?	1	2	3	4	5	6	7
5. Many of us tend to daydream about the future. Do you find this happening to you?	1	2	3	4	5	6	7
6. And what about the past? Do you find yourself dwelling on the past?	1	2	3	4	5	6	7
7. Once you've started an activity do you persist at it until you've completed it?	1	2	3	4	5	6	7
8. Do you ever feel that the things you have to do during the day just don't seem to matter?	1	2	3	4	5	6	7
9. Do you plan your activities from day to day?	1	2	3	4	5	6	7
10. Do you tend to leave things until the last minute?	1	2	3	4	5	6	7
11. Do you find that during the day you are often not sure what to do next?	1	2	3	4	5	6	7
12. Do you take a long time to "get going"?	1	2	3	4	5	6	7
13. Do you tend to change rather aimlessly from one activity to another during the day?	1	2	3	4	5	6	7
14. Do you give up easily once you've started something?	1	2	3	4	5	6	7
15. Do you plan your activities so that they fall into a particular pattern during the day?	1	2	3	4	5	6	7
16. Could you tell how many useful hours you put in last week?	1	2	3	4	5	6	7
17. Do you think you do enough with your time?	1	2	3	4	5	6	7
18. Do you get bored with your day-to-day activities?	1	2	3	4	5	6	7
19. Looking at a typical day in your life, do you think that most things you do have some purpose?	1	2	3	4	5	6	7
20. Do your main activities during the day fit together in a structured way?	1	2	3	4	5	6	7
21. Do the important interests/activities in your life tend to change frequently?	1	2	3	4	5	6	7
22. Do your main interests/activities fulfill some purpose in your life?	1	2	3	4	5	6	7
23. Do you have any difficulty in finishing activities once you've started them?	1	2	3	4	5	6	7
24. Do you spend time thinking about opportunities that you have missed?	1	2	3	4	5	6	7
25. Do you ever feel that the way you fill your time has little use or value?	1	2	3	4	5	6	7
26. Do you spend time thinking about what your future might be like?	1	2	3	4	5	6	7

Appendix P

Brief Symptom Inventory

## BSI

**Instructions:** Below is a list of problems people sometimes have. Please read each one carefully, and circle the number that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Circle only one number for each problem and do not skip any items. If you change your mind, erase your first mark carefully.

For the questions below:

- 0 = NOT AT ALL
- 1 = A LITTLE BIT
- 2 = MODERATELY
- 3 = QUITE A BIT
- 4 = EXTREMELY

- 0 1 2 3 4 Nervousness or shakiness inside
- 0 1 2 3 4 Faintness or dizziness
- ~~0 1 2 3 4 The idea that someone else can control your thoughts~~
- 0 1 2 3 4 Feeling others are to blame for most of your troubles
- 0 1 2 3 4 Trouble remembering things
- ~~0 1 2 3 4 Feeling easily annoyed or irritated~~
- 0 1 2 3 4 Pains in the heart or chest
- 0 1 2 3 4 Feeling afraid in open spaces or on the streets
- ~~0 1 2 3 4 Thoughts of ending your life~~
- 0 1 2 3 4 Feeling that most people cannot be trusted
- 0 1 2 3 4 Poor appetite
- ~~0 1 2 3 4 Suddenly scared for no reason~~
- 0 1 2 3 4 Temper outbursts that you could not control
- 0 1 2 3 4 Feeling lonely even when you are with people
- ~~0 1 2 3 4 Feeling blocked in getting things done~~
- 0 1 2 3 4 Feeling lonely
- 0 1 2 3 4 Feeling blue
- 0 1 2 3 4 Feeling no interest in things
- ~~0 1 2 3 4 Feeling fearful~~
- 0 1 2 3 4 Your feelings being easily hurt
- ~~0 1 2 3 4 Feeling that people are unfriendly or dislike you~~
- 0 1 2 3 4 Feeling inferior to others
- 0 1 2 3 4 Nausea or upset stomach
- 0 1 2 3 4 Feeling that you are watched or talked about by others
- ~~0 1 2 3 4 Trouble falling asleep~~
- 0 1 2 3 4 Having to check and double-check what you do
- ~~0 1 2 3 4 Difficulty making decisions~~
- 0 1 2 3 4 Feeling afraid to travel on buses, subways, or trains
- 0 1 2 3 4 Trouble getting your breath
- 0 1 2 3 4 Hot or cold spells

**Instructions:** Below is a list of problems people sometimes have. Please read each one carefully, and circle the number that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Circle only one number for each problem and do not skip any items. If you change your mind, erase your first mark carefully.

**For the questions below:**

- 0 = NOT AT ALL
- 1 = A LITTLE BIT
- 2 = MODERATELY
- 3 = QUITE A BIT
- 4 = EXTREMELY

- |           |   |
|-----------|---|
| 0 1 2 3 4 | Having to avoid certain things, places, or activities because they frighten you |
| 0 1 2 3 4 | Your mind going blank   |
| 0 1 2 3 4 | Numbness or tingling in parts of your body                                      |
| <hr/>     |   |
| 0 1 2 3 4 | The idea that you should be punished for your sins                              |
| 0 1 2 3 4 | Feeling hopeless about the future   |
| 0 1 2 3 4 | Trouble concentrating   |
| <hr/>     |   |
| 0 1 2 3 4 | Feeling weak in parts of your body  |
| 0 1 2 3 4 | Feeling tense or keyed up   |
| 0 1 2 3 4 | Thoughts of death or dying  |
| <hr/>     |   |
| 0 1 2 3 4 | Having urges to beat, injure, or harm someone                                   |
| 0 1 2 3 4 | Having urges to break or smash things   |
| 0 1 2 3 4 | Feeling very self-conscious with others   |
| <hr/>     |   |
| 0 1 2 3 4 | Feeling uneasy in crowds, such as shopping or at a movie                        |
| 0 1 2 3 4 | Never feeling close to another person   |
| 0 1 2 3 4 | Spells of terror or panic   |
| <hr/>     |   |
| 0 1 2 3 4 | Getting into frequent arguments   |
| 0 1 2 3 4 | Feeling nervous when you are left alone   |
| 0 1 2 3 4 | Others not giving you proper credit for your achievements                       |
| <hr/>     |   |
| 0 1 2 3 4 | Feeling so restless you couldn't sit still                                      |
| 0 1 2 3 4 | Feelings of worthlessness   |
| 0 1 2 3 4 | Feeling that people will take advantage of you if you let them                  |
| <hr/>     |   |
| 0 1 2 3 4 | Feelings of guilt   |
| 0 1 2 3 4 | The idea that something is wrong with your mind                                 |

Appendix Q

Health-Promoting Lifestyle Profile II

LIFESTYLE PROFILE II

DIRECTIONS: This questionnaire contains statements about your *present* way of life or personal habits. Please respond to each item as accurately as possible, and try not to skip any item. Indicate the frequency with which you engage in each behavior by circling:

N for never, S for sometimes, O for often, or R for routinely

	NEVER	SOMETIMES	OFTEN	ROUTINELY
1. Discuss my problems and concerns with people close to me.	N	S	O	R
2. Choose a diet low in fat, saturated fat, and cholesterol.	N	S	O	R
3. Report any unusual signs or symptoms to a physician or other health professional.	N	S	O	R
4. Follow a planned exercise program.	N	S	O	R
5. Get enough sleep.	N	S	O	R
6. Feel I am growing and changing in positive ways.	N	S	O	R
7. Praise other people easily for their achievements.	N	S	O	R
8. Limit use of sugars and food containing sugar (sweets).	N	S	O	R
9. Read or watch TV programs about improving health.	N	S	O	R
10. Exercise vigorously for 20 or more minutes at least three times a week (such as brisk walking, bicycling, aerobic dancing, using a stair climber).	N	S	O	R
11. Take some time for relaxation each day.	N	S	O	R
12. Believe that my life has purpose.	N	S	O	R
13. Maintain meaningful and fulfilling relationships with others.	N	S	O	R
14. Eat 6-11 servings of bread, cereal, rice and pasta each day.	N	S	O	R
15. Question health professionals in order to understand their instructions.	N	S	O	R
16. Take part in light to moderate physical activity (such as sustained walking 30-40 minutes 5 or more times a week).	N	S	O	R
17. Accept those things in my life which I can not change.	N	S	O	R
18. Look forward to the future.	N	S	O	R
19. Spend time with close friends.	N	S	O	R
20. Eat 2-4 servings of fruit each day.	N	S	O	R
21. Get a second opinion when I question my health care provider's advice.	N	S	O	R
22. Take part in leisure-time (recreational) physical activities (such as swimming, dancing, bicycling).	N	S	O	R
23. Concentrate on pleasant thoughts at bedtime.	N	S	O	R
24. Feel content and at peace with myself.	N	S	O	R
25. Find it easy to show concern, love and warmth to others.	N	S	O	R
26. Eat 3-5 servings of vegetables each day.	N	S	O	R

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	NEVER	SOMETIMES	OFTEN	ROUTINELY
27. Discuss my health concerns with health professionals.	N	S	O	R
28. Do stretching exercises at least 3 times per week.	N	S	O	R
29. Use specific methods to control my stress.	N	S	O	R
30. Work toward long-term goals in my life.	N	S	O	R
31. Touch and am touched by people I care about.	N	S	O	R
32. Eat 2-3 servings of milk, yogurt or cheese each day.	N	S	O	R
33. Inspect my body at least monthly for physical changes/danger signs.	N	S	O	R
34. Get exercise during usual daily activities (such as walking during lunch, using stairs instead of elevators, parking car away from destination and walking).	N	S	O	R
35. Balance time between work and play.	N	S	O	R
36. Find each day interesting and challenging.	N	S	O	R
37. Find ways to meet my needs for intimacy.	N	S	O	R
38. Eat only 2-3 servings from the meat, poultry, fish, dried beans, eggs, and nuts group each day.	N	S	O	R
39. Ask for information from health professionals about how to take good care of myself.	N	S	O	R
40. Check my pulse rate when exercising.	N	S	O	R
41. Practice relaxation or meditation for 15-20 minutes daily.	N	S	O	R
42. Am aware of what is important to me in life.	N	S	O	R
43. Get support from a network of caring people.	N	S	O	R
44. Read labels to identify nutrients, fats, and sodium content in packaged food.	N	S	O	R
45. Attend educational programs on personal health care.	N	S	O	R
46. Reach my target heart rate when exercising.	N	S	O	R
47. Pace myself to prevent tiredness.	N	S	O	R
48. Feel connected with some force greater than myself.	N	S	O	R
49. Settle conflicts with others through discussion and compromise.	N	S	O	R
50. Eat breakfast.	N	S	O	R
51. Seek guidance or counseling when necessary.	N	S	O	R
52. Expose myself to new experiences and challenges.	N	S	O	R

Appendix R

Personal Lifestyle Activities Questionnaire

PERSONAL LIFESTYLE QUESTIONNAIRE

The following list includes a description of activities which may or may not related to your usual pattern. Please indicate to what extent the activity applies to you by checking "Almost Always," "Frequently," "Occasionally," or "Never."

	Almost Always	Frequently	Occasionally	Never
1. See a health care provider for a check-up at least yearly.				
2. Get together with friends.				
3. Eat at regular times during the day.				
4. Wear seatbelts while riding in an automobile				
5. Eat foods from each of the food groups daily (meat, milk, bread, fruits and vegetables).				
6. Communicate concerns with another person.				
7. Drive after drinking two or more alcoholic beverages.				
8. Update emergency numbers kept by the telephone.				
9. Get adequate sleep.				
10. Have a planned exercise program.				
11. Climb at least five flights of stairs or walk one mile each day.				

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	Almost Always	Frequently	Occasionally	Never
12. Stay within 10 miles per hour of the speed limit while driving.				
13. Smoke one or more packs of cigarettes daily.				
14. Add salt to food after preparation.				
15. Take time to relax 15-20 minutes daily.				
16. Drink more than 2 alcoholic beverages per day.				
17. Play sports, jog or participate in other physical activity at least three times weekly.				
18. Meet needs for intimacy.				
19. Limit caffeine intake to 3 cups daily (includes coffee, tea and colas.)				
20. Smoke in bed.				
21. Have a dental check-up yearly.				
22. Do a monthly self-breast exam (women only).				
23. Maintain weight within desirable limits avoiding both overweight and underweight.				
24. Avoid alcoholic beverages when taking medications.				

Appendix S

Health Behavior Schedule-II

TWELVE COMMONLY RECOMMENDED HEALTHY PRACTICES ,		How consistently have you practiced this behavior in the recent past?
Performing breast self-exams once per month	NOT APPLICABLE I am a man <input checked="" type="radio"/>	NOT at all ① ② ③ ④ VERY consistently
Obtaining pap smear screens once every 3 yrs	NOT APPLICABLE I am a man <input checked="" type="radio"/>	① ② ③ ④
Taking medication as prescribed	NOT APPLICABLE I haven't recently taken medication <input checked="" type="radio"/>	NOT at all ① ② ③ ④ VERY consistently
Not smoking cigarettes	NOT APPLICABLE I have never been a regular smoker <input checked="" type="radio"/>	① ② ③ ④
Wearing a bike safety helmet	NOT APPLICABLE I don't ride a bike <input checked="" type="radio"/>	NOT at all ① ② ③ ④ VERY consistently
Protecting your skin from sun i.e., use sunscreen, avoid direct sun exposure		① ② ③ ④
Flossing your teeth daily		NOT at all ① ② ③ ④ VERY consistently
Wearing your seat-belt whenever you ride in a car		① ② ③ ④
Limiting alcohol consumption i.e., consume no more one drink per day		NOT at all ① ② ③ ④ VERY consistently
Practicing safe-sex i.e., sexual abstinence, monogamy, condom-use		① ② ③ ④
Exercising regularly i.e., 20 minutes of exercise, 3x per week		NOT at all ① ② ③ ④ VERY consistently
Eating a healthy diet i.e., a low-fat, high fiber diet		① ② ③ ④

Appendix T

Frequency of Self-Reinforcement Questionnaire

## Attitudes Questionnaire

Below are a number of statements concerning beliefs or attitudes people have. Indicate whether the statements are characteristic and descriptive of you by circling T if the statement is somewhat or very true of yourself. Circle F if the statement is somewhat or very false for yourself. Please be as honest as possible. Your answers are completely anonymous.

- T F 1. When I fail at something, generally I am still able to feel good about myself.
- T F 2. I can stick to a tiresome task that I need to complete for a long time without someone encouraging me.
- T F 3. I don't often think positive thoughts about myself.
- T F 4. When I do something right, I take time to enjoy the feeling.
- T F 5. I have such high standards for what I demand of myself that I rarely meet those standards.
- T F 6. I seem to blame myself when things go wrong and am very critical of myself.
- T F 7. There are pleasurable activities which I enjoy doing alone at my leisure.
- T F 8. I usually get upset when I make mistakes because I rarely learn from them.
- T F 9. My feelings of self-confidence and self-esteem fluctuate a great deal.
- T F 10. When I succeed at small things, I become encouraged to go on.
- T F 11. Unless I do something absolutely perfectly, it gives me little satisfaction.
- T F 12. I get myself through hard things mostly by planning to enjoy myself afterwards.
- T F 13. When I make mistakes, I take time to criticize myself.
- T F 14. I encourage myself to improve by feeling good about myself or giving myself something special whenever I make some progress.
- T F 15. If I didn't criticize myself frequently, I would continue to do things poorly forever.
- T F 16. I think talking about what you've done right is being too boastful.
- T F 17. I find I feel better and do better when I silently praise myself for even small achievements.
- T F 18. I can keep trying at something when I stop to think of what I've accomplished.
- T F 19. The way I keep up my confidence is by acknowledging any success I have.
- T F 20. The way I achieve my goals is by rewarding myself every step along the way.
- T F 21. Praising yourself is being selfish and egotistic.
- T F 22. When someone criticizes me, my self-confidence is shattered.
- T F 23. I criticize myself more frequently than others criticize me.
- T F 24. I have a lot of worthwhile qualities.
- T F 25. I silently praise myself even when others do not praise me.
- T F 26. Any activity can provide some pleasure regardless of how it comes out.
- T F 27. If I don't do the best possible job, I think less of myself.
- T F 28. I should be upset if I make a mistake.
- T F 29. My happiness depends more on myself than it does on other people.
- T F 30. People who talk about their own better points are just bragging.

Appendix U

Compulsiveness Inventory

CI

Please respond to each question below by circling "yes" or "no."

- |     |    |     |   |
|-----|----|-----|---|
| Yes | No | 1.  | Do you have to turn things over and over in your mind for a long time before being able to decide what to do? |
| Yes | No | 2.  | Do you often have to check things several times?  |
| Yes | No | 3.  | Do you ever have to do things over again a certain number of times before they seem quite right?              |
| Yes | No | 4.  | Do you have difficulty making up your mind?   |
| Yes | No | 5.  | Do you have to go back and check doors, cupboards, or windows to make sure they are really shut?              |
| Yes | No | 6.  | Do you dislike having a room untidy or not quite clean for even a short time?                                 |
| Yes | No | 7.  | Do you take great care in hanging and folding your clothes at night?  |
| Yes | No | 8.  | Do you like to keep a certain order to undressing and dressing or washing or bathing?                         |
| Yes | No | 9.  | Do you like to put your personal belongings in set places?  |
| Yes | No | 10. | Do you like to get things done exactly right down to the smallest detail?                                     |
| Yes | No | 11. | Are you the sort of person who has to pay a great deal of attention to details?                               |

Appendix V

Marlow-Crowne Social Desirability Scale

## Marlowe-Crowne Scale

Listed below are a number of statements concerning personal attitudes and traits. Read each item and decide whether the statement is true or false as it pertains to you.

- |   |   |     |  |
|---|---|-----|--|
| T | F | 1.  | Before voting I thoroughly investigate the qualifications of all the candidates.                                 |
| T | F | 2.  | I never hesitate to go out of my way to help someone in trouble.   |
| T | F | 3.  | It is sometimes hard for me to go on with my work if I am not encouraged.  |
| T | F | 4.  | I have never intensely disliked anyone.  |
| T | F | 5.  | On occasion I have had doubts about my ability to succeed in life.   |
| T | F | 6.  | I sometimes feel resentful when I don't get my way.  |
| T | F | 7.  | I am always careful about my manner of dress.  |
| T | F | 8.  | My table manners at home are as good as when I eat out in a restaurant.  |
| T | F | 9.  | If I could get into a movie without paying and be sure I was not seen, I would probably do it.                   |
| T | F | 10. | On a few occasions, I have given up doing something because I thought too little of my ability.                  |
| T | F | 11. | I like to gossip at times.   |
| T | F | 12. | There have been times when I felt like rebelling against people in authority even though I knew they were right. |
| T | F | 13. | No matter who I'm talking to, I'm always a good listener.  |
| T | F | 14. | I can remember "playing sick" to get out of something.   |
| T | F | 15. | There have been occasions when I took advantage of someone.  |
| T | F | 16. | I'm always willing to admit it when I make a mistake.  |
| T | F | 17. | I always try to practice what I preach.  |
| T | F | 18. | I don't find it particularly difficult to get along with loudmouthed, obnoxious people.                          |
| T | F | 19. | I sometimes try to get even, rather than forgive and forget.   |
| T | F | 20. | When I don't know something I don't at all mind admitting it.  |
| T | F | 21. | I am always courteous, even to people who are disagreeable.  |
| T | F | 22. | At times I have really insisted on having things my own way.   |
| T | F | 23. | There have been occasions when I felt like smashing things.  |
| T | F | 24. | I would never think of letting someone else be punished for my wrongdoings.                                      |
| T | F | 25. | I never resent being asked to return a favor.  |
| T | F | 26. | I have never been irked when people expressed ideas very different from my own.                                  |
| T | F | 27. | I never make a long trip without checking the safety of my car.  |
| T | F | 28. | There have been times when I was quite jealous of the good fortune of others.                                    |
| T | F | 29. | I have almost never felt the urge to tell someone off.   |
| T | F | 30. | I am sometimes irritated by people who ask favors of me.   |
| T | F | 31. | I have never felt that I was punished without cause.   |
| T | F | 32. | I sometimes think when people have a misfortune they only got what they deserved.                                |
| T | F | 33. | I have never deliberately said something that hurt someone's feelings.   |

Appendix W

Short Form of the Religiousness Value Scale, Personal Value Scales

*RS-PVS*

Instructions: Please read over the following statements, and for each one indicate (by a check in the appropriate space) whether it is something you always admire in other people, or something you always dislike, or something that depends on the situation whether you admire it or not.

	Always Admire	Depends on Situation	Always Dislike	
1.	_____	_____	_____	Being devout in one's religious faith.
2.	_____	_____	_____	Always living one's religion in his daily life.
3.	_____	_____	_____	Always attending religious services regularly and faithfully.
4.	_____	_____	_____	Avoiding the physical pleasures that are prohibited in the Bible.
5.	_____	_____	_____	Encouraging others to attend services and lead religious lives.

Appendix X

Sexual Attitude Scale

SAS

This questionnaire is designed to measure the way you feel about sexual behavior. It is not a test, so there are no right or wrong answers. Answer each item as carefully and as accurately as you can by placing a number beside each one as follows.

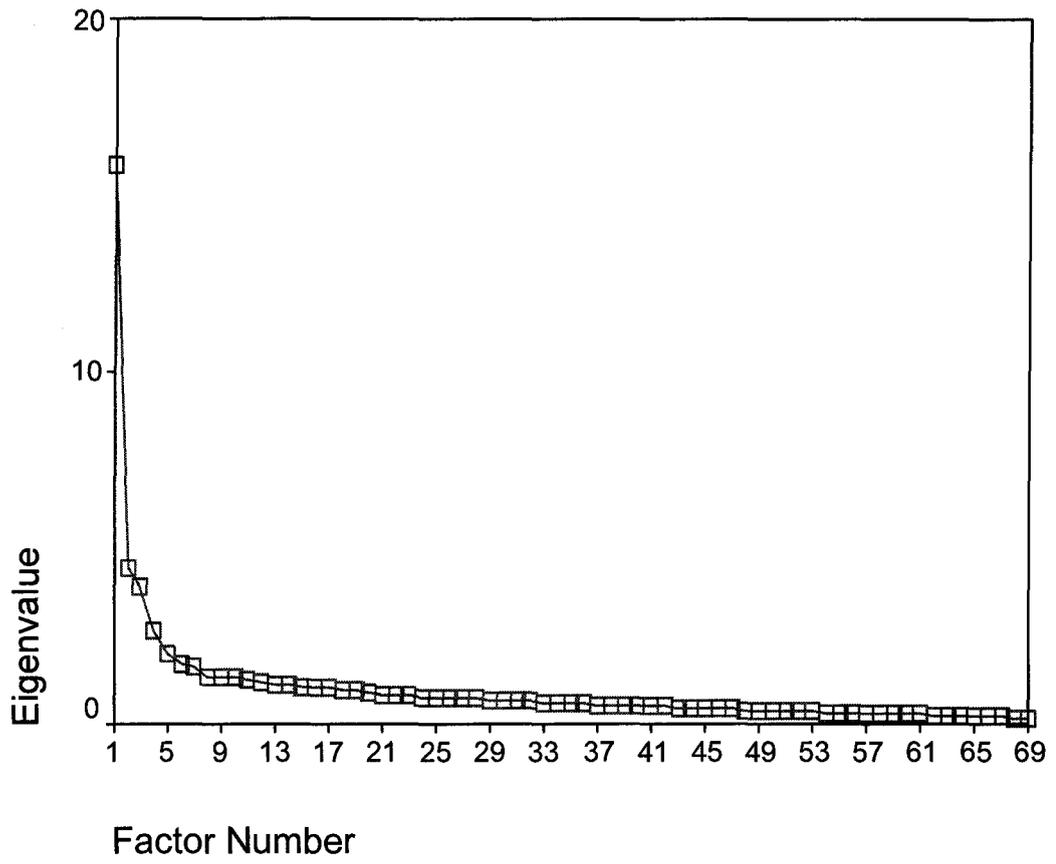
- 1 = Strongly disagree
- 2 = Disagree
- 3 = Neither agree nor disagree
- 4 = Agree
- 5 = Strongly agree

- 
1. \_\_\_ I think there is too much sexual freedom given to adults these days.
  2. \_\_\_ I think that increased sexual freedom undermines the American family.
  3. \_\_\_ I think that young people have been given too much information about sex.
  4. \_\_\_ Sex education should be restricted to the home.
  5. \_\_\_ Older people do not need to have sex.
  6. \_\_\_ Sex education should be given only when people are ready for marriage.
  7. \_\_\_ Pre-marital sex may be a sign of a decaying social order.
  8. \_\_\_ Extra-marital sex is never excusable.
  9. \_\_\_ I think there is too much sexual freedom given to teenagers these days.
  10. \_\_\_ I think there is not enough sexual restraint among young people.
  11. \_\_\_ I think people indulge in sex too much.
  12. \_\_\_ I think the only proper way to have sex is through intercourse.
  13. \_\_\_ I think sex should be reserved for marriage.
  14. \_\_\_ Sex should be only for the young.
  15. \_\_\_ Too much social approval has been given to homosexuals.
  16. \_\_\_ Sex should be devoted to the business of procreation.
  17. \_\_\_ People should not masturbate.
  18. \_\_\_ Heavy sexual petting should be discouraged.
  19. \_\_\_ People should not discuss their sexual affairs or business with others.
  20. \_\_\_ Severely handicapped (physically and mentally) people should not have sex.
  21. \_\_\_ There should be no laws prohibiting sexual acts between consenting adults.
  22. \_\_\_ What two consenting adults do together sexually is their own business.
  23. \_\_\_ There is too much sex on television.
  24. \_\_\_ Movies today are too sexually explicit.
  25. \_\_\_ Pornography should be totally banned from our bookstores.
-

Appendix Y

Exploratory Factor Analysis From Study 4

### Scree Plot



Pattern Matrix Indicating Item Loadings Interpreted in 7 Factor Solution

Item	Factor						
	1	2	3	4	5	6	7
HTM2.6	<b><u>.823</u></b>	.114	-5.249E-02	-6.971E-02	-.190	-2.205E-02	-8.439E-02
HTM2.16	<b><u>.780</u></b>	1.930E-02	-5.101E-02	-5.926E-02	-6.859E-02	8.223E-02	-8.781E-02
HTM2.54	<b><u>.750</u></b>	-9.462E-02	3.381E-02	-.120	-5.745E-02	8.414E-02	3.447E-02
HTM2.5	<b><u>.734</u></b>	6.364E-02	-.178	-1.907E-02	-8.068E-02	-.152	-1.982E-02
HTM2.3	<b><u>.699</u></b>	9.060E-03	-4.777E-03	-9.479E-02	-.118	-2.938E-02	.103
HTM2.17	<b><u>.694</u></b>	3.160E-02	-.131	1.644E-02	-1.092E-02	8.635E-02	-8.768E-02
HTM2.11	<b><u>.677</u></b>	-8.782E-02	.140	-.135	7.152E-02	-6.061E-02	-3.631E-02
HTM2.10	<b><u>.666</u></b>	-6.231E-02	-.157	.111	-.122	.103	-5.461E-03
HTM2.7	<b><u>.649</u></b>	8.599E-02	-5.359E-02	-.171	-9.529E-02	3.249E-02	1.123E-02
HTM2.61	<b><u>.631</u></b>	-7.581E-02	8.545E-02	-3.055E-02	.166	-.153	1.798E-02
HTM2.8	<b><u>.612</u></b>	.107	-1.496E-02	-.160	-.200	.211	4.253E-02
HTM2.42	<b><u>.610</u></b>	3.806E-02	-7.269E-02	.154	-1.198E-02	-.194	4.576E-02

HTM2.40	<u>.592</u>	-3.869E-02	9.751E-02	-.130	.118	-.130	.100
HTM2.53	<u>.585</u>	3.629E-02	4.493E-02	-4.527E-02	-1.859E-02	8.705E-02	.100
HTM2.37	<u>.577</u>	1.044E-02	-.183	.214	1.599E-02	-8.921E-02	-3.697E-02
HTM2.60	<u>.573</u>	-4.175E-02	4.082E-02	8.092E-02	2.553E-02	-2.545E-02	1.065E-02
HTM2.39	<u>.562</u>	-1.065E-03	-.106	-2.370E-02	1.235E-02	-6.027E-03	-2.074E-04
HTM2.55	<u>.501</u>	-5.534E-02	.158	4.941E-03	8.902E-02	.178	-4.702E-02
HTM2.28	<u>.495</u>	-3.465E-02	.114	.114	8.196E-02	-4.571E-02	.161
HTM2.63	.438	-4.339E-02	-.105	2.620E-02	.273	-.155	2.243E-03
HTM2.2	<u>.426</u>	9.649E-02	.133	.146	5.879E-02	-.100	9.346E-02
HTM2.12	<u>.426</u>	-.127	.192	8.997E-02	.129	-4.746E-02	7.966E-02
HTM2.67	<u>.388</u>	-3.999E-02	.162	-4.022E-02	5.790E-02	.173	-2.610E-02
HTM2.21	.365	-9.424E-02	-.171	.232	.162	-3.253E-02	2.020E-02
HTM2.32	.360	.119	.247	1.852E-02	9.449E-02	-.131	.156
HTM2.36	.357	-6.748E-02	.131	.252	.125	.273	-7.381E-02
HTM2.41	.301	-3.857E-02	.193	-.119	.237	6.574E-02	1.916E-02

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HTM2.44	<u>.300</u>	.126	.160	9.770E-03	.165	.167	3.351E-02
HTM2.68	.218	8.359E-02	-.113	1.401E-02	.129	-1.149E-02	.164
HT2.30RE	.111	<u>-.862</u>	4.965E-02	2.413E-03	5.286E-02	-3.187E-02	-8.757E-02
HTM2.14	2.922E-02	<u>.678</u>	-3.879E-02	6.606E-02	.112	-9.806E-02	-1.610E-02
HTM2.34	-7.487E-02	<u>.623</u>	5.408E-02	-.120	4.241E-02	.195	4.589E-02
HTM2.33	.188	<u>.488</u>	-9.109E-02	-7.803E-02	.198	-7.566E-02	-3.024E-02
HT2.50RE	1.389E-02	<u>.484</u>	-5.090E-02	9.624E-02	9.811E-02	-6.855E-02	-.198
HT2.64RE	7.962E-03	.413	.193	.218	5.076E-02	-6.605E-02	2.747E-02
HTM2.47	.301	.354	-.173	-5.711E-02	.230	6.632E-02	-8.154E-02
HTM2.24	8.614E-02	<u>.335</u>	.127	-3.522E-02	.173	.197	.122
HT2.19RE	9.114E-02	-5.093E-02	<u>.703</u>	-.111	.121	-6.641E-02	5.376E-03
HT2.9RE	-9.994E-02	-2.621E-02	<u>.683</u>	-3.843E-02	.254	-4.361E-02	-3.427E-04
HT2.52RE	-5.538E-02	5.721E-02	<u>.659</u>	-5.737E-02	8.263E-03	7.253E-02	-.125
HT2.46RE	9.371E-02	9.997E-02	<u>.650</u>	4.221E-02	-.181	-5.842E-02	5.959E-02
HT2.43RE	-4.717E-02	1.679E-02	<u>.619</u>	-.208	.117	6.467E-03	-4.081E-02

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HT2.4RE	-.111	-.159	<u>.551</u>	1.828E-02	-.103	.142	9.041E-02
HT2.20RE	-2.954E-02	-2.020E-02	.469	.208	-.183	.118	-.140
HT2.38RE	-2.765E-02	-1.601E-02	.449	1.469E-02	-.241	-.166	.118
HT2.1RE	-6.601E-02	-.100	<u>.439</u>	.112	-.110	8.344E-02	-1.639E-02
HTM2.58	-.202	-.171	-.329	-.107	.144	.126	.243
HTM2.26	-3.637E-02	-1.470E-02	-1.161E-03	<u>.737</u>	-3.052E-02	.174	.176
HTM2.15	-7.885E-02	3.898E-02	-8.191E-02	<u>.722</u>	4.742E-02	9.494E-02	.137
HT2.69RE	-.214	.156	9.766E-02	<u>.594</u>	-6.138E-02	-.129	2.566E-02
HTM2.35	.205	-.114	-.135	<u>.588</u>	.130	.177	-9.420E-02
HT2.57RE	.134	.121	.173	.367	-.114	-9.290E-02	-.262
HTM2.31	-2.808E-02	7.097E-02	4.262E-03	<u>-.338</u>	2.363E-02	.141	9.251E-02
HTM2.27	.319	-2.110E-02	7.452E-02	.321	7.062E-02	.102	4.093E-02
HTM2.18	.122	7.929E-02	-9.215E-02	.167	8.510E-02	1.831E-02	8.889E-02
HTM2.23	-.110	.268	-6.214E-02	4.358E-02	<u>.714</u>	-.125	5.739E-03
HTM2.48	-4.157E-03	.243	-4.999E-02	-9.629E-03	<u>.659</u>	8.967E-03	-6.434E-02

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HTM2.45	4.084E-02	1.585E-02	9.852E-03	-5.221E-02	<b><u>.591</u></b>	.158	5.477E-03
HTM2.22	-4.671E-02	.144	-1.888E-02	8.784E-02	<b><u>.422</u></b>	-9.597E-02	6.063E-02
HTM2.65	8.258E-02	5.512E-02	-9.855E-02	-3.809E-02	<b><u>.386</u></b>	1.829E-03	-.106
HTM2.62	.270	-9.556E-02	-9.081E-02	-1.634E-03	.368	-7.373E-02	3.747E-02
HTM2.51	.125	.229	-.124	2.355E-02	.271	.216	-9.710E-02
HTM2.25	-8.670E-02	.227	.112	6.038E-02	-8.499E-02	<b><u>.618</u></b>	3.443E-02
HTM2.49	-9.224E-02	-2.789E-02	-9.118E-02	7.702E-02	7.148E-03	<b><u>.574</u></b>	5.362E-02
HTM2.66	9.362E-02	-.129	9.082E-02	2.457E-02	-3.856E-02	<b><u>.556</u></b>	-6.129E-02
HTM2.59	4.830E-02	-.123	-1.947E-02	5.256E-02	3.627E-02	1.915E-02	<b><u>.749</u></b>
HTM2.29	.187	7.018E-02	1.035E-02	7.214E-02	-.155	1.351E-03	<b><u>.740</u></b>
HTM2.13	.191	9.949E-02	5.310E-02	8.803E-02	-6.596E-02	-6.136E-02	<b><u>.551</u></b>
HT2.56RE	-1.105E-02	2.115E-04	.268	.329	-5.668E-02	-9.976E-02	-.373

Note: Loadings underlined and bolded (columns 2 – 8) were the interpreted factor loadings. The number after the decimal in the first column indicates item number on the 69 item version of the HTMS.

Structure Matrix Indicating Item-Factor Correlations for 7 Factor Solution

Item	Factor						
	1	2	3	4	5	6	7
HTM2.16	.695	.324	.205	.141	.374	.228	.263
HTM2.61	.686	.317	.307	.174	.481	6.337E-02	.320
HTM2.54	.685	.283	.262	5.516E-02	.394	.265	.346
HTM2.6	.685	.348	.198	.167	.294	.119	.231
HTM2.53	.661	.390	.279	7.932E-02	.446	.281	.410
HTM2.28	.658	.348	.309	.238	.461	.135	.398
HTM2.11	.657	.292	.353	6.313E-02	.427	.146	.281
HTM2.40	.656	.353	.319	4.873E-02	.484	.122	.396
HTM2.3	.645	.318	.213	8.783E-02	.344	.155	.361
HTM2.17	.644	.302	.116	.195	.366	.205	.243
HTM2.42	.612	.275	.120	.361	.308	-7.525E-02	.241
HTM2.2	.611	.397	.324	.274	.421	6.264E-02	.326

HTM2.5	.605	.268	4.609E-02	.220	.274	-1.630E-02	.226
HTM2.55	.605	.314	.359	9.936E-02	.444	.323	.279
HTM2.32	.602	.461	.438	.128	.484	.102	.406
HTM2.60	.602	.262	.227	.239	.354	.100	.252
HTM2.7	.583	.341	.178	-4.272E-03	.338	.214	.315
HTM2.44	.572	.472	.383	4.669E-02	.537	.362	.384
HTM2.8	.566	.359	.210	-5.144E-02	.314	.365	.346
HTM2.10	.561	.166	2.693E-02	.267	.228	.151	.205
HTM2.12	.556	.237	.336	.203	.397	.100	.282
HTM2.37	.548	.201	1.361E-03	.399	.262	-3.407E-02	.159
HTM2.36	.543	.258	.296	.288	.400	.319	.201
HTM2.39	.525	.241	8.991E-02	.131	.312	.123	.246
HTM2.63	.515	.245	9.047E-02	.186	.426	1.445E-02	.257
HTM2.27	.506	.245	.213	.377	.332	.144	.219
HTM2.67	.478	.266	.323	2.238E-02	.363	.302	.244

HTM2.21	.421	.118	-3.451E-02	.339	.278	1.278E-02	.170
HTM2.68	.372	.291	4.728E-02	6.136E-02	.353	.141	.347
HTM2.18	.269	.200	1.296E-02	.189	.228	7.267E-02	.199
HT2.30RE	-.305	-.810	-.199	3.852E-02	-.395	-.229	-.392
HTM2.14	.398	.709	.212	.110	.446	9.459E-02	.308
HTM2.34	.305	.696	.285	-.185	.446	.403	.391
HTM2.33	.458	.623	.182	4.124E-03	.506	.160	.344
HTM2.24	.488	.617	.366	-6.971E-02	.579	.432	.483
HTM2.47	.514	.549	.118	2.689E-02	.531	.272	.336
HT2.64RE	.360	.507	.338	.236	.333	4.427E-02	.217
HT2.50RE	.210	.425	.107	.147	.229	-2.655E-03	3.180E-02
HT2.19RE	.337	.277	.747	-8.197E-02	.338	.119	.168
HT2.9RE	.252	.279	.710	-6.403E-02	.370	.126	.153
HT2.46RE	.282	.274	.659	6.309E-02	.137	3.207E-02	.110
HT2.52RE	.149	.217	.657	-8.633E-02	.165	.148	-5.852E-03

HT2.43RE	.170	.245	.643	-.227	.263	.170	.111
HT2.4RE	1.967E-02	-9.924E-03	.461	-6.868E-02	7.537E-03	.146	3.170E-02
HT2.20RE	3.352E-02	-7.391E-03	.393	.177	-.100	1.483E-02	-.183
HTM2.58	-.201	-.162	-.360	-.215	1.542E-03	.141	.164
HT2.1RE	1.353E-02	-3.070E-02	.358	6.604E-02	-4.957E-02	3.615E-02	-7.668E-02
HT2.38RE	-7.628E-03	-2.668E-03	.352	2.392E-02	-.128	-.160	-2.673E-02
HTM2.15	.219	9.297E-02	-6.246E-02	.665	.110	-3.984E-02	8.265E-02
HTM2.26	.257	8.140E-02	8.005E-03	.665	.101	2.912E-02	.111
HTM2.35	.339	2.253E-02	-5.950E-02	.613	.168	4.911E-02	-9.225E-03
HT2.69RE	-6.168E-04	3.735E-02	3.157E-02	.564	-9.952E-02	-.283	-.131
HT2.57RE	.143	4.756E-02	.172	.452	-8.155E-02	-.219	-.258
HTM2.31	6.363E-03	.144	6.408E-02	-.390	.142	.274	.208
HTM2.48	.460	.559	.221	5.317E-03	.744	.276	.383
HTM2.23	.409	.556	.186	5.591E-02	.736	.151	.394
HTM2.45	.430	.404	.232	-7.391E-02	.685	.396	.399

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HTM2.41	.483	.325	.370	-5.764E-02	.486	.276	.322
HTM2.22	.296	.349	.132	9.840E-02	.466	7.417E-02	.280
HTM2.51	.370	.410	9.628E-02	2.367E-02	.460	.345	.254
HTM2.62	.411	.204	7.484E-02	8.903E-02	.443	9.540E-02	.274
HTM2.65	.248	.227	5.173E-02	2.140E-03	.380	.132	.150
HTM2.25	.191	.349	.228	-.117	.258	.638	.260
HTM2.49	4.970E-02	7.243E-02	-3.874E-02	-9.199E-02	.141	.533	.172
HTM2.66	.152	4.108E-02	.143	-8.205E-02	.138	.520	9.544E-02
HTM2.29	.485	.405	.145	3.783E-02	.387	.236	.767
HTM2.59	.360	.248	6.497E-02	-2.430E-02	.392	.242	.734
HTM2.13	.476	.400	.192	9.199E-02	.386	.154	.623
HT2.56RE	-5.629E-02	-.132	.179	.387	-.209	-.285	-.443

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Factor Correlation Matrix Showing Correlations Between 7 Retained Factors

	Factor						
Factor	1	2	3	4	5	6	7
1	1.000	.484	.343	.269	.596	.240	.451
2	.484	1.000	.332	1.275E-02	.547	.256	.438
3	.343	.332	1.000	-1.717E-02	.301	.149	.128
4	.269	1.275E-02	-1.717E-02	1.000	1.068E-02	-.243	-.113
5	.596	.547	.301	1.068E-02	1.000	.353	.524
6	.240	.256	.149	-.243	.353	1.000	.328
7	.451	.438	.128	-.113	.524	.328	1.000

Appendix Z

Informed Consent, Study 5

Informed Consent

Time Management and Health Related Behaviors (Test-Retest)

Karl Nelson, Department of Psychology, University of Hawaii at Manoa, Gartley Hall,  
Rm. 104.

Phone: 956-8414. E-mail: [karln@hawaii.edu](mailto:karln@hawaii.edu)

This is a research project exploring the relationships between time management skills and healthy behaviors (for example, eating habits, regular exercise). Your participation in this study involves completion of two questionnaire packets during the week following your receipt of the packets. The packets contain the same questionnaires and will take approximately two hours to complete. You will be asked to complete the packets twice, with a three-week interval between completion of the packets. By participating in this project, you can be eligible for class credit.

The information you provide will be kept confidential the extent allowed by law. Efforts to maintain the confidentiality of your responses to questionnaire items include the physical protection of files (i.e., storage in a locked room), and the use of code numbers (i.e., the last four digits of your social security number). Following the assignment of course credit, the page with the last four digits of your SSN will be discarded so that your questionnaire will no longer contain information that can be directly linked to you.

Your completion of these questionnaires may provide benefits both for yourself and for others. Information elicited by the questionnaire items may provide you with further insight about yourself. Moreover, your responses to these questionnaires may enable the development of more effective treatment and training programs across diverse applications, thus potentially improving the lives of others.

At the same time, the completion of questionnaire items may cause you distress. If after completing the questionnaires you experience feelings of wanting to harm yourself or others, it is very important that you call the Crisis Line phone number at 521-4555. However, if after completing the questionnaires you are left feeling troubles or upset, we encourage you to contact the principle investigator, Karl Nelson, by telephone: 956-8414, or e-mail: [karln@hawaii.edu](mailto:karln@hawaii.edu); or the faculty advisor, Dr. Elaine Heiby, by telephone: 956-8414, or e-mail: [heiby@hawaii.edu](mailto:heiby@hawaii.edu).

Participation in this study is absolutely voluntary. Whether you participate in this research study or not has no effect on your grade in this class. Participation in this study is strictly an opportunity to obtain extra credit, and you may obtain equivalent extra credit by completing an alternative project provided by your instructor.

For the results of this study to be useful to others, it is crucial that guidelines be followed. Thus it is very important that the direction for each questionnaire be read carefully, and

that questionnaires be completed in their entirety. Also, the initial questionnaire packet must be returned within one week of when it is assigned, and the second questionnaire packet must be completed during the week following which it is assigned. The second packet will be administered three (3) weeks after the first packet. Finally, by signing this consent form you indicate that it is you who will complete both questionnaire packets, and not another individual. If it is unlikely that you will be able to follow these guidelines, the choice of an alternative method to achieve course credit is requested and strongly encouraged.

If you have any questions, comments, or concerns about this research project, you may contact Karl nelson by telephone: 956-8414, or e-mail: [karln@hawaii.edu](mailto:karln@hawaii.edu); or Dr. Elaine Heiby, by telephone: 956-8414, or e-mail: [heiby@hawaii.edu](mailto:heiby@hawaii.edu).

I herewith give my consent to participate in this project with the understanding that such consent does not waive any of my legal rights, nor does it release the principle investigator or the institution or any employee or agent thereof from liability for negligence.

\_\_\_\_\_ (Name, please print)                      \_\_\_\_\_ (Date)

\_\_\_\_\_ (Signature)                                      \_\_\_\_\_ (Course # for Class Credit)

\_\_\_\_\_ (Instructors Name for  
Credit)

(If you cannot obtain satisfactory answers to your questions or have comments or complaints about your treatment in this study, contact: Committee on Human Studies, University of Hawaii, 2540 Maile Way, Honolulu, Hawaii, 96822. Phone: 808-956-5007)

c: Signed copy to subject