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At Last, My Research Article on Procrastination

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This paper considered three studies designed to examine procrastinatory behavior. In Study I, a general form (G) of a true-false *procrastination* scale was created. This form was based on an earlier version of the scale containing parallel forms A and B. Procrastination was positively related to measures of disorganization and independent of *need-achievement, energy level,* and *self-esteem.* High scorers on the *procrastination* scale were more likely to return their completed inventory late. Procrastination was unrelated to grade-point average ($R = -.10$). In Study II, subjects completed Form G of the *procrastination* scale and a variation of Little's (1983) Personal Projects Questionnaire. Based on ratings of their personal projects, procrastinators and nonprocrastinators were distinguished in a number of ways, foremost being the nonprocrastinator's more positive response to the project dimension of stress and the procrastinator's greater sensitivity to how enjoyable the project was in terms of time spent. In Study III, after completing a personality inventory, air-passengers awaiting their flight departure were asked to take an envelope with them and to mail it back on a designated date. Procrastinators were less accurate in doing so than were nonprocrastinators. Various aspects of procrastinatory behavior were discussed, including a reconsideration of the defining of the construct.

This paper describes the beginnings of a program designed to examine individual and situational correlates of procrastinatory behavior.

Research on procrastination conducted to date has developed largely within educational and counseling contexts. Techniques and courses have been devised to reduce the procrastinatory behavior of students and other clients. For example, Zeisat, Rosenthal, & White (1978) have applied a self-control technique and Rosati (1975) a personalized system of instruction to this aim. The approach in much of this work has been derived

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primarily from assumptions about the nature of procrastinatory behavior. Systematic assessment of the construct is often lacking.

Burka & Yuen (1983) described the character and motives of the procrastinator as inferred from their counseling contact with such self-proclaimed individuals. Among other themes, Burka and Yuen indicated that procrastinators may be overwhelmed by fear of failure or by fear of success. Further, some procrastinatory behavior may represent a form of rebellion to those in authority. Their treatment of such people ranges from having them become completely aware of their motives for procrastinating to training them in time-management programs.

Rorer (1983) has recently offered a summary and elaboration of several interpretations of procrastinatory behavior put forward by Ellis and Knaus (1977). For one, and like Burka and Yuen, procrastination is viewed as a response to fear of failure or rejection. Procrastinatory behavior may also be a result simply of one's unwillingness to act on unpleasant or difficult tasks (cf. Sabini & Silver, 1982). A third interpretation involves resentment based on perceived unfair treatment by others toward oneself. One response to such treatment is to procrastinate. This idea is similar to the Burka and Yuen (1983) view of the procrastinator as rebelling.

Rorer's (1983) elaboration of Ellis and Knaus also involved the consideration of fear, although not fear of failure, nor even of success, per se, but rather a fear of the possible consequences of success. For Rorer, success increases anxiety and leads to procrastination, particularly in mixed reinforcement situations in which painful consequences are associated with pleasurable events.

There have been a few exceptions to the clinical and counseling perspective to the study of procrastination. They are represented by a survey study of college faculty and student procrastination (Hill, Hill, Chabot, & Barrall, 1978) and four dissertations (apparently, although perhaps not surprisingly, all unpublished) by Briody (1978), Taylor (1979), Aitken (1982), and Skiffington (1982).

Burka & Yuen (1983) and Nelson (1983) have pointed to a growing request for help by procrastinators in both academic and business environments. The present research program has not developed in direct response to this need, however. Rather, the project is more generally oriented toward providing a better understanding of the concept of procrastination and of the individual and situational correlates of such behavior.

In a forerunner to this paper (described in Lay, 1985), two 18-item parallel forms of a true-false personality scale to measure individual differences in procrastinatory behavior were developed. The development of Forms A and B of the *procrastination* scale was guided to a large extent by the work of Jackson (1970). For purposes of scale construction, procrastination was defined as "the tendency to postpone that which is necessary to reach some goal." From an initial pool of procrastination

items, 18 true-keyed and 18 false-keyed statements were selected. The criteria for item selection involved an endorsement proportion between .10 and .90, a high item-total *procrastination* scale score correlation (generally greater than .30) and a lower item correlation with a *social desirability* scale (Jackson, 1967b) and with each of a number of irrelevant content scales.[1]

In a factor analysis in that study, Factor I of three rotated factors was of particular interest. This factor was defined by both forms of the *procrastination* scale along with *neurotic disorganization* (Jackson, 1967a) at one pole and an *organization* scale (Jackson, 1976) at the other. Jackson (1967a) has described the high scorer on the *neurotic disorganization* scale as someone who "finds it difficult to focus his attention on the details of everyday activity; absent-minded, easily distracted and poorly organized; has trouble accomplishing things on time and is very forgetful." Statements pertaining to procrastinatory behavior had been eliminated from the *neurotic disorganization* scale prior to the factor analysis. This factor clearly suggested an "organization-disorganization" component to procrastinatory behavior, a component which appears at both a cognitive and a behavioral level. In addition, and noteworthy, *self-esteem, energy level, anxiety* (Jackson, 1976), and *achievement* (Jackson, 1967b) were all found to be independent of procrastination. These relationships were pursued further in Studies I and III of the three studies described in this paper.

In Study I a general form (Form G) of the *procrastination* scale referred to above was created. This scale excluded items reflecting student-only type behavior, such as preparing an essay. Scores on this form were related to a number of behavioral measures, primarily the number of days taken to return the completed inventory by mail and the respondent's undergraduate grade-point average.

In Study II subjects responded to an Inventory containing Form G of the *procrastination* scale and on a second occasion were handed a version of Little's (1983) Personal Projects Analysis to be completed and returned by mail. The relationship between various aspects of the Projects Analysis and scores on the *procrastination* scale was assessed.

In Study III the relationship between *procrastination* scale scores and accuracy in remembering to mail back an envelope was examined. The latter task was offered to subjects in the guise of a consumer study on the efficiency of the Federal postal service. Subjects were drawn from passengers waiting at the Lester B. Pearson International Airport to fly out of Toronto to other Canadian destinations.

[1] The *procrastination* scale items, Forms A, B, and G, and relevant item statistics are available from the author.

STUDY I

This study involved the derivation of Form G of the *procrastination* scale and an assessment of the relationship between this scale and a number of behavioral measures. One behavioral measure was the number of days taken to return the completed inventory by mail. A second measure was the subject's grade-point average. Whereas a measure of need-achievement was unrelated to procrastination in the forerunner study referred to above, this study sought to examine the relationship between procrastination and a measure of actual achievement.

Procrastination scores were also related to some of the same personality scales included in the earlier study. A measure of rebelliousness was added, this inclusion reflecting the statement by Burka and Yuen (1983) that some procrastinatory behavior represents an attempt to rebel.

Method

The procrastination scale: Form G. A 20-item general form of the *procrastination* scale (Form G) was derived from items comprising Forms A and B. In devising Form G, items which referred to the preparation of an essay, or other "student-only" content, were eliminated. Items which appeared to go beyond the working definition of procrastination by including reasons or speculations for, or for not procrastinating, were also omitted. The remaining 10 best true-keyed and 10 best false-keyed items, with the exception of one newly written true-keyed item, were included in Form G.

Procedure and subjects. Items from Form G were embedded in Inventory G along with items from the following previously mentioned scales: *neurotic disorganization, organization, energy level, self-esteem, achievement, and desirability.* An eighth scale was added, the *rebelliousness* scale from the *Differential Personality Inventory* (Jackson, 1967a). There were 128 items in all.

Inventory G was distributed to 110 students at the beginning of an Introductory Psychology class. The subjects also received a stamped envelope addressed to the author's home address and instructions on returning the completed inventory. The subjects were asked to mail it back within 6 days. At the time of the study there were 149 students enrolled in the course section. From the 110 students who were present in class to receive the inventory, there were 81 returns by mail (74%) over a 20-day period. Five returns had more than two missing responses and were eliminated from the subject pool. Of the 76 remaining subjects, 15 were male and 61 female.

The date of the postmark for each returned inventory was recorded. Unfortunately, for nine of the 76 subjects, the return envelope was either not postmarked or the postmark was not legible.

Grade-point average for each subject was obtained at a later date from the Office of Student Programs. Grade-point average was based on a minimum of four courses.

One other type of information was available for each of the subjects. This related to their performance on the final exam in their Introductory Psychology course. The exam consisted of 75 multiple-choice items over a 2-hr time limit. In addition to the grade obtained, the duration of time in minutes to complete the test was recorded. The exam period was viewed as a highly contained, time-limited structure. Whether procrastinatory tendencies manifest themselves in such a situation was the object of this assessment.

Results and Discussion

The mean score on the 20-item *procrastination* scale was 9.4. The standard deviation was 4.4. Cronbach's alpha coefficient was .82. Scores on the *procrastination* scale correlated as follows with the other scales in Inventory G: *organization* (−.49), *neurotic disorganization*

(.69), *energy level* (−.09), *rebelliousness* (.34), self-esteem (−.03), *achievement* (−.09), and *desirability* (−.43).

As in the forerunner-study, procrastinators tended to score high on the *neurotic disorganization* scale and low on the *organization* scale. Also consistent with that study, scores on the *procrastination* scale were unrelated to *need-achievement, energy level,* and *self-esteem.* Supporting the contention that procrastinators may be rebelling, procrastination scores related significantly ($p < .01$) to scores on the *rebelliousness* scale.

The number of low and high procrastinators whose returned inventories were postmarked on each of 20 days following the distribution of the questionnaire in class is presented in Table 1. The median split on the *procrastination* scale was nine and below (low), and 10 and above (high). This resulted in 33 low and 34 high procrastinators comprising the 67 returns with legible postmarks. The inventory had been handed out on March 7, 1984, and subjects were requested to return it by March 13. Twelve low procrastinators and 4 high scorers mailed the inventory back the next day. Thirty-one low scorers, as compared to 19 high procrastinators, reached the mails prior to the deadline, although 5 high scorers did obtain postmarks on the deadline day. Most interestingly, the last 9 subjects to return the inventories all obtained high scores on the *procrastination* scale.

With the data presented in Table 1 reduced to a 2 × 2 contingency table around the stated deadline date, 31 low procrastinators and 24 high procrastinators returned their completed inventories on time; 2 low procrastinators and 10 high procrastinators returned them late ($\chi^2(1) = 6.2$, $p < .02$). This result was viewed as supportive of the construct validity of the scale.

There were a number of factors that might have operated to lessen the duration differences observed in Table 1 between high and low procrastinators. For one, to some extent the promptness of the return would be a reflection of how interested in psychology and its research the respondent was. A second possible factor suggested a paradox within the methodology used. For some, completing the inventory might have provided an opportunity to avoid other tasks, such as attending to their school work. To the extent that high procrastinators were more likely to engage in such behavior, and to do so early on, their early returns could be viewed as misleading.

It was also recognized that, for those respondents who returned their completed inventory well after the deadline, their late behavior could have served as an exemplar of their typical behavior. This might have resulted in an increase in their score on the *procrastination* scale, thus exaggerating the procrastination scores of those subjects who were last to reply. This was possible, but unlikely.

The mean grade-point average obtained by the total sample was 5.3 with a standard deviation of 1.3. The subjects took, on average, 67 min to complete their final exam in Introductory Psychology. The standard deviation was 18.5 min. Based on Pearson Product-moment correlations, procrastination scores were not related to grade-point average (−.10) and to the mark obtained on the final exam (.01). In addition, procrastinators did not work any more or less slowly on the exam (−.05).

It would appear, in this context at least, that not only is need-achievement unrelated to procrastination scores, but that actual academic achievement is unrelated as well. Procrastinators performed as well academically as did nonprocrastinators. The structure of the setting might well be an important component, however. In other types of situations, ones in which deadlines are self-imposed, or nonexistent, a negative link might be observed between a predisposition to procrastinate and actual achievement. In this case, actual achievement would be reflected more in productivity than in quality of the output.

STUDY II

Little has recently written of a method of assessing individual's ongoing personal projects (Little, 1983; Palys & Little, 1983). He refers to personal projects as interrelated sequences

TABLE 1

NUMBER OF LOW AND HIGH PROCRASTINATORS WHO MAILED BACK COMPLETED INVENTORY G FROM ONE TO TWENTY DAYS AFTER ITS DISTRIBUTION

	Number of days																			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Low	12	7	1	1	10	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0
High	4	10	0	2	3	5	0	1	0	0	0	1	0	1	3	1	0	1	1	1

Note. Low procrastinators scored below 9.5 and high procrastinators above 9.5 on Form G of the *procrastination* scale. The stated deadline was 6 days later.

of action intended to achieve some personal goal. In his method respondents are asked to provide ratings on a number of such projects, projects which they, themselves, nominate. Ratings may include such judgments as the importance of a project, the amount of time spent on a project, the adequacy of the time spent, the amount of stress associated with a project, and so on. Study II examined the ongoing personal projects of subjects identified as procrastinators and nonprocrastinators on the basis of their Form G *procrastination* scale scores.

Method

Procedure and subjects. Inventory G, described in Study I above, was administered to 161 students enrolled in four independent sections of an Introductory Psychology course. The inventory was completed in class. Students present in class at the time of administration were free to opt out; five did so.

One, two, or three (for two of the four classes) weeks later, the researcher reentered each classroom. A second request of the students was made at that time. Students were asked to complete a version of Little's Personal Projects Analysis. They were asked to take the Projects Analysis questionnaire with them after class and complete and return it by mail. A stamped envelope addressed to the researcher was provided. Subjects were paid $3.00 in advance and asked to sign in receipt, thereby indicating their intent to complete and return the Projects Analysis questionnaire. From the initial group of 161 subjects, a total of 36 students who had earlier completed Inventory G were not present in class on the day of reentry. Interestingly, high procrastinators were as likely to be in class. Sixteen of the 36 scored above the median on the *procrastination* scale (Form G) contained in Inventory G. Six students present on reentry elected not to take the Projects Analysis questionnaire with them. Two high procrastinators and four low scorers were involved. Of the 119 subjects who took the Projects task with them, 97 returned the completed questionnaire. Twenty-two subjects took the questionnaire, and the $3.00, and were never heard from again. This group included 12 high procrastinators and 10 low scorers. High procrastinators, therefore, do not appear to be any more or less responsible than low procrastinators. Finally, three respondents failed to complete the Projects Analysis properly, leaving a total of 94 subjects.

The Personal Projects Analysis questionnaire. The Personal Projects Analysis was a version of Little's (1983) questionnaire. Respondents were first asked to list, in about 10 min, as many ongoing personal projects as they could. Personal projects were described as everyday "activities and concerns that people have at different stages of their life." Subjects were then asked to select 10 of their projects to be relisted on a special rating-matrix page provided. They were to select the 10 projects that they would most likely engage in over the next month or so. If their initial list contained less than 10 projects, they were asked to think of more, or to break down some of those already listed into several projects.

Subjects were then instructed to rate each of the 10 projects on each of the following dimensions: importance, enjoyment, difficulty, visibility, control, initiation, stress, amount of time spent, time adequacy, likelihood of successful outcome, how typical of them, others' view of importance, positive impact on other projects, negative impact, progress, likelihood of completion, challenge, and absorption. A rating scale of 0 through 10 was used, with a higher rating indicating more of the dimension under consideration.

Results and Discussion

The 10 projects listed by each subject were categorized according to a classification description system found in Sapienza (1984). In all, the projects were assigned to 19 different categories, such as those having to do with intrapersonal concerns, projects related to one's schooling, health-body projects, hobbies, and so on.

Subjects were grouped around the median such that the 44 respondents who scored 9 or more on the *procrastination* scale comprised the high procrastination group and 44 subjects scoring 7 or less (with a 45th subject randomly eliminated) comprised the low group. The five subjects who scored 8 on the *procrastination* scale were also eliminated. The frequency of each category of project across subjects for low and for high procrastinators is presented in Table 2. Tests of the significance of the difference between two independent proportions were carried out. High procrastinators nominated a greater frequency of vocational projects, such as deciding what career to pursue, than did low procrastinators (10 to 1) and also indicated a greater number of hobby projects (8 to 2). On the other hand, low procrastinators declared more estate projects, such as cleaning up the house, having the lawnmower repaired, and buying clothes, than did high procrastinators (78 to 54). In addition, low procrastinators indicated a greater number of family-oriented projects, such as visiting parents and getting closer to one's spouse (31 to 16).

The differences between high and low procrastinators in projects nominated possibly reflected more of what subjects *chose* to report from their total pool of projects, than of differences in the total pool. Even if this were the case, however, the results were suggestive of interesting differences between the two groups. High procrastinators were more likely to be still very much concerned with what they were going to do with their lives, less involved with their family, and more likely to be engaged in hobbies.

Subjects rated their 10 projects on each of 18 dimensions. Ratings for each dimension were summed over the 10 projects and averaged. These averages constitute what Little refers to as comparative indexes and are viewed as indices of "lifestyle" (Palys & Little, 1983). The mean rating over subjects for each dimension for low and for high procrastinators

TABLE 2
FREQUENCY OF PROJECT CATEGORIES NOMINATED BY LOW AND BY HIGH PROCRASTINATORS

	Procrastination		
Project category	Low	High	
Academic	88	82	ns
Estate	78	54	$p < .025$
Health-body	46	59	ns
Interpersonal	42	44	ns
Intrapersonal	26	35	ns
Family-oriented	31	16	$p < .025$
Occupational	30	30	ns
Vacations	21	19	ns
Recreation	16	15	ns
Boy–girl friendship	15	15	ns
Finance-legal	15	11	ns
Sports	10	8	ns
Reading	8	15	ns
Cultural	5	11	ns
Community work	4	2	insuf. n
Hobbies	2	8	$p < .05$
Vocational	1	10	$p < .01$
Spiritual	1	6	insuf. n
Metaprojects	1	0	insuf. n
Total	440	440	

TABLE 3
MEAN RATING ON EACH OF 18 DIMENSIONS AVERAGED OVER 10 PROJECTS FOR LOW AND FOR HIGH PROCRASTINATORS

	Low		High		
Project dimension	Mean	SD	Mean	SD	
Importance	7.8	1.2	7.8	1.1	ns
Enjoyment	6.4	1.4	6.2	1.4	ns
Difficulty	5.3	1.7	5.9	1.7	ns
Visibility	5.9	1.7	5.6	1.6	ns
Control	7.4	1.2	7.4	1.3	ns
Initiation	7.4	1.7	7.6	1.8	ns
Stress	5.0	1.8	4.9	1.8	ns
Time	5.6	1.5	4.7	1.9	$p < .01$
Time adequacy	6.2	1.6	4.9	2.4	$p < .01$
Success	7.6	1.1	7.2	1.4	ns
Self-identify	7.4	1.4	6.9	1.3	ns
Other's view	6.6	1.3	6.4	1.7	ns
Positive impact	6.6	1.8	6.7	2.0	ns
Negative impact	2.7	1.7	3.1	2.3	ns
Progress to date	5.4	1.9	4.8	2.0	ns
Completion likelihood	7.9	1.2	7.7	1.3	ns
Challenge	6.4	1.4	6.7	1.3	ns
Absorption	6.8	1.5	6.4	1.5	ns

is presented in Table 3. High procrastinators ($N = 44$); compared to low procrastinators ($N = 45$), indicated that they spent less time and less adequate time working on their projects ($p < .01$). High and low procrastinators did not differ on any other dimension.

Considering the wide differences in method between the true-false personality inventory and the personal projects questionnaire, these results provided good support for the construct validity of the *procrastination* scale. A likely result of procrastination is to spend, not only less time on a project, but less adequate time, a consequence the procrastinators appeared to be aware of.

Pearson Product-moment correlations were computed between ratings summed over the 10 projects for each of the 18 dimensions. Correlations were computed separately for the 45 subjects who scored seven and lower on the *procrastination* scale and for the 44 subjects who scored nine or higher. These correlation coefficients for both groups are presented above the diagonal in Table 4.

Since the two sets of correlations were based on particular subgroups and each on a relatively small number of subjects, comparative correlation coefficients are provided in this Table. Included below the diagonal are correlation coefficients derived by Little, Carlsen, Glavin, and Lavery (1981) based on a sample of 1105 respondents recruited from a small southern Ontario city.

The difference between a particular correlation coefficient based on the low procrastinator data and the corresponding correlation for the high procrastinators was significant at the .05 or .01 level for 14 of the comparisons. In all cases where available, the matching correlation from the Little et al. data fell between the coefficient for the low and for the high procrastinator groups. This would suggest that these significant sets of correlation coefficients were idiosyncratic to the two groups in question, rather than unique to the present data.

TABLE 4

CORRELATION COEFFICIENTS BETWEEN RATINGS SUMMED OVER 10 PROJECTS FOR EACH OF 18 DIMENSIONS

	Importance	Enjoyment	Difficulty	Visibility	Control	Initiation
Importance	—	.27/.31	.19/ .15	.31/ .19	.33/ .16	.37/.57
Enjoyment	.46	—	−.13/−.26	−.08/ .27	.41/ .40	.43/.28
Difficulty	−.02	−.22	—	−.08/−.17	−.26/−.38	.04/.20
Visibility	.33	.37	−.17	—	.12/ .11	.14/.16
Control	.17	.21	−.28	.14	—	.36/.36
Initiation	.22	.26	−.10	.14	.35	—
Stress	.01	−.24	.51	−.08	−.23	−.13
Time	*a*	*a*	*a*	*a*	*a*	*a*
Time adequacy	.29	.27	−.29	.28	.25	.17
Outcome	.29	.27	−.32	.23	.40	.22
Self-identity	.30	.41	−.20	.28	.23	.29
Other's view	.32	.26	−.08	.50	.10	.06
Pos. impact	.31	.26	−.02	.20	.07	.12
Neg. impact	−.08	−.13	.20	−.03	−.13	−.15
Progress	.32	.42	−.30	.36	.23	.15
Completion	*a*	*a*	*a*	*a*	*a*	*a*
Challenge	.23	.15	.33	.10	−.08	.09
Absorption	*a*	*a*	*a*	*a*	*a*	*a*

TABLE 4—*Continued*

	Stress	Time	Time adequacy	Outcome	Self-identity	Other's view
Importance	.35/ .04	.32/ .43	.22/ .25	.30/ .21	.42/ .24	.32/−.04
Enjoyment	−.32/−.37	.01/ .45*	.38/ .44	.43/ .45	.50/ .49	.33/ .18
Difficulty	.66/ .40	−.07/ .04	−.31/−.19	−.36/−.32	.11/−.26	−.14/−.12
Visibility	.05/−.03	.28/ .40	.11/ .34	.11/ .12	.16/ .35	.43/ .45
Control	−.19/−.33	.18/ .17	.41/ .34	.51/ .51	.31/ .34	.13/−.11
Initiation	.09/−.08	.24/ .49	.20/ .51	.46/ .19	.39/ .35	.32/−.08
Stress	—	.28/−.14*	−.18/−.32	−.20/−.47	.09/−.36*	.20/−.12
Time	*a*	—	.53/ .70	.24/ .11	.26/ .64*	.48/−.15**
Time adequacy	−.11	*a*	—	.53/ .35	.39/ .62	.39/−.01*
Outcome	−.24	*a*	.37	—	.52/ .37	.35/ .13
Self-identity	−.18	*a*	.34	.40	—	.43/ .10
Other's view	−.04	*a*	.19	.24	.30	—
Pos. impact	.08	*a*	.13	.16	.21	.27
Neg. impact	.25	*a*	−.19	−.14	−.09	−.01
Progress	−.19	*a*	.44	.35	.36	.28
Completion	*a*	*a*	*a*	*a*	*a*	*a*
Challenge	.31	*a*	.00	−.06	.07	.11
Absorption	*a*	*a*	*a*	*a*	*a*	*a*

	Positive impact	Negative impact	Progress	Completion	Challenge	Absorption
Importance	.22/ .26	.00/−.02	.23/ .35	.44/ .12	.34/ .44	.30/ .50
Enjoyment	.15/ .48	−.19/−.18	.43/ .58	.43/ .28	.01/ .35	.41/ .28
Difficulty	.28/−.12	.28/ .32	−.35/−.22	−.21/−.24	.51/ .16	−.09/−.08
Visibility	−.02/ .53**	−.08/−.14	.21/ .36	.09/ .03	.02/ .44*	.22/ .43
Control	−.04/ .22	−.23/−.42	.23/ .17	.53/ .28	−.05/−.03	.11/ .27
Initiation	.04/ .17	−.17/−.25	.40/ .30	.31/ .11	.15/ .34	.16/ .31
Stress	.40/−.16**	.23/ .23	−.06/−.29	−.12/−.52*	.62/−.02**	.24/−.23*
Time	.38/ .33	.16/−.12	.54/ .66	.17/ .20	.14/ .46	.55/ .68
Time adequacy	.13/ .33	−.04/−.18	.54/ .67	.59/ .47	−.14/ .15	.43/ .42
Outcome	.20/ .10	−.39/−.23	.51/ .30	.71/ .63	−.02/ .02	.24/ .32
Self-identity	.47/ .27	−.10/−.16	.43/ .49	.56/ .36	.20/ .22	.38/ .44
Other's view	.43/ .31	−.09/ .19	.52/ .13*	.31/ .03	.10/ .25	.59/−.07**
Pos. impact	—	−.01/−.22	.31/ .28	.20/ .01	.53/ .42	.51/ .29
Neg. impact	−.05	—	−.20/ .00	−.17/ .01	.15/−.04	.05/−.11
Progress	.22	−.09	—	.31/ .44	−.05/ .31	.57/ .46
Completion	*a*	*a*	*a*	—	.19/−.13	.33/ .25
Challenge	.22	.08	.07	*a*	—	.37/ .49
Absorption	*a*	*a*	*a*	*a*	*a*	—

Note. Above the diagonal are correlations based on the low procrastinator group (N = 45) followed by those based on the high procrastinators (N = 44). Below the diagonal are correlations derived by Little, Carlsen, Glavin, & Lavery (1981; N = 1105). The data below the diagonal are from "Personal projects across the life-span" by B. R. Little, N. Carlsen, G. Glavin, and J. Lavery, 1981. Unpublished report to SSHRCC, Ottawa, Canada.

[a] Not available from Little et al.

* Difference between correlations: $p < .05$.

** Difference between correlations: $p < .01$.

Six of the significant comparisons involved the "stress" dimension. For the low procrastinator, ratings on this dimension over projects were positively related to ratings on the "challenge," "positive impact," "time spent," and "absorption" dimensions. At the same time, for the high procrastinator, the relationship between stress and these other dimensions was negative or negligible. In addition, stress was unrelated to the "likelihood of completion" dimension for the low procrastinator. On the other hand, for the high procrastinator, the more stressful the projects overall, the less was the rated likelihood of completion. Whereas stress ratings were unrelated to the "self-identity" of the project for low procrastinators, the high procrastinators with the more stressful projects tended to view them as less typical of themselves.

High procrastinators with more enjoyable projects tended to spend more time on them. For low procrastinators, the relationship between the dimensions of "enjoyment" and "time spent" was negligible.

The view of others close to the respondent regarding the importance of a project ("others' view") was highly positively related to "time spent," "adequacy of time spent," success to date ("progress"), and to the degree of "absorption" in the projects for low procrastinators only. For the high procrastinator, these relationships were low and, in three cases, negative.

How visible the projects were to relevant others ("visibility") was unrelated to the degree of "positive impact" each project had on the other projects and to the degree of challenge of the projects for the low procrastinator. For high procrastinators, on the other hand, highly visible projects provided greater positive impact and greater challenge.

Finally, more time was spent on projects seen as more typical of themselves ("self-identity") by high procrastinators. The degree of this positive relationship between "time spent" and "self-identity" was considerably less for low procrastinators.

Low procrastinators with stressful projects would appear to respond and cope with such tasks in a manner dramatically different from the high procrastinator with stressful projects. For example, the former reported spending more time on such projects, viewed them as more challenging and more absorbing and as having more positive impact than did low procrastinators with less stressful projects. Such was not the case with high procrastinators. Further, high procrastinators with stressful projects viewed them as less likely to be completed than did high procrastinators with less stressful projects. Such was not the case with low procrastinators. In addition, high procrastinators spent more time on enjoyable projects, this not being evident for low procrastinators. These data were consistent with one interpretation of procrastinatory behavior put forward by Ellis and Knaus (1977), namely that the procrastinator is unwilling to act on unpleasant or stressful tasks in moving to complete goals.

How important others view one's projects overall, and how visible to others one's projects are also provided interesting distinctions between the low and high procrastinators. High procrastinators appeared to be more sensitive to the visibility of their projects, but, at the same time, less willing to integrate the views of others.

STUDY III

Study I has indicated a high positive correlation between scores on the *procrastination* scale developed for this project and scores on a scale designed to measure neurotic disorganization. Study III sought to examine further this apparent "cognitive disorganization" side of procrastinatory behavior. Given a simple task of remembering to do something, how will procrastinators fare? Procrastinatory behavior may be viewed on the one hand as an active attempt to postpone necessary behavior, but to what extent is it, on the other, a product of disorganized thinking or of forgetting?

Harris and Wilkins (1982) have provided a theoretical framework for "remembering to do things." As they indicate, many everyday tasks involve periodic monitoring until a critical stage is reached at which time some behavior or action needs to be taken. They

cite as an example the ongoing activity of cooking meat in an oven. One can make an initial test to see if the meat is done. If the meat is not sufficiently cooked, a wait period follows in which the individual is free to engage in other activities until it is time to test the meat again. This test-wait cycle may be repeated until the meat is properly cooked. Drawing from the Miller, Galanter, and Pribram (1960) characterization of TOTE (Test-Operate-Test-Exit) in driving a nail flush into a piece of wood, Harris and Wilkins apply a Test-Wait-Test-Exit (TWTE) process to their example.

Applying this TWTE process to procrastinatory behavior, an individual might put off the succeeding test operation(s), thereby prolonging the exit stage. What the person is engaged in during the wait period, how well organized or prepared the person is to test again, how busy or occupied the person is during this period, or whether the person remembers, might affect the timeliness of the retesting stage. In the example of cooking meat, the cooking continues independently of the person's irrelevant behavior during the wait period. And if one procrastinates, one is likely to exit with over-cooked meat.

In other situations, however, the wait period is contingent on that which is viewed to be necessary to successfully complete the exit stage. In this case, estimates of the duration of time to complete the exit stage would be a factor in the wait-test routine (cf. Sabini & Silver, 1982). For example, in preparing a research grant proposal, the first test involves a clarification of the deadline for submitting the application, coupled with an assessment of how long the preparation will take. This is done in conjunction with a consideration of what other activities are to be engaged in in one's life and of other deadlines to be met. Where a wait stage is injected into the process at that time, procrastinatory behavior becomes possible. The grant applicant may actively choose to prolong the wait stage. On the other hand, during the wait stage, forgetting may occur, or in some neurotically disorganized way, a reordering of task and goal priorities may take place. Within this example, it is probably more accurate to view the stages as Test-Wait-Test-Act, a sequence that can be repeated over many natural or created segments of task work, such as that found in the process of preparing the grant application.

Study III represented a preliminary entry into this scheme of test-wait-test-exit or test-wait-test-act. In simply remembering to do something at some later time, will procrastinators do less well?

Subjects in this study were passengers waiting in an airport. They were administered a personality inventory measuring a number of traits, most notably the *procrastination* scale and a variation of the *Cognitive Failures Questionnaire* by Broadbent, Cooper, Fitzgerald, and Parkes (1982). The latter is a measure of self-reported failures in perception, memory, and motor functions. This scale was selected in place of the *neurotic disorganization* scale used in the earlier studies on the grounds that more data about the *cognitive failures* scale and its correlates were available in the literature. After completing the personality questionnaire, passengers were then given an envelope and asked to mail it back to the researchers on some designated day.

Method

Procedure and subjects. Passengers waiting to board planes at Toronto's Lester B. Pearson International Airport for other destinations in Canada were approached by a female research assistant. They were asked to participate in a study about a number of "run-of-the-mill" personality traits. Those who agreed were asked to respond to Inventory G2 described below. Eighty-nine people completed the questionnaire. Approximately 40 others started, but did not complete it, primarily because they had to leave to board their planes. Each copy of the questionnaire had been assigned an identifying number.

Those respondents who completed Inventory G2 were approached by a second female research assistant. The two assistants presented themselves as both from York University, as working together at that particular time, but as working on two distinct projects. Logistics

and facilities available at the airport necessitated such an arrangement. The second assistant indicated that she was working on another study for a research consumer group at York University. This group was assessing the efficiency of the Federal postal service. Subjects were asked to take an envelope with them and to mail it back from the point of their destination. The envelope was addressed to "The Research Consumer Group" and postage was affixed. On an alternating basis, subjects were asked to mail the envelope on their arrival or 3 days later. In asking subjects to mail the envelope back 3 days after their arrival, it was explained that the survey was interested in assessing postal efficiency at different periods during the week. All 89 subjects accepted the letter.

The designated date to return the envelope was noted on a file card. This file card was placed in the envelope and the envelope sealed. Before doing so, the research assistant discreetly entered on the card the number corresponding to the number on the subject's completed Inventory G2.

Each subject's number, the location from which the envelope was to be mailed, and the date it was to be mailed were recorded. The study was carried out on Saturday, December 8, 1984, Monday, December 17, 1984, and Monday, January 28, 1985.

Quite coincidentally, two weeks prior to the start of this study, a brief article appeared in a local newspaper indicating that Canada Post had hired an outside organization to determine how fast mail is delivered. This could only add to the plausibility of our request.

Three people omitted more than three items from Inventory G2 and were eliminated. This left 86 subjects who completed the inventory and accepted the letter. There were 57 males and 29 females.

Materials (Inventory G2). This inventory contained Form G of the *procrastination* scale and the *achievement, organization, energy level, self-esteem,* and *rebelliousness* scales referred to in Study I. A *breadth of interest* scale from the Jackson Personality Inventory was also included. High scorers on this scale were described as "attentive, involved; motivated to participate in a wide variety of activities; interested in learning about a diversity of things" (Jackson, 1976).

A variation of the *Cognitive Failures Questionnaire* (Broadbent et al., 1982) was used. Eighteen of the 25 items were selected and altered to fit the "true-false" response format of the other scales. In doing so, eight items were worded in the true-keyed direction and ten items in the false-keyed direction.

Results and Discussion

Based on the 86 respondents to Inventory G2, the mean score on the altered 18-item *cognitive failures* scale was 7.2 with a standard deviation of 3.4. Cronbach's alpha coefficient was .71. The mean score on the 20-item *procrastination* scale was 6.2 with a standard deviation of 4.4. Cronbach's alpha coefficient was .83. *Procrastination* scores and *Cognitive Failure* scores correlated .40.

Two things were worth noting at this point. First, the airport sample of respondents averaged considerably less on Form G of the *procrastination* scale than have samples of university students. For example, the mean on this scale was 9.4 in Study I and 8.0 in Study II. Unfortunately, other than sex, no assessment of the composition of the airport subjects was made. Of possible relevance here, not all passengers were waiting to make connecting flights. Many were individuals who had arrived at the airport well ahead of their flight departure.

Secondly, the correlation between *Procrastination* and *Cognitive Failures* was much lower than the correlations found earlier between *Procrastination* and *Neurotic Disorganization* (which tended to range from .60 to .70). This would suggest that the *cognitive failures* scale does not parallel the *neurotic disorganization* scale as much as had been anticipated.

Of the 86 subjects who completed Inventory G2 and accepted the envelope, 68 returned the envelope by mail. On six of the envelopes the postmark was either not present or was

not legible; these subjects were eliminated. Of the 18 subjects who failed to return the envelope, the designated date for return for one subject had, in error, not been recorded. This left 17 subjects who had not returned their envelopes and 62 who had.

The make-up of the non-return-subjects in terms of their scores on the *procrastination* scale and on the *cognitive failures* scale is presented in Table 5. Subjects were trichotomized on the basis of their scores on each of the scales. In conducting a 3 × 2 analysis of variance, subjects who returned the envelope were assigned a score of 0 and subjects who failed to return the envelope a score of 1, thus reflecting the proportion data. Neither of the main effects nor the interaction were significant.

One can only wonder why subjects never returned the envelope, late or otherwise. Although they may have forgot or neglected to do so on the designated date, it could be assumed that they remembered at some later time, or that they came across the unmailed envelope by chance at some later date. One possibility was that non-return subjects took the designated date most literally, to the extent that, when late, they decided that there was no sense in mailing the envelope. That it was, in fact, too late.

The dependent variable in this study was the degree of inaccuracy in returning the envelope, defined in terms of the number of days the postmark deviated from the designated date. One subject did mail the envelope back 1 day in advance; for all other subjects a value of one represented being 1 day late. No value on the dependent measure was available for the group of non-returns, of course. It could be argued, however, that these subjects had been grossly inaccurate and should not be eliminated from the sample. The solution was to carry out two separate analyses of variance, first with the 61 return-subjects only, and then with the 61 returns and the 17 non-return subjects combined. In the latter analysis the non-returns were arbitrarily assigned a value on the dependent variable of 20 days. This value equalled the highest value obtained on the dependent measure by a subject who *had* returned the envelope.

Table 6 presents the mean number of days the postmark on the returned envelope deviated from the designated day for arrival- and for 3 day-subjects trichotomized on the *procrastination* scale and on the *cognitive failures* scale. Separate means for subjects who returned the envelope and for all subjects combined are reported. Overall, in both cases, subjects more predisposed to procrastinatory behavior erred to a greater extent in returning the envelope, $F(2, 60) = 3.4$, $p < .05$ for returns-only and $F(2, 78) = 3.7$, $p < .03$ for all subjects.

TABLE 5

PROPORTION OF SUBJECTS WITH DESIGNATED MAILING DATE ON ARRIVAL OR 3 DAYS LATER AND TRICHOTOMIZED ON PROCRASTINATION SCALE AND ON COGNITIVE FAILURES SCALE WHO NEVER MAILED BACK THE ENVELOPE

	Arrival	3 Days later
Procrastination score		
Low (0–3)	0/12 (.00)	3/11 (.27)
Moderate (4–7)	2/15 (.13)	3/14 (.21)
High (8–17)	4/12 (.33)	5/15 (.33)
Cognitive failures score		
Low (1–5)	1/14 (.07)	4/12 (.33)
Moderate (6–8)	2/12 (.17)	4/17 (.23)
High (9–14)	3/13 (.23)	3/12 (.25)

TABLE 6

MEAN NUMBER OF DAYS POSTMARK DEVIATED FROM DESIGNATED MAILING DATE WITH DESIGNATED DATE ON ARRIVAL OR 3 DAYS LATER WITH SUBJECTS TRICHOTOMIZED ON PROCRASTINATION SCALE AND ON COGNITIVE FAILURES SCALE—INCLUDES RETURNS ONLY AND RETURNS AND NON-RETURNS COMBINED WITH NUMBER OF SUBJECTS IN PARENTHESES

	Returns only		All subjects	
	Arrival	3 Days	Arrival	3 Days
Procrastination score				
Low (0–3)	1.4 (12)	.3 (08)	1.4 (12)	5.6 (11)
Moderate (4–7)	3.5 (13)	1.6 (10)	5.7 (15)	5.5 (14)
High (8–17)	4.9 (08)	3.8 (10)	9.9 (12)	9.2 (15)
Cognitive failures score				
Low (1–5)	1.6 (15)	1.6 (11)	2.8 (16)	6.1 (16)
Moderate (6–8)	3.5 (08)	4.8 (08)	6.8 (10)	9.8 (12)
High (9–14)	4.9 (10)	.1 (09)	8.4 (13)	5.1 (12)

Note. Subjects who did not mail back the envelope were assigned a value of 20 days.

There were no significant main effects or interaction when subjects were distinguished in terms of their *cognitive failure* scores, although, with the return-only group, the interaction did approach significance, $F(2, 60) = 2.8$, $p < .07$.

Whereas procrastinators tended to err more than nonprocrastinators in mailing back the envelope on the designated day, no such effect was observed in relation to cognitive failures. This was curious. Further, the manipulation of the duration of time between receiving the envelope and the designated date to mail it back did not affect inaccuracy scores, nor did this variable interact with *procrastination* or *cognitive failure* scores. This was also curious. The purpose of this study had been to demonstrate an association between remembering to do something and procrastinatory behavior. But certainly a predisposition toward cognitive failures was relevant here, as well. Is remembering to do something on time more a reflection of procrastinatory tendencies than of a predisposition to forget? Perhaps a distinction needs to be made between remembering to do something and actually doing it. That is (in retrospect), within the test-wait-test-act scheme, one can remember to do something within the wait stage, realize that it is time to do it in the test stage, and yet not do it in the act stage. This, of course, sounds like procrastinatory behavior. Unfortunately, as the method and results now stand, there is no way to separate the remembering in the wait stage from the follow through in the act stage (subsequent to the test stage testing positive). Suffice to say at this point, procrastinators fared less well in remembering to do something and in doing it, than did nonprocrastinators.

The procedure used in this study was a novel one, and may, itself, require further study if it is to be used in this context again. At this point, out of curiosity, the relationship between the other personality measures available and the dependent variable of number of days in error was assessed. The Pearson Product-moment correlations based on return and non-return subjects combined ($N = 79$) are presented in Table 7. One additional variable was added, namely the scheduled duration of the flight. It was reasoned that the longer the flight, the greater the likelihood that factors influencing memory could intervene. Hence, perhaps the longer the flight, the more error in remembering to return the envelope. Flight durations ranged from .5 hr from Toronto to London, Ontario to 6.0 hr to Victoria, British Columbia, the latter including stopover time in Vancouver. As can be seen in

Table 7, duration of flight did relate positively to the degree of error in returning the envelope.

Three other variables, *breadth of interest, energy level,* and *organization* correlated significantly with the dependent measure, all in the negative direction. In the case of *breadth of interest,* it may be that individuals high on this scale were more interested in the study, took it more seriously, and consequently attended more carefully. The more active and organized the individual was, the more able in returning the envelope. These relationships suggest that the task at hand involved considerations on the subjects' part beyond a mere "remembering to do something."

In addition to these correlations, four multiple correlations were calculated, with inaccuracy in returning the envelope the predicted variable. One assessment entered all variables. A second assessment included *procrastination, cognitive failures,* and *organization* scores along with the duration of flight measure. These variables were considered theoretically pertinent to the "remembering to do something" task at hand, and to the major interest of the study. A third assessment involved the remaining five variables. Finally, the best combination of four variables was examined. These multiple correlations along with the standardized *beta* weights are also presented in Table 7.

The multiple correlation for all variables was .48. The four pertinent variables combined were a better predictor than were the five secondary variables. Of the pertinent variables, only *procrastination* scores and duration of flight contributed to the multiple R. The *energy level* scale combined with *self-esteem, procrastination,* and duration of flight to produce a multiple R of .44. The inclusion of *self-esteem* appears to be a case of suppression (Cohen & Cohen, 1975). Note that, in each of its analyses, the procrastination variable played a prominent role in predicting the inaccuracy measure.

TABLE 7

CORRELATIONS AND MULTIPLE CORRELATIONS WITH STANDARDIZED BETA WEIGHTS FOR NINE VARIABLES WITH THE PREDICTED VARIABLE "NUMBER OF DAYS POSTMARK DEVIATED FROM DESIGNATED MAILING DATE"

	r	Beta	Beta	Beta	Beta
Procrastination	.31**	.23	.29		.27
Cognitive failures	.12	−.02	.00		
Organization	−.19*	−.13	−.00		
Duration of flight	.20*	.19	.15		.19
Achievement	−.09	−.07		−.08	
Breadth of interest	−.22*	−.16		−.11	
Energy level	−.26**	−.16		−.20	−.28
Rebelliousness	−.15	−.15		−.10	
Self-esteem	.01	.29		.16	.20
R		.48	.36	.30	.44
F		2.3	2.6	1.4	4.2
df		9,67	4,72	5,71	4,72
p<		.03	.04	.22	.003

Note. Based on all subjects (N = 79).

* $p < .05$.

** $p < .01$.

GENERAL DISCUSSION

The forerunner study and Study I of this paper both pointed to a strong link between procrastination and organization/disorganization measures. The procrastinator is disorganized, particularly so at a cognitive level and in everyday activities. This was shown not to detract from the procrastinator's academic performance, however. Study III supported this neurotically disorganized picture, with procrastinators being less able to complete a simple task on time.

Low and high procrastinators appeared to differ in their attitude toward their ongoing personal projects (Study II). Low-procrastinators were more positively responsive to the stress dimension of their projects. For high procrastinators, the enjoyment associated with their projects was more of a factor in terms of the amount of time spent. It might be said that the low procrastinator exhibited a more straightforward position toward projects at hand, characterized by an "if there is a job to be done, you do it" approach. For the high procrastinator, things were not that simple. Finally, low procrastinators were found to be more sensitive to the views of others.

The concept procrastination had been defined as "the tendency to postpone that which is necessary to reach some goal." This definition understates the complexity of the concept. Whether the task is self- or other-imposed, the degree of unpleasantness of the task, how concrete and structured the task is, and the procrastinator's initial and subsequent views of what the task involves require future consideration. Other entries into the definition can be made, including an assessment of behaviors that intervene, that fill the gap while one is postponing. Which brings us to Sabini and Silver (1982).

Sabini and Silver considered a number of situations in which people "put things off" and decided whether or not such action constitutes procrastinatory behavior. They concluded that people are procrastinating if they irrationally put off and "if this irrationality is caused by recognizing or fancying what . . . (one) . . . ought to be doing (p. 139)." By "ought to," these authors are referring to what one should be doing to reach a goal. They also mean at that moment in time. But "ought to's" can occur within some larger time span as well, particularly where there is no easily apparent structure to when things need to be done and not put off. This "ought to" refers not simply to "that which is necessary to reach some goal," but can also refer to the goal, per se. In both cases of "ought to," the role of others in the person's life can be considered. The data in Study II suggested that procrastinators are less responsive to what others think they ought to do.

For Sabini and Silver, behavior can only be procrastinatory if it is irrational. This irrationality includes a time element, more specifically,

an estimation by the actor of the duration of time required to complete a task. As they state, "putting things off even until the last moment isn't procrastination if there is reason to believe they will take only that moment" (p. 128). The "reason to believe" refers to how long it has taken in one's past experience. But this thinking requires that individuals draw accurately from past experience, thus being excellent judges of the duration of time required to do something. In addition, it requires that they be particularly well organized on a day-to-day basis, lest, unaware, they leave three things to the last moment, although each requires that moment to complete. There is good indication in the present paper that procrastinators lack these necessary organizational tendencies. To rely on such abilities that they actually lack, makes putting off now irrational.

Leading to the same interpretation of irrationality, it is the present author's contention that procrastinators do not draw well from past experience in accurately estimating how long it will take them to complete a task. This includes not only those things they ought to be doing, but also the secondary tasks they attend to while avoiding what they ought to be doing. The contention is that procrastinators underestimate the duration of time needed to complete such tasks and are, then, unrealistic and irrational, even when Sabini and Silver would present them as not being so. This tendency in procrastinators to underestimate will occur when they are under presssure, under pressure of time to some deadline, and under pressure of enticing alternatives to working on the task at hand (like invitations to go to the movies Sunday night with an essay due Monday). It is this pressure factor that is important in this proposal. Well before deadlines procrastinators may be equally accurate. Or, as Burka and Yuen (1983) suggest, they may even tend to overestimate the time needed to complete a task, and, for that reason, are reluctant to begin. But under pressure . . . future research will tell.

Part of the irrationality of the procrastinator (as opposed to the irrationality of the act), may be in their failure to maintain priorities over a series of ongoing and upcoming tasks and goals. The procrastinator may be as likely as the nonprocrastinator to make plans in conjunction with the importance of tasks in one's life, and in conjunction with time considerations about those tasks. That is, they may equally be able to prioritize ongoing tasks on a day-to-day basis. On the other hand, during periods of the wait stage, they may be less able to keep these priorities sorted and cognitively available to them through the course of the day and the week. Or they may actively engage in behavior which does not correspond to their priorities. This link between priorities and goal-associated behavior may be viewed as an inherent part of the defining of procrastinatory behavior. The premise here would be that one should spend the most time, or the most adequate time, on tasks that are viewed as most important. Failure to do so would constitute procrastinatory

behavior, viewed in both the short-run and the long-run as a failure to act on one's priorities. How useful this distinction is awaits further research. We are currently assessing elite gymnasts regarding their ongoing personal training projects. We are prepared to label here as procrastinatory behavior deviations between what the athlete and his coach judge to be the most important training projects, on the one hand, and rated adequacy of time spent by the athlete on such projects, on the other. Spending less than adequate time on important projects is deemed to be procrastination. Among other things, this conceptualization will take into account the high energy individuals who, completing few of their most important tasks, claim not to procrastinate, but simply to be over-burdened.

REFERENCES

Aitken, M. E. (1982). A personality profile of the college student procrastinator. *Dissertation Abstracts* **43A,** 722–723.

Briody, R. (1980). An exploratory study of procrastination. *Dissertation Abstracts,* **41A,** 590.

Broadbent, D. E., Cooper, P. F., Fitzgerald, P., & Parkes, K. R. (1982). The Cognitive Failures Questionnaire (CFQ) and its correlates. *British Journal of Clinical Psychology,* **21,** 1–16.

Burka, J. B., & Yuen, L. M. (1983). *Procrastination.* Reading, MA: Addison-Wesley.

Cohen, J., & Cohen, P. (1975) *Applied multiple regression/correlation analysis for the behavioral sciences.* Hillsdale, NJ: Erlbaum.

Ellis, A., & Knaus, W. (1977). *Overcoming procrastination.* New York: Institute for Rational Living.

Harris, J. E., & Wilkins, A. J. (1982). Remembering to do things: A theoretical framework and an illustrative experiment. *Human Learning,* **1,** 123–136.

Hill, M., Hill, D., Chabot, A., & Barrall, J. (1978). A survey of college faculty and student procrastination. *College Student Journal,* **12,** 256–262.

Jackson, D. N. (1967a). *Differential Personality Inventory.* London, Ontario: Research Psychologists Press.

Jackson, D. N. (1967b). *Personality Research Form.* London, Ontario: Research Psychologists Press.

Jackson, D. N. (1970). A sequential system for personality scale development. In C. D. Spielberger (Ed.), *Current topics in clinical and community psychology* (Vol. 2). New York: Academic Press.

Jackson, D. N. (1976). *Jackson Personality Inventory.* London, Ontario: Research Psychologists Press.

Lay, C. (1985). *At Last, my research report on procrastination.* Research Report No. 150, York University, Toronto, Canada.

Little, B. R. (1983). Personal projects: A rationale and method for investigation. *Environment and Behavior,* **15,** 273–309.

Little, B. R., Carlsen, N., Glavin, G., & Lavery, J. (1981). *Personal projects across the life-span.* Unpublished report to SSHRCC, Ottawa, Canada.

Miller, G. A., Galanter, E., & Pribram, K. (1960). *Plans and the structure of behavior.* New York: Holt, Rinehart, & Winston.

Nelson, B. (1983). Deep-seated causes found for tendency to delay. *New York Times,* April 12, pp. C1, C8

Palys, T. S., & Little, B. R. (1983). Perceived life satisfaction and the organization of personal project systems. *Journal of Personality and Social Psychology,* **44,** 1221–1230.

Rorer, L. G. (1983). "Deep" RET: A reformulation of some psychodynamic explanations of procrastination. *Cognitive Therapy and Research*, **7**, 1–10.

Rosati, P. (1975). Procrastinators prefer PSI. *ERM* **8**, 17–19.

Sabini, J., & Silver, M. (1982). *Moralities of everyday life*. New York: Oxford Univ. Press.

Sapienza, M. (1984). *Self-monitoring: A critique and reformulation*. Unpublished master's thesis, Carleton University, Ottawa, Canada.

Skiffington, S. (1982). The development and validation of a self-report measure of general procrastination: The time utilization inventory. *Dissertation Abstracts*, **43B**, 2003–2004.

Taylor, R. (1979). Procrastination: The personality and situational correlates of procrastination behavior for achievement tasks. *Dissertation Abstracts*, **40B**, 1967.

Zeisat, H., Rosenthal, T., & White, G. (1978). Behavioral self-control in treating procrastination of studying. *Psychologist Reports*, **43**, 59–69.