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ABSTRACT

Previous research has concluded that no reliable individual differences have been demonstrated in goal-setting studies, probably because the goals were assigned rather than set by the individuals. This study examined individual's self-set goals, certainty, and task performance of two work periods in a group setting as a function of Type A behavior pattern and task labels (difficult versus easy). Subjects (N=115) were students in an undergraduate psychology course. Subjects were divided into three groups (Type A, intermediate, Type B) according to a three-split of their Type A scores. An identical anagram-solving task was labeled either as a difficult task or as an easy task. Results showed that in the first work period subjects in the easy condition set higher goals than did those in the difficult condition. Type A's showed a higher level of certainty of goal accomplishment than did intermediates and Type B's. No significant performance differences were found in the first work period. In the second work period, Type A's in the easy condition set significantly higher goals than did Type B's. Intermediates in the easy condition set higher goals than did those in the difficult condition. Type A's' goal setting in the second period was not affected by the task labels. Subjects in the difficult condition were more certain in their goal accomplishment than were those in the easy condition. Again no significant performance differences were found in that period. (Author/ABL)

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Effects of Type A Behavior Pattern and Task Labels
on Goal Setting

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Abstract

The study examined individual's self-set goals, certainty, and task performance of two work periods in a group setting as a function of Type A behavior pattern and task labels (difficult vs. easy). Subjects, American college students, were divided into three groups (i.e., Type A, intermediate, and Type B) according to a three-way split of their Type A scores. An identical anagram-solving task was labeled either as a difficult task or as an easy task. The results of 3 x 2 ANOVAs showed that, in the first work period, subjects in the easy condition set higher goals than did those in the difficult condition. Type As showed a higher level of certainty of goal accomplishment than did intermediates and Type Bs. No significant performance differences were found in the first work period. In the second work period, Type As in the easy condition set significantly higher goals than did Type Bs. Intermediates in the easy condition set higher goals than did those in the difficult condition. Type As' goal setting in the second period was not affected by the task labels. Subjects in the difficult condition were more certain in their goal accomplishment than were those in the easy condition. Again, no significant performance differences were found in that period.

Effects of Type A Behavior Pattern and Task Labels
on Goal Setting

In a review of the literature on goal setting and performance, Locke, Shaw, Saari, and Latham (1981) concluded that "[n]o reliable individual differences have emerged in goal-setting studies, probably because the goals were typically assigned rather than self-set" (p. 125, emphasis added). They further suggested that individual difference variables seems worthy of further study. Recently, the effects of self-esteem and task labels on goal setting were investigated by Tang, Liu, and Vermillion (1987). However, very little research has examined the effects of Type A behavior pattern on goal setting. The major purpose of the present research was to study the effects of Type A behavior pattern (Type A, intermediate, and Type B) and task labels (difficult vs. easy) on self-set goals in a laboratory experiment.

Type A Behavior Pattern

Evidence has accumulated in recent years that implicates a behavior pattern, designated as Type A, as a risk factor for coronary heart disease (CHD) (Friedman & Rosenman, 1974). This Type A behavior pattern is characterized by an extreme sense of time urgency, competitiveness, impatience, aggressiveness, ambition, frequent vocational deadlines, pressure for vocational productivity, and restless motor mannerisms and staccato style of verbal response (Jenkins, Rosenman, & Friedman, 1967). On the other hand, Type B behavior pattern is characterized by the relative absence of this interplay of psychological traits and situational pressures. Moreover, Type B individuals are more relaxed, easy-going, satisfied, and unhurried (Ivancevich & Matteson, 1984).

In the Type A behavior pattern literature, researchers have suggested that

Type A individuals (Type As) tend to work at near their maximal rate when there is no explicit time deadline (Burnam, Pennebaker, & Glass, 1975; Carver, Coleman, & Glass, 1976). Type A college students achieve more academic honors than Type Bs (Glass, 1977). Further, Type As display a higher level of work involvement (Burke & Weir, 1980; Jenkins, Zyzanski, & Rosenman, 1971), have a higher level of work ethic endorsement (Tang & Baumeister, 1984), and tend to produce higher quality and quantity of work performance than do Type Bs (Boyd, 1984; Matthews, 1982; Matthews, Helmreich, Beane, & Lucker, 1980; Taylor, Locke, Lee, & Gist, 1984).

Type As manifest significantly higher blood pressures while working on a highly competitive reaction time task but not on the same task when competition is de-emphasized (Goldband, 1980). Moreover, they focus on events that have been defined as centrally important and suppress their attention to peripheral events and stimuli (Matthews & Burnson, 1979) and may have the tendency to distort self-perception in socially desirable directions (Herman, Blumenthal, Black, & Chesney, 1981). Type As spend significantly more time moving about and exploring, and less time sitting still than do Type Bs, during both the waiting and the relaxation periods (Hughes, Jacobs, Schucker, Chapman, Murray, & Johnson, 1983). Type As also gesture more frequently than do Type Bs during the interview period. Therefore, Type As may consider the whole experiment as being centrally important.

Difficult vs. Easy

Tang and Baumeister (1984) suggested that "a task label may shape the interpretation of the task, but the evaluation of the task depends on both that interpretation and the personal values of the individual" (p. 99). In the present study, an identical anagram-solving task was labeled as either difficult or easy.

Thus, the perception was manipulated by different task labels.

According to Salomon (1984), one factor that affects the amount of invested mental effort is a person's perceived demand characteristics (PDC) of the stimulus, task, or context. The greater perceived demand characteristics are, the greater amount of mental effort will be expended. It has been also pointed out in the goal setting literature that difficult goals will produce higher performance levels than easy goals (e.g., Locke, 1968; Locke, Frederick, Lee, & Bobko, 1984; Locke & Latham, 1984; Locke, Shaw, Saari, & Latham, 1981). Further, difficult goals produce relatively high levels of arousal (Wright & Brehm, 1984). It is reasonable to believe that subjects in the easy condition would experience a lower level of PDC, arousal, and "challenge" than would those in the difficult condition (cf. Tang et al., 1987). Following this line of reasoning, it is plausible that subjects in the difficult condition might set higher goals than might those in the easy condition.

On the other hand, it has also been suggested that when the subjective probability of success is in the region of .5, individuals' performance on a task is at its best (cf., Atkinson, 1958, 1964; Stedry & Kay, 1966). Thereby, the relationship between task difficulty and performance takes the form of an inverted U (cf., Frost & Mahoney, 1976).

Moreover, a task labeled difficult may lead to a low level of subjective probability of success. An individual's failure on a task may well constitute "a threatening, anxiety-provoking situation" (Shrauger & Rosenberg, 1970, p. 406). Thus, subjects in the difficult condition may set a low goal in order to "play it safe" and avoid possible failure in the experiment. Further, a task labeled easy may also give the subjects a "false sense of security" (cf., Campbell, 1984) and

may lead to these individuals' high expectation of success in the experiment. Following this line of reasoning, it was expected that subjects in the difficult condition would set lower goals than would those in the easy condition, when first-hand information was yet available.

Type A Behavior Pattern and Task Labels

In a recent study, Tang (1986) examined the effects of Type A behavior pattern (Type A, intermediate, and Type B) and task labels (work vs. leisure) on subjects' task preference in a free-choice period: there was no significant difference between Type As' free-choice behavior in work and leisure conditions. Moreover, intermediates in the work condition spent more time on the target activity than did those in the leisure condition. He suggested that "Type As are very competitive regardless of the nature of the activity and/or the abstract meaning of the task, therefore, there is no difference between work and leisure" (p. 8). Intermediates, on the other hand, may have followed the instructions and the demand characteristics of the experimenter or the experimental context. Therefore, "intermediates' free-choice behavior was affected by the abstract meaning associated with the labels" (Tang, 1986, p. 9).

Tang (1987) further investigated the effects of Type A behavior pattern and experimenter interest on Chinese college students' task performance and free-choice behavior in an experiment using students in Taiwan, the Republic of China. The results of that study revealed that during the first work period there were no significant differences among Type As, intermediates, and Type Bs concerning the number of anagrams solved. It appears that with a high level of perceived demand characteristics (PDC) and the presence of the experimenter, all subjects performed equally well on the task in the experiment. Further, those in

the high experimenter interest situation spent significantly more free-choice time on the target task than did those in the no experimenter interest condition. It should be pointed out that in both studies (Tang, 1986, 1987), only one subject was involved in each of the experimental sessions: thus subjects performed alone in the laboratory. Moreover, they performed on the identical task with different task labels.

In the present research, subjects were asked to set their own goals and work on an identical task, labeled as either difficult or easy, in a group setting. It was reasoned that the label difficult may lead to a lower subjective probability of success (Shrager & Rosenberg, 1970) and the label easy may lead to the subjects' "false sense of security" (Campbell, 1984). Therefore, it was predicted that, with the lack of sufficient information in the first work period of the experiment, subjects would set a lower goal in the difficult condition than would those in the easy condition.

Hypothesis 1: In the first work period, subjects in the difficult condition would set a lower goal than would those in the easy condition.

It has been suggested that Type As are competitive regardless of the nature of the activity (Tang, 1986). Therefore, it was reasonable to expect that Type As' self-set goals in the difficult condition and the easy condition would be the same for the first and the second work period.

Hypothesis 2: Type As' self-set goals in both work periods would not be affected by task labels (difficult vs. easy).

Locke, Frederick, Lee, and Bobko (1984) mentioned that "perhaps self-set goals are held more flexibly, because they are simply a matter of personal preference" (p. 250). Erez (1977) also suggested that knowledge of results (KR)

facilitated the "display of individual differences in self-set goals on the basis of individual past performance" (p. 626).

On the assumption that subjects' self-set goals would be strongly related to their past performance and personal preference, the interaction between (Type A behavior pattern) and task label on subjects' goal setting in the second period was expected to be significant. More specifically, some intermediates have been found to be highly influenced by the task labels and the experimental manipulations of the experiment (e.g., Tang, 1986), intermediates in the difficult condition would set a lower goal than would those in the easy condition in the second work period. Further, Type As are more competitive and aggressive than Type Bs. In the easy condition, Type As might feel secure and might set higher goals to show their ambition than would Type Bs. Thus, the following hypotheses were also tested:

Hypothesis 3: In the second work period, intermediates in the difficult condition would set a lower goal than would those in the easy condition.

Hypothesis 4: In the second work period, Type As in the easy condition would set higher goals than would Type Bs.

Method

Subjects

One hundred and thirty-one undergraduate volunteers from two general psychology classes at a southeastern regional state university with over 11,000 students participated in this research project. Complete and usable materials from 115 subjects were obtained. Most of subjects were college freshmen, whose mean and standard deviation age was 19.03 and 1.96, respectively.

Type A Behavior Pattern Measure

Each item of the brief, self-completed, 9-item Type A personality scale (Sales, 1969; Vickers, 1975) is presented in the form of a 7-point, Likert-type scale ranging from not at all true of me (1) to very true of me (7). It has been found that this Type A scale is significantly correlated with the Jenkins Activity survey ($r = .80$) and is strongly associated with the presence of a number of coronary risk factors (French & Caplan, 1969). The scale has an internal consistency (estimated alpha coefficient) of .80 (Vickers, 1975) and a test-retest reliability (with four weeks apart) of .87 (Tang, 1987). This Type A measure has been used in several studies (e.g., Byrne, 1981; Caplan, Cobb, & French, 1975; Caplan, Cobb, French, Harrison, & Pinneau, 1975; Caplan & Jones, 1975; Liu, 1986; Tang, 1986, 1987, 1988; Tang & Baumeister, 1984).

Procedure

The questionnaire that measured Type A behavior pattern was given to subjects one week before the experiment. They were divided into Type As, intermediates, and Type Bs according to a three-way split on the Type A scores. The experimenter was blind as to whether the subjects' scores on the Type A measure were high or low.

An identical anagram solving task was labeled by the experimenter as either difficult or easy. Fifty-five subjects were assigned to the difficult group and 60 were assigned to the easy group at random. The experiments were conducted in a group setting.

Different instructions were given to the subjects in these two groups. In the difficult (easy) condition, students were asked to solve some difficult (easy) anagrams. After the instructions were given, they were given a sample anagram and

were then asked to complete a short questionnaire which measured their self-set goals for the first 5-min. work period and their level of certainty in completing the goals. The certainty level varied from 0% (low certainty) to 100% (high certainty).

Subjects were then asked to solve anagrams for 5 minutes. After the first period was over, the experimenter gave the key to the first anagram list to them and asked them to correct their answers and to record the number of correct anagrams solved on the anagram-solving sheet. Therefore, they knew their actual performance on the task. It was expected that their knowledge of results concerning their performance on the first anagram-solving list would help them set goals for the second anagram-solving list. No evaluative feedback was offered.

Subjects were again asked to complete a short questionnaire concerning the self-set goals and the level of certainty in completing the goal for the second 5-min. anagram-solving task. The experimenter then gave each subject a different anagram-solving list for the second work period. After the completion of the second 5-min. period, the experimenter gave the key to the anagrams to the subjects. Subjects' performance for the second work period was also measured. Thus, subjects' goal setting, level of certainty, and task performance for both work periods were obtained.

Results

Goal Setting (First Work Period)

Subjects' goal setting for the first work period was examined by using a 3 (Type A, intermediate, and Type B) x 2 (difficult vs. easy) ANOVA. The results showed that the effect of task label on goal setting was significant, $F(1, 109) = 4.93$, $p = .028$, $\omega^2 = .033$: subjects in the easy condition, as predicted

in Hypothesis 1, set higher goals for the first anagram-solving task ($\underline{M} = 11.65$) than did those in the difficult condition ($\underline{M} = 8.89$). However, the main effect of Type A behavior pattern and the interaction effect between Type A and task label on goal setting failed to reach significance, $\underline{F} (2, 109) = 1.03, \underline{p} = .87$; $\underline{F} (2, 109) = .59, \underline{p} = .554$, respectively. Thus, Type As in the difficult condition did not differ from Type As in the easy condition in terms of their self-set goals in the first period. Hypothesis 2 was supported.

Certainty (First Work Period)

The results of a 3 x 2 ANOVA on goal certainty showed that Type A behavior pattern had a significant impact on certainty, $\underline{F} (2, 109) = 4.49, \underline{p} = .013$, omega squared = .057. More specifically, according to the Least-Significant Difference (LSD) test, Type As were more certain concerning the goal accomplishment ($\underline{M} = 74.06\%$) than were Type Bs ($\underline{M} = 61.54\%$) and intermediates ($\underline{M} = 59.62\%$), ($\underline{p}s < .05$). The effect of task label was not significant, $\underline{F} (1, 109) = .42, \underline{p} = .517$. The interaction between Type A and task label again did not reach significance, $\underline{F} (2, 109) = 1.31, \underline{p} = .274$.

Task Performance (First Work Period)

The number of anagrams actually solved by subjects were also analyzed in a 3 x 2 ANOVA. The effect of Type A behavior pattern on task performance was not significant, $\underline{F} (2, 109) = 1.29, \underline{p} = .281$. The main effect of task label failed to reach significance, $\underline{F} (1, 109) = .43, \underline{p} = .516$. The interaction effect was not significant, $\underline{F} (2, 109) = 1.02, \underline{p} = .365$.

Goal Setting (Second Work Period)

second work period, subjects were again asked to set goals. The res. 3 x 2 ANOVA suggested that neither the main effect of Type A behavior

pattern nor the main effect of task label reached significance, $F(2, 109) = 1.72$, $p = .248$; $F(1, 109) = 1.28$, $p = .262$, respectively. However, the interaction effect was, as expected, significant, $F(2, 109) = 3.63$, $p = .030$, omega squared = .043. As predicted in Hypothesis 2, Type As' self-set goals in the difficult condition ($M = 7.21$) did not differ from Type As' self-set goals in the easy condition ($M = 8.85$), $t(109) = 1.21$, $p > .05$. Moreover, intermediates in the easy condition set higher goals ($M = 8.05$) than did those in the difficult condition ($M = 5.38$), $t(109) = 2.23$, $p < .05$. Thus, Hypothesis 3 was supported. In the difficult condition, intermediates tended to set lower goals than did Type Bs, $t(109) = 2.07$, $p < .05$. It appears that intermediates' goal setting in the second work period was highly influenced by the task labels in the experiment.

In the easy condition, Type As set higher goals ($M = 8.85$) than did Type Bs ($M = 6.05$), $t(109) = 2.24$, $p < .05$. Hypothesis 4 was supported by the present data. In the difficult condition, Type As' self-set goals ($M = 7.21$) did not differ from that of Type Bs ($M = 7.90$), $t(109) = .51$, $p > .05$.

Certainty (Second Work Period)

The main effect of task label on subjects' certainty was significant, $F(1, 109) = 4.49$, $p = .036$, omega squared = .030. Subjects in the difficult condition were more certain in terms of their goal accomplishment ($M = 72.27\%$) than were those in the easy condition ($M = 62.25\%$). However, the main effect of Type A behavior pattern and the interaction effect did not reach significance, $F(2, 109) = .86$, $p = .427$; $F(2, 109) = .70$, $p = .501$, respectively.

Task Performance (Second Work Period)

The results of subjects' task performance in the second period, as measured by the actual number of anagrams solved, were very similar to that of the first

period. None of the analyses showed significant findings. The F value and the significance level for the main effect of task label, the main effect of Type A behavior pattern, and the interaction effect were as follows: $F(1, 109) = .00$, $p = .963$; $F(2, 109) = 1.41$, $p = .249$; and $F(2, 109) = .20$, $p = .822$.

Discussion

In the present study, subjects were asked to solve anagrams in a group setting. The perception of the task was manipulated by using different task labels (difficult vs. easy). Without sufficient first-hand information, subjects' self-set goals were significantly influenced by the task labels in the first work period. As expected, subjects in the easy condition set higher goals than do those in the difficult condition. It appears that the label difficult may have given them the impression that their performance on the anagram-solving task will be low. Thus, in order to avoid the possible failure on the task, they set low goals for the first work period (cf. Shrauger & Rosenberg, 1970). On the other hand, the label easy may have led them to experience a "false sense of security" and hence they expected to have high performance and to set high goals in the first period. There was no significant difference between Type As' and Type Bs' self-set goals. However, Type As had greater confidence and indicated a significantly higher level of certainty of achieving their self-set goals than had Type Bs and intermediates.

Also there was no difference between subjects in the difficult condition and those in the easy condition in terms of the actual number of anagrams solved. Further, Type As did not differ from Type Bs and intermediates in their task performance. These findings support the notion that with the presence of the experimenter, Type As, intermediates, and Type Bs perform equally well on the task

in a laboratory experiment (e.g., Tang, 1987); they do not support the idea that Type As are more productive than are Type Bs (e.g., Boyd, 1984; Matthews, 1982; Matthews, Helmreich, Beane, & Lucker, 1980; Taylor, Locke, Lee, & Gist, 1984).

Several explanations for the lack of significant difference on task performance between Type As and Type Bs are offered as follows: First, the present study examines subjects' behavior for a very short time period in an experiment, therefore, subjects may not have the opportunities to show the variability of their behaviors. Second, Subjects' self-presentational concerns may have affected their performance in an experiment (cf. Baumeister, 1982). In the present study, no specific measure of self-presentational concern is examined. Subjects in the present study performed in groups with the presence of the experimenter. It is plausible subjects' awareness of other people in the experiment may have facilitated the self-presentational concerns (cf. Baumeister, 1984) and the perceived demand characteristics (PDC) in the experiment (cf. Salomon, 1984). That is, the performers are motivated to project an image of competence in the presence of others. When the perceived demand characteristics are high, subjects work equally hard on the task and have equal performance on the task. These results support the notion that an equal number of Type A and Type B individuals achieve fame (Wright, 1988).

During the second work period, subjects have had some hands-on experience on the task and some direct feedback from the experimenter through knowledge of results (KR). Based on the fact that knowledge of results may facilitate the "display of individual differences in self-set goals on the basis of individual past performance" (Erez, 1977, p. 626) and that self-set goals are more flexible and are influenced by "personal preference" (Locke, Frederick, Lee, & Bobko, 1984,

p. 250), the interaction between Type A personality and task label on subjects' self-set goals in the second period is predicted. The results show that Type As in the easy condition have a significantly higher self-set goal than have Type Bs and intermediates.

It has been shown in the literature that Type As are characterized by an extreme sense of time urgency, competitiveness, impatience, aggressiveness, ambition, and frequent vocational deadlines (Jenkins, Rosenman, & Friedman, 1967). On the other hand, Type Bs are more relaxed, easy-going, satisfied, and unhurried (Ivancevich & Matteson, 1984). When subjects are given an easy task and knowledge of results, Type As tend to excel and to show their competitiveness, aggressiveness, and ambition in their self-set goals than do Type Bs and intermediates.

Moreover, Tang (1986) suggested that intermediates are highly influenced by the experimental manipulations and the "abstract meaning associated with the labels" (p. 9). In the present study, the intermediates' self-set goals are again strongly affected by the task labels in that intermediates set higher goals in the easy condition than do those in the difficult condition. Thus, Tang's (1986) results are supported by the present data. The results of the present findings also reveal the importance of studying the intermediate group in the Type A literature.

Further, the present findings also support the notion that Type As work equally hard on tasks regardless of the task labels (cf. Tang, 1986). More specifically, Type As' self-set goals in the difficult condition are similar to Type As' self-set goals in the easy condition. Thereby, the task labels (difficult vs. easy) have little impact, if any, on Type As' self-set goals.

During the second work period, subjects in the difficult condition may experience a higher level of arousal than may those in the easy condition (cf. Wright & Brehm, 1984). Working on a difficult task may also make subjects perceive the task as a "challenge" one. Thus, subjects in the difficult condition show a higher level of certainty in achieving their goals than do those in the easy condition.

Subjects in the present study work on the identical anagram-solving task and only the task labels vary. Further, Type As are more competitive, aggressive, and ambitious than are Type Bs. However, Type As are not necessarily more "capable" or "intelligent" than Type Bs. When subjects are equally motivated, especially with the presence of other subjects and the experimenter, all subjects performed equally well on the task. Thus, in terms of the number of actual anagrams solved, no differences have been found during the first or the second work period in the present study. These results can be explained, in part, by subjects' self-presentational concerns (cf. Baumeister, 1982).

References

- Atkinson, J. W. (Ed.). (1958). Motives in fantasy, action and society. Princeton, NJ: Van Nostrand.
- Atkinson, J. W. (1964). An introduction to motivation. Princeton, NJ: Van Nostrand.
- Baumeister, R. F. (1982). A self-presentational view of social phenomena. Psychological Bulletin, 91, 3-26.
- Boyd, D. P. (1984). Type A behavior, financial performance and organizational growth in small business firms. Journal of Occupational Psychology, 57, 137-140.
- Burke, R. J., & Weir, T. (1980). Personality, value and behavioral correlates of the Type A individual. Psychological Reports, 46, 171-181.
- Burnam, M. A., Pennabaker, J. W., & Glass, D. C. (1975). Time consciousness, achievement-striving, and the Type A coronary-prone behavior pattern. Journal of Abnormal Psychology, 84, 76-79.
- Byrne, D. G. (1981). Type A behavior, life-events and myocardial infraction: independent or related risk factors? British Journal of Medical Psychology, 54, 371-377.
- Campbell, D. J. (1984). The effects of goal-contingent payment on the performance of a complex task. Personnel Psychology, 37, 23-40.
- Caplan, R. D., Cobb, S., & French, J. R. P. (1975). Relationships of cessation of smoking with job stress, personality, and social support. Journal of Applied Psychology, 60(2), 211-219.
- Caplan, R. D., Cobb, S., French, J. R. P., Harrison, R. V., & Pinneau, S. R. (1975). Job demands and worker health. Washington, DC: U.S.

Department of Health, Education, and Welfare.

- Caplan, R. D. & Jones, K. W. (1975). Effects of work load, role ambiguity, and Type A personality on anxiety, depression, and heartrate. Journal of Applied Psychology, 60(6), 713-719.
- Carver, C. S., Coleman, A. E., & Glass, D. C. (1976). The coronary-prone behavior pattern and the suppression of fatigue on a treadmill test. Journal of Personality and Social Psychology, 33, 460-466.
- Erez, M. (1977). Feedback: A necessary condition for the goal setting-performance relationship. Journal of Applied Psychology, 62, 624-627.
- French, J. R. P., & Caplan, R. D. (1969). Psychological factors in coronary heart disease. Industrial Medicine, 39, 31-45.
- Friendman, M., & Rosenman, R. H. (1974). Type A behavior and your heart. New York: Knopf.
- Frost, P. J., & Mahoney, T. A. (1976). Goal setting and task process: I. An interactive influence on individual performance. Organizational Behavior and Human Performance, 17, 328-350.
- Glass, D. C. (1977). Behavior patterns, stress, and coronary disease. Hillsdale, NJ: Erlbaum.
- Goldband, S. (1980). Stimulus specificity of physiological response to stress and the Type A coronary-prone personality. Journal of Personality and Social Psychology, 39, 670-679.
- Herman, S., Blumenthal, J. A., Black, G. M., & Chesney, M. A. (1981). Self-ratings of Type A (coronary prone) adults: Do Type A's know they are Type A's? Psychosomatic Medicine, 43, 405-413.

- Hughes, J. R., Jacobs, D. R., Schucker, B., Chapman, D. P., Murray, D. M., & Johnson, C. A. (1983). Nonverbal behavior of the Type A individual. Journal of Behavioral Medicine, 6(3), 279-289.
- Ivancevich, J. M., & Matteson, M. T. (1984). A Type A-B person work environment interaction model for examining occupational stress and consequences. Human Relations, 37(7), 491-513.
- Jenkins, C. D., Rosenman, R. H., & Friedman, M. (1967). Development of an objective psychological test for the determination of the coronary-prone behavior pattern in employed men. Journal of Chronic Disease, 20, 371-379.
- Jenkins, C. D., Zyzanski, S. J., & Rosenman, R. H. (1971). Progress toward validation of a computer-scored test for the Type A coronary-prone behavior pattern. Psychosomatic Medicine, 33, 193-202.
- Liu, H. (1986). Effects of task labels and Type A personality on goal setting. Unpublished master's thesis. Middle Tennessee State University, Murfreesboro, TN.
- Locke, E. A. (1968). Toward a theory of task motivation and incentives. Organizational Behavior and Human Performance, 3, 157-189.
- Locke, E. A., Frederick, E., Lee, C., & Bobko, P. (1984). Effect of self-efficacy, goals, and task strategies on task performance. Journal of Applied Psychology, 69, 241-251.
- Locke, E. A., & Latham, G. P. (1984). Goal setting: A motivational technique that works. Englewood Cliffs, NJ: Prentice-Hall.
- Locke, E. A., Shaw, K. N., Saari, L. M., & Latham, G. P. (1981). Goal setting and task performance: 1969-1980. Psychological Bulletin,

90, 125-152.

Matthews, K. A. (1982). Psychological perspectives on the Type A behavior pattern. Psychological Bulletin, 91(2), 293-323.

Matthews, K. A., & Burnson, B. I. (1979). Allocation of attention and the Type A coronary-prone behavior pattern. Journal of Personality and Social Psychology, 37, 2081-2090.

Matthews, K. A., Helmreich, R. L., Beane, W. E., & Lucker, G. W. (1980). Pattern A, achievement striving, and scientific merit: Does pattern A help or hinder? Journal of Personality and Social Psychology, 39, 962-967.

Sales, S. M. (1969). Differences among individuals in affective behavioral, biochemical, and physiological responses to variations in work load. Dissertation Abstracts International, 30, 2047B. (University Microfilms No. 69-18098) dissertation, University of Michigan.

Salomon, G. (1984). Television is "easy" and print is "tough": The differential investment of mental effort in learning as a function of perceptions and attributions. Journal of Educational Psychology, 76, 647-658.

Shrauger, J. S., & Rosenberg, S. E. (1970). Self-esteem and the effects of success and failure feedback on performance. Journal of Personality, 38, 404-417.

Stedry, A. D., & Kay, E. (1966). The effects of goal difficulty on performance: A field experiment. Behavioral Science, 11, 459-470.

Tang, T. L. P. (1986). Effects of Type A personality and task labels (work vs. leisure) on task preference. Journal of Leisure Research,

18(1), 1-11.

- Tang, T. L. P. (1987). Effects of Type A personality and experimenter interest on behavior. Journal of Social Psychology, 127(6), 619-627.
- Tang, T. L. P. (1988). Effects of Type A personality and leisure ethic on Chinese college students' leisure activities and academic performance. Journal of Social Psychology.
- Tang, T. L. P., & Baumeister, R. F. (1984). Effects of personal values, perceived surveillance, and task labels on task preference: The ideology of turning play into work. Journal of Applied Psychology, 69, 99-105.
- Tang, T. L. P., Liu, H., & Vermillion, W. H. (1987). Effects of self-esteem and task labels (difficult vs. easy) on intrinsic motivation, goal setting, and task performance. Journal of General Psychology, 114(3), 249-262.
- Taylor, M. S., Locke, E. A., Lee, C., & Gist, M. E. (1984). Type A behavior and faculty research productivity: What are the mechanisms? Organizational Behavior and Human Performance, 34, 402-418.
- Vickers, R. (1975). Subsetting procedure for the sales Type A Personality Index: A short measure of the Type A personality, In R. D. Caplan, S. Cobb, J. R. P. French, R. V., Harrison, & S. R. Pinneau Job demands and worker health (pp. 218-219). Washington, DC: U. S. Department of Health, Education, and Welfare.
- Wright, L. (1988). The Type A behavior pattern and coronary artery disease. American Psychologist, 43(1), 2-14.
- Wright, R. A., & Brehm, J. W. (1984). The impact of task difficulty upon perceptions of arousal and goal attractiveness in an avoidance paradigm. Motivation and Emotion, 8, 171-181.