

Work Performance and the Achievement-Strivings and Impatience-Irritability Dimensions of Type A Behaviour

Julian Barling and Rick Boswell

Queen's University, Ontario, Canada

On propose dans cette étude un modèle selon lequel les efforts en vue de la réussite et les dimensions impatience-irritabilité du comportement de type A prédisent directement et/ou indirectement la performance au travail. Dans un échantillon de 92 hommes et de 69 femmes (âge moyen: 30 ans), les efforts en vue de la réussite sont tenus de prédire la performance professionnelle directement et par l'intermédiaire de leur action positive sur la concentration. On suppose que l'impatience-irritabilité va détériorer la santé; et tout problème de santé devrait influencer négativement la concentration. On a recueilli, pour apprécier la performance au travail, à la fois des auto-évaluations et celles du contremaître. Une analyse taxinomique a fortement corroboré le modèle retenu bien que la liaison indirecte entre les efforts en vue de la réussite et les évaluations de la performance par le contremaître ne soit pas statistiquement significative.

In this study, a model is proposed whereby the achievement-strivings and impatience-irritability dimensions of Type A behaviour predict work performance directly and/or indirectly. In a sample of 92 males and 69 females (M age = 30 years), achievement strivings are held to predict work performance directly and through their positive effects on concentration. Impatience-irritability is predicted to negatively influence health; and any health problems are predicted to negatively influence concentration. Both self- and supervisor ratings of work performance were obtained. Path analyses provided strong support for the proposed model, although the direct link between achievement strivings and supervisor ratings of performance was not statistically significant.

Requests for reprints should be sent to Dr. Julian Barling, Department of Psychology, Queen's University, Kingston, Ontario, K7L 3N6, Canada.

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INTRODUCTION

Following the early influence of Friedman and Rosenman (1959), a considerable body of data accumulated on the relationship between Type A behaviour and coronary heart disease. More recently, the question of whether Type A behaviour is associated with work performance has been addressed, possibly because the hard-driving and competitive nature of Type A individuals seems well-suited to the requirements for organisational success.

Nonetheless, as in the case of coronary heart disease, the data bearing on the relationship between Type A behaviour and work performance has not been conclusive. Studies have shown, for example, that Type As are both more productive (e.g. Jamal, 1985; Matthews, Helmreich, Beane, & Lucker, 1980; Taylor, Locke, Lee, & Gist, 1984) and less productive (e.g. Strube, Turner, Patrick, & Perrillo, 1983) than their Type B counterparts. In some studies, Type As have been shown to perform both better and worse than Type Bs on different tasks (e.g. Fazio, Cooper, Dayson, & Johnson, 1981; Matthews & Brunson, 1979). In this study, we clarify the relationship between Type A behaviour and work performance by: (a) conceptualising Type A behaviour as two distinct components, namely achievement strivings (AS) and impatience-irritability (II); (b) proposing a process model with direct and indirect links between AS and II and performance; and (c) focusing on *work* performance (d) obtained from two separate raters.

To date, Type A behaviour has not proven to be a reliable predictor of work performance. At least two factors could account for this. First, conceptualising and operationalising Type A behaviour as a global construct may not be appropriate, and we will argue that treating Type A behaviour as a multidimensional construct consisting of the AS and II dimensions will provide a more consistent prediction of work performance. Second, the relationship between Type A behaviour and work performance may not only be direct. Instead, the effects of AS and II on work performance may also be mediated by other factors. However, the possibility of indirect effects of II and AS on performance have not been considered in previous research.

In contrast to a global conceptualisation of Type A behaviour, or earlier approaches that emphasised three dimensions (namely speed and impatience, hard-driving and competitiveness, and job involvement), recent studies suggest consistently that AS and II appropriately reflect the Type A construct (Barling, Bluen, & Moss, 1990; Barling & Charbonneau, 1992; Helmreich, Spence, & Pred, 1988; MacEwen & Barling, 1993; Spence, Helmreich, & Pred, 1987; Spence, Pred, & Helmreich, 1989; Volkmer & Feather, 1991). AS reflects the need to be the best at everything one does,

whereas II reflects the need to accomplish more and more in as little time as possible, often in an angry, hostile manner. The construct validity of II and AS has been supported using confirmatory factor analyses (Bluen, Barling, & Burns, 1990). The AS and II components of Type A behaviour facilitate a more refined prediction of performance than that achieved using global Type A behaviour. AS but not II positively predicts diverse aspects of performance, including grade point average (Barling & Charbonneau, 1992; Spence et al., 1987), whether students will quit university (Spence et al., 1989), and insurance sales performance (Bluen et al., 1990). Alternatively, II but not AS is associated with negative outcomes such as ill-health (Barling & Charbonneau, 1992; Spence et al., 1987), marital dissatisfaction (Barling et al., 1990; MacEwen & Barling, 1993), and text anxiety (Volkmer & Feather, 1991).

However, although AS and II are significant predictors of positive and negative outcomes respectively, the magnitude of these relationships remains modest. One plausible explanation for this is that any effects of AS and II are both direct and indirect. It is hypothesised that the effects of AS on performance are transmitted directly, and indirectly through the mediating influence of concentration. We also hypothesised that health problems mediate the effect of II on concentration (see Fig. 1). To understand this process, it is necessary to understand each of the proposed links in the model.

We suggest that it is the need to achieve optimally, an inherent component of AS, that leads to increased concentration on a task. Type As are able to focus and sustain their attention and screen out information that might detract from their performance better than Type Bs (Matthews & Brunson, 1979). Managers scoring high in overall Type A characteristics outperformed Type Bs on jobs that were high in task variety (Lee, Earley, & Hanson, 1988); when task variety was low, there was no difference between Type As and Bs. Perhaps task variety stimulates Type As who concentrate more effectively when they are challenged.

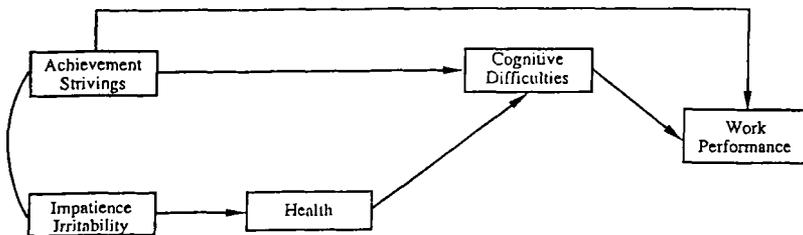


FIG. 1. Proposed mediational model.

With regard to the link between concentration and performance, it is widely accepted that cognitive factors affect job performance (e.g. Campbell, Dunnette, Lawler, & Weick, 1970). If a person cannot effectively discern between useful and distracting task information, takes in too much or too little information, or does not focus on the task, performance is unlikely to be optimal. Barling and MacEwen (1991) demonstrated that for a sample of mothers who were employed full time, cognitive difficulties predicted the quality of performance on a proof-reading task.

We also posit the existence of a direct link between AS and work performance for two reasons. First, individuals are likely to ensure that they perform at a level that is consistent with their AS. Second, the self-perceptions of individuals high in AS are likely to be such that they would perceive themselves to be more successful. These two factors would predict significant direct links between externally- and self-rated performance respectively.

Prior research has failed to reveal a significant relationship between II and performance. It is possible that the current emphasis on direct relationships may have de-emphasised or overlooked any indirect relationships. A significant link between II and health problems has been demonstrated consistently, and we argue that good health is positively associated with concentration. Although there would appear to be no data to support this link, we predict that everyday health problems reduce concentration. For example, headaches, colds, and respiratory tract infections would surely cause individuals to focus more on their symptoms and thereby detract from effective task concentration. In contrast, when individuals are in good health, they should be able to attend effectively to the task at hand. Therefore, we predict that concentration will mediate the health-work performance relationship.

In the present study, work performance was the outcome variable. Although most previous research on AS and II has investigated their influence on students' performance (e.g. Barling & Charbonneau, 1992; Volkmer & Feather, 1991; Spence et al., 1987, 1989), fewer studies have investigated *work* performance as an outcome. Helmreich et al. (1988) showed that AS (but not II) predicted the work performance of academic social psychologists (i.e. the number of publications and citations). Bluen et al. (1990) showed that AS and not II predicted both the number of policies sold by insurance sales people as well as their job satisfaction. In this study, we focus on a general measure of work performance. However, obtaining data from one source alone potentially limits external validity, especially if respondents themselves rate their own performance. As a result, data on work performance was provided separately both by the subjects and their immediate supervisors.

Lastly, we test the proposed model using path analysis. However, we acknowledge that confirmation of a particular model does not necessarily exclude the plausibility of other models. Accordingly, we will also contrast the goodness-of-fit of our mediational model with a non-mediational model in which AS and II are predicted to exert direct effects on performance.

METHOD

Subjects and Procedure

Of the 163 members of the Canadian Armed Forces who were asked to participate, only one chose not to. One other male participant had difficulty completing the questionnaire because his home language was not English, and his data were discarded. Of the 161 participants, 92 (57%) were male and 69 (43%) were female. The subjects ranged in age from 18 to 51 years ($M = 30.1$, $SD = 7.3$) and all worked in an administrative capacity as either a financial or administrative clerk, or supply technician at one of four military bases. Subjects averaged 9.64 years of experience in the military ($SD = 7.72$). Most (54%) had completed high school, 29.8% had not completed high school, 13.7% had attended either university or community college, and 2.5% had either a university or college diploma.

Subjects were told that the information they provided would be confidential but not anonymous because of the need to obtain supervisory performance ratings. Following questionnaire administration, supervisors rated their workers using the same performance criteria as used by the subjects.

Questionnaires

The 14-item scale used by Helmreich et al. (1988) measured AS and II. Each item is measured on a five-point format. The scoring system differs from that used by Jenkins in that the items are assigned unit-weights (Spence et al., 1987), which avoids the problem of nonlinear transformation of JAS items (Fekken & Holden, 1988). Reliability for these two subscales (and all other questionnaires used) are presented in Table 1. Exploratory (Helmreich et al., 1988) and confirmatory factor analysis (Bluen et al., 1990) support the construct validity of the AS (e.g. "Would people that know you well agree that you take your work too seriously?") and II (e.g. "Do you find yourself hurrying to get to places even when there is plenty of time?") subscales.

A 22-item scale utilised by Spence et al. (1987) and Barling and Charbonneau (1992) was used to measure aspects of general physical health such as sleeping habits, respiratory infections, digestion/elimination prob-

lems, headaches, and general health over the past six months (Barling & Charbonneau, 1992). Consistent with the aim of the present study, a unidimensional score was generated, reflecting general health.

To assess concentration and attention on everyday tasks and mental alertness or slowness. Fryer and Warr's (1984) 12-item scale was completed by all subjects. Each item (e.g. "have you been taking longer over things you do" and "have you felt capable of making decisions about things") is rated on a four-point scale. Numerous studies support the reliability of this measure (Barling & MacEwen, 1991, 1992; Fryer & Warr, 1984; MacEwen & Barling, 1991, 1993). Unlike past studies, however, we asked subjects to indicate the extent to which each of the 12 items had been experienced at work.

Performance on general work tasks was measured by ratings from both subjects and supervisors. The scale consisted of the same seven items the Canadian Forces used as part of their annual performance evaluation. Each item was followed by a description to assist raters (e.g. "applying job knowledge and skill—consider: quality and quantity of work", "initiative—consider: taking action on his or her own", "problem solving—consider: identifying problems and their causes; ingenuity in finding a workable solution" and "learning—consider: adapting to change; benefiting from criticism and experience"). Each of the seven items was rated on a six-point Likert-type scale with anchors ranging from "unsatisfactory—significant weakness" (1) to "superior—consistently exceeds standard for rank" (6).

RESULTS

Descriptive statistics and intercorrelations of all variables in the study are presented in Table 1. As can be seen, none of the interrelationships between the predictor variables violated the assumption of multicollinearity (all $r_s < 0.42$; $M r = 0.22$). In addition, the moderate relationship ($r = 0.33$) between the two outcome variables justified their separate treatment.

We analysed our data using LISREL VI (Joreskog & Sorbom, 1984). Through its goodness-of-fit indices, LISREL VI allows the user to assess the extent to which the proposed model corresponds to the empirical data. In particular, we used the χ^2 statistic and the goodness of fit index (GFI). Because both these statistics are somewhat sensitive to sample size, we also computed the adjusted goodness of fit index (AGFI). The χ^2/df ratio was also calculated. When the χ^2 statistic is not significant, the GFI and AGFI approach unity, and the χ^2/df ratio < 2 , it can be concluded that the model provides a good fit to the data. For the model predicting self-rated performance, the χ^2 was not significant ($\chi^2[4] = 5.84, P > 0.05$), the χ^2/df ratio was 1.46, the GFI was 0.99 and the AGFI was 0.95. Similarly

TABLE 1
Descriptive Statistics and Intercorrelations for all Study Variables

	<i>M</i>	<i>SD</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>
1. II	19.85	4.09	(70)				
2. AS	24.19	3.72	15*	(67)			
3. Health problems	43.64	13.31	41**	0	(89)		
4. Cognitive difficulties	23.11	4.38	23**	-13*	42**	(76)	
5. Self rating	30.45	4.39	-8	37**	-29**	-46**	(82)
6. Supervisor rating	31.82	6.04	-2	5	-21**	-15*	33* (92)

(*N* = 166).

P* < 0.05; *P* < 0.01 (one-tailed tests).

Decimal points omitted from correlation matrix.

Reliabilities presented in parentheses on diagonal.

for the model predicting supervisor ratings of performance, the χ^2 was not significant ($\chi^2[4] = 7.14, P > 0.05$), the χ^2/df ratio was 1.77, the GFI was 0.98 and the AGFI was 0.93.

Because a model can provide an adequate fit to the data even when some paths remain non-significant, the magnitude and significance of the individual path coefficients are presented in Figure 2. With one exception (i.e. the path between AS and supervisor ratings of performance; *B* = 0.026, *ns*), all other hypothesised paths were significant.

Lastly, because confirmation of a specified model does not exclude the possibility that other models fit the data, we also tested a model in which AS and II directly predict performance (whether self- or supervisor rated), and health problems predict cognitive difficulties, which in turn predict performance. Neither the model for self-rated performance ($\chi^2[3] = 8.22,$

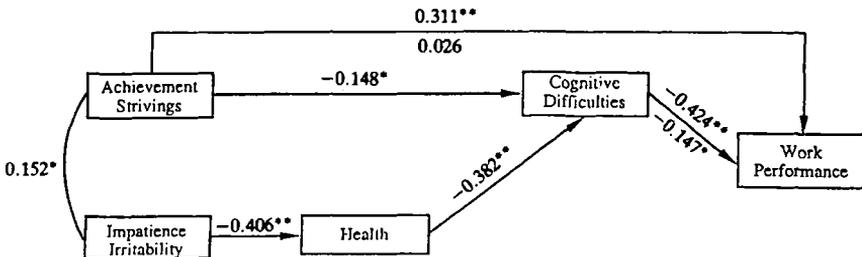


FIG. 2. Results from the over-identified model predicting self-ratings and supervisor rating of work performance. Path coefficients predicting self-ratings of work performance appear above arrow; path coefficients predicting supervisor ratings appear below arrow. Path coefficients for exogenous variables remain identical whether self-ratings or supervisor ratings of work performance are predicted. **P* < 0.05; ***P* < 0.01.

$P < 0.05$; GFI = 0.98, AGFI = 0.90, χ^2/df ratio = 2.77) or supervisor ratings of performance ($\chi^2[3] = 9.94$, $P < 0.02$; GFI = 0.98, AGFI = 0.88, χ^2/df ratio = 3.31) provided an adequate fit to the data.

DISCUSSION

Our study replicates and extends previous research using the AS and II components of Type A behaviour. Specifically, AS is associated directly with performance but not health problems, and II is associated directly with health problems but not performance. However, the present study goes even further, showing that AS is also linked indirectly with work performance through its influence on concentration. In contrast to previous research, which consistently revealed no direct link between II and performance outcomes, the results of this study showed that II is indirectly associated with work performance through its sequential effects on health problems and concentration.

As already noted, the proposed model can be evaluated in terms of conventional goodness-of-fit statistics, the significance and strength of the individual paths in the model and the extent to which competing models fit the data. In addition to support for the proposed model as a whole in this study, and the exclusion of a rival model in which AS and II only exert direct effects on performance, all but one of the hypothesised specific links emerged. AS predicted job-related concentration, and this concentration predicted work performance. II predicted health problems; in turn, health problems detracted from job-related concentration. However, one predicted path did not attain statistical significance. Although the direct link between AS and self-ratings of performance was statistically significant, the corresponding direct relationship between AS and supervisor ratings of performance was not.

The possibility that supervisors and respondents were rating different aspects of work performance can be excluded because (a) the identical items were used, and (b) a significant correlation emerged between supervisor and self-ratings of work performance. The significant direct path between AS and self-rated work performance could also reflect a mono-method bias. This argument would be more plausible, however, if all relationships between self-ratings achieved significance; this was not the case (see Table 1). An alternative explanation, which emphasises self-perceptions, may be the most plausible. As indicated by the specific items, individuals who rate themselves highly on the AS dimension see themselves as 'stirred into action' by their jobs, as hard-driving and competitive, and as taking their work seriously. Individuals with such a self-perception probably view themselves as being more effective and productive at work. There

are data showing that AS is associated with a preference for tasks requiring effort and a fast pace of work (Feather & Volkmer, 1991).

This argument is consistent with the finding that, although cognitive difficulties predicted work performance irrespective of the source of the performance ratings, the source did influence the magnitude of the link substantially. Specifically, the link between cognitive difficulties and self-rated work performance was approximately three times as large as that between cognitive difficulties and supervisor ratings of work performance. (These coefficients can be compared directly because they are standardised path coefficients derived from the same sample.) This finding might be expected, because individuals who experience cognitive difficulties may also be less likely to believe that they can attain optimal levels of work performance.

One suggestion for further clarifying the process by which AS and II affect work performance might be to ascertain whether they each predict different aspects of work performance. AS may enjoy closer direct links with those aspects of work performance that are mostly a function of motivation rather than skill level. This would be consistent with findings that AS predicts turnover among students (Spence et al., 1989) and the *number* of policies sold by insurance sales people (Bluen et al., 1990). Future research should assess whether this places a ceiling on the extent to which work performance could be predicted by AS.

Our hypothesis that everyday health problems would negatively predict job-related concentration was strongly supported. The relationship that emerged between health and concentration is worth noting for several reasons. First, because II predicts everyday health problems, which in turn detract from job-related concentration, an indirect link between II and work performance is demonstrated. Second, despite the absence of previous research on this specific link, it emerged as one of the stronger links in the model, suggesting it may be worthy of further investigation. The statistical effects may have been even greater, had the items in the measure included more of a focus on anger, an integral component of the Type A construct.

The choice to use the same seven items used in the subjects' work context for the performance ratings has both advantages and disadvantages. On the one hand, the validity information on these ratings was not available. On the other hand, the applied utility of the findings is strengthened because the proposed model predicts the actual index of work performance used within the organisation. From the perspective of organisational interventions, it is also apparent from the model that Type A behaviour does not exert either a uniform or a direct influence on work performance. Instead, some aspects of Type A behaviour such as AS

enhance work performance, whereas others (e.g. II) detract from work performance.

Even though we explicitly tested and rejected two alternative models, other models cannot be excluded. For example, it remains possible that health problems might influence impatience and irritability, especially if the health problems were recurrent. As such, any causal inferences from the model we tested are premature.

In conclusion, however, our study contributes to the growing literature on the nature of Type A behaviour and its consequences. In researching the relationship between Type A behaviour and work performance, we categorised Type A behaviour separately as II and AS, focused directly on work performance, obtained data on work performance from two different raters, and proposed a causal model whereby AS and II affect work performance. Our study showed how AS affects work performance directly and indirectly, and how II affects work performance indirectly. Two implications emerge from our study. First, on a pragmatic level, sufficient data now exist to demonstrate that the II and AS dimensions of Type A behaviour exert different effects: AS exerts uniformly positive effects, and the direct effects associated with II are negative. Earlier assumptions that the effects of Type A behaviour are uniformly and inevitably negative are no longer appropriate. Accordingly, any treatment or interventions should take these findings into consideration. Second, because AS and II exert opposite effects, the conceptual validity and practical utility of a global construct of Type A behaviour are cast into doubt.

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REFERENCES

- Barling, J., Bluen, S.D., & Moss, V. (1990). Type A behavior and marital dissatisfaction: Disentangling the effects of achievement striving and impatience-irritability. *Journal of Psychology, 124*, 311-319.
- Barling, J., & Charbonneau, D. (1992). Disentangling the relationship between the achievement striving and impatience-irritability dimensions of type A behavior, performance and health. *Journal of Organizational Behaviour, 13*, 369-377.
- Barling, J., & MacEwen, K.E. (1991). Maternal employment experiences, attention problems and behavioural performance: A mediational model. *Journal of Organizational Behaviour, 12*, 495-505.
- Barling, J., & MacEwen, K.E. (1992). Linking work experiences to facets of marital functioning. *Journal of Organizational Behaviour, 13*, 573-583.
- Bluen, S.D., Barling, J., & Burns, W. (1990). Predicting sales performance, job satisfaction, and depression by using the achievement strivings and impatience-irritability dimensions of Type A behavior. *Journal of Applied Psychology, 75*, 212-216.
- Campbell, J.P., Dunnette, M.D., Lawler, E.E., & Weick, K.E. (1970). *Managerial behavior, performance and effectiveness*. New York: McGraw Hill.

- Fazio, R.H., Cooper, M., Dayson, K., & Johnson, M. (1981). Control and the coronary prone behavior pattern A: Responses to multiple situation demands. *Personality and Social Psychology Bulletin*, 7, 97-102.
- Feather, N.T., & Volkmer, R.E. (1991). Task preference in relation to achievement striving and impatience-irritability components of Type A behaviour. *Australian Journal of Psychology*, 43, 23-28.
- Fekken, G.C., & Holden, R.R. (1988). Jenkins Activity Survey. In D.J. Keyser & R.C. Sweetland (Eds.), *Test Critique* (Vol 7, pp.254-276). San Antonio, TX: The Psychological Corporation.
- Friedman, M., & Rosenman, R.H. (1959). Association of specific overt behavior pattern with blood and cardiovascular findings. *Journal of the American Medical Association*, 169, 1286-1296.
- Fryer, D., & Warr, P. (1984). Unemployment and cognitive difficulties. *British Journal of Clinical Psychology*, 23, 67-68.
- Helmreich, R.L., Spence, J.T., & Pred, R.S. (1988). Making it without losing it: Type A achievement motivation, and scientific attainment revisited. *Personality and Social Psychology Bulletin*, 14, 495-504.
- Jamal, M. (1985). Type A behavior and job performance: Some suggestive findings. *Journal of Human Stress*, 11, 60-68.
- Joreskog, J.G., & Sorbom, D. (1984). *LISREL VI: Analysis of Linear Structural Relationships by the Method of Maximum Likelihood, Instrumental Variables and Least Squares Method*. Mooresville, Indiana: Scientific Software.
- Lee, C., Earley, P.C., & Hanson, L.A. (1988). Are Type As better performers? *Journal of Organizational Behaviour*, 9, 263-269.
- MacEwen, K.E., & Barling, J. (1991). Maternal employment experiences affect children's behavior via mood, cognitive difficulties and parenting behavior. *Journal of Marriage and the Family*, 53, 635-644.
- MacEwen, K.E., & Barling, J. (1993). Type A behavior and marital satisfaction: Differential effects of achievement striving and impatience/irritability. *Journal of Marriage and the Family*, 55, 1001-1010.
- Matthews, K.A., & Brunson, 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.
- Spence, J.T., Helmreich, R.L., & Pred, R.S. (1987). Impatience versus achievement strivings in the Type A pattern: Differential effects on students' health and academic achievement. *Journal of Applied Psychology*, 72, 522-529.
- Spence, J.T., Pred, R.S., & Helmreich, R.L. (1989). Achievement strivings, scholastic aptitude and academic performance: A follow-up to "Impatience versus achievement strivings in the Type A pattern". *Journal of Applied Psychology*, 74, 176-178.
- Strube, M.J., Turner, C.W., Patrick, S., & Perrillo, R. (1983). Type A and B behavioral responses to aesthetic stimuli: Effects on mood and performance. *Journal of Personality and Social Psychology*, 45, 1369-1379.
- 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.
- Volkmer, R.E., & Feather, N.T. (1991). Relations between Type A scores, internal locus of control and test anxiety. *Personality and Individual Differences*, 12, 205-209.