
College Students' Accuracy and Perceptions of Accuracy in Predicting the Duration of an Academic-Related Task

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ABSTRACT - This study explored individual differences among college students in perceptions of accuracy in predicting task duration. One-hundred and four college students were asked questions to assess their perceived accuracy in predicting task duration and asked to estimate the time needed to read a passage. Participants were then timed as they read the passage. The results indicated that individuals who perceived themselves to be more adept and accurate in predicting duration were more accurate in predicting the duration of the task. Thus, individuals who perceived themselves as more accurate and adept at predicting task duration allowed themselves just enough time to complete the assigned task. Those who perceived themselves as less accurate allowed themselves additional time to complete the task.

Nearly everyday college students must make decisions of how to best allocate their time among academic demands, socializing, extracurricular activities, and often work as well. To do this, it is necessary to estimate (predict) how much time it will take to complete tasks. Inaccuracy in predictions might have undesired consequences ranging from mild inefficiency to falling short of major life goals. Hence, understanding individual differences in estimating the time needed to complete tasks could prove to be valuable knowledge for educators and students alike. Surprisingly, however, little research has been published on predicting task duration.

It is possible that individuals' perceptions of their accuracy in predicting duration might influence the amount of time they allow themselves to accomplish tasks. If individuals believe themselves to be more accurate they might be more confident that they can complete a task in a specified time period and thus not allow themselves extra time for task completion (Kelly, 2002a). For example, students who are confident they can study adequately for an exam over a few hours in the night preceding the exam, might allow themselves only a few hours to prepare. Conversely, students who are not confident in their ability to study adequately in that amount of time, might allow themselves additional time to study. A review of the literature revealed that perceptions of accuracy in predicting duration has received little attention by researchers. Instead, most existing research on this topic has focused on the relationship among personality traits and duration prediction.

One personality trait previous researchers found to play a role in duration prediction

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is procrastination. College students were asked by McCown, Petzel, and Rupert (1987) to estimate the duration necessary to read a passage. Students classified as procrastinators provided significantly smaller predictive estimates than non-procrastinators. In another study highly conscientious individuals provided greater estimates of the duration needed to accomplish a task than those lower in conscientious (Kelly, Johnson, & Miller, 2003). In addition to procrastination and conscientiousness, research has investigated the role of anxiety in predicting task duration. Kelly (2002b) found that highly anxious individuals provided longer estimates of how long it would take to complete a task than those who were less anxious.

Josephs and Hahn (1995) investigated the influences of the apparent quantity, or length, of a task in predicting duration. The results suggested that individuals provide different predictive estimates for a task when it is formatted to appear either longer or shorter. Participants asked to read a 45-page manuscript predicted significantly larger amounts of time required to complete the reading than individuals presented with the same material formatted as a 12-page manuscript.

A relationship between duration prediction and perceived control of time has also been found. College students tend to predict more accurately the amount of time needed to complete a task when they believe they have control over their time (Francis-Smythe & Robertson, 1999).

In sum, it appears that personality traits and beliefs that one has control over one's time influence predictions of task duration. The purpose of this study was to examine the relationship between duration prediction and perceptions of accuracy in duration prediction among college students. Due to the paucity of research in this area, no formal hypotheses were formed. Instead, a tentative outcome expectation was formed based on the following reasoning: individuals who perceive themselves to be more accurate might also be more self-efficacious in predicting duration and believe that they have more control over their time (see Bandura, 1977). Thus, individuals who perceive themselves to be more accurate might be more accurate in predicting task duration.

Method

Participants

Hundred and four students (63 females, 41 males) enrolled in undergraduate and graduate psychology courses voluntarily participated in this study. Totals did not always equal 104, however, because some data were missing. The mean age for the sample was 21.26 years ($SD = 3.90$). Ages ranged from 18 to 42. There was no significant difference between the genders in age, $t(102) = .94, p = .35$. The majority of participants (85) identified themselves as White, while 15, 3, and 1 identified themselves as African American, Asian American, and Latino, respectively.

Instrumentation

Because there are currently no standardized instruments to measure perceived accuracy in duration prediction, two questions (one general and one specific to the task used in this study) were developed to explore individual differences in perceived accuracy. The questions were: "Do you think you are generally pretty good at deciding how long it will take to complete a task?" (general perceived accuracy) and "How accurate do you think you were at deciding how long it would take to read the passage you just completed?" (task specific perceived accuracy). Responses to both questions were set on an anchored 5-point scale (1 = not at all; 5 = very). Previous researchers (i.e., Bretz & Judge, 1994; Scarpello & Campbell, 1983) have reported single-item assessments to be more reliable and valid than longer, more comprehensive assessments when participants were asked to

make summary judgements about their own experience or reactions to environmental stimuli. Hence, the single-item assessments for general perceived accuracy and task specific perceived accuracy were deemed appropriate for this study. A demographics questionnaire soliciting information on participants' age, race, and gender was also included.

Materials

A reading task was chosen to represent a typical academic task as it has been suggested that most college students work regularly with text and often have assigned readings (Francis-Smythe & Robertson, 1999). Hence, materials used in this study included a five-page reading passage of 1,061 words. The passage was formatted in Times Roman, 12-point font, and had one-inch margins. The text was printed in black and was double-spaced on 8.5 by 11 inch white paper. An analysis using the Corel Grammatik program (Corel Corporation, 1997) revealed the passage to be on a 12th grade reading level - roughly equivalent to the "Gettysburg Address." This was deemed an appropriate reading level for university students.

Duration Prediction Task

Participants were presented the passage described in the materials section. Participants were then allowed five seconds to inspect the passage. Participants were instructed to "briefly inspect the passage, don't attempt to read it yet." After inspecting the passage, participants recorded on an answer sheet provided to them the amount of time they believed would be needed to read and understand the passage. Two scores were yielded from this task: (1) a predictive estimate, and (2) an accuracy score. The predictive estimate was simply the estimate of how long it would take to read the passage, coded in seconds. Consistent with previous research (i.e., Francis-Smythe & Robertson, 1999), the accuracy score was coded as an error proportion whereby the time it actually took to read the passage was subtracted from the predictive estimate. The result of that subtraction was then divided by the actual reading speed. For example, if a participant took 120 seconds to read the passage and had predicted it would take 180 seconds, their accuracy score would be .50 $([180 - 120] / 120)$. Thus, scores closer to zero are more accurate and higher scores (either + or -) are less accurate.

Procedure

Participants were tested in a quiet, well-lit room, free from external distractions. After providing informed consent, participants completed the demographics survey and the duration prediction task. Participants then read the text and alerted the researcher when they had completed the reading. All participants' reading were timed using a digital stopwatch. Participants then answered the two questions discussed previously. In attempts to ensure that participants put forth good effort on the task, they were told they would be asked to answer some questions about the content of the passage. This procedure is consistent with those reported by previous researchers studying predictive duration (eg., Francis-Smythe & Robertson, 1999; McCown et al., 1987).

Results

Average scores and standard deviations for all variables used in this study were as follows: duration prediction = 497.74, $SD = 232.96$; predictive accuracy = .54, $SD = .57$; reading time = 327.07, $SD = 96.86$; general perceived accuracy question = 2.84, $SD = 1.04$; task specific perceived accuracy question = 2.87; $SD = .92$. Average scores for the two perceived accuracy questions were about 3, the midpoint on the 5-point scales. This

indicated some degree of normality in scores on these items. An inspection of the other averages indicated that participants were moderately accurate, but generally overestimated the amount of time it would take to read the passage. An analysis of the frequency distribution of accuracy proportions indicated that 17 participants underestimated predictive durations, one was perfectly accurate, and the remainder of participants overestimated; their scores progressing upwards in a linear fashion.

Pearson correlation coefficients among all variables used in this study are presented in Table 1. As shown in the table, the general perceived accuracy and task specific perceived accuracy questions were highly correlated. This indicates some consistency in responding: individuals who perceive themselves as adept in predicting duration generally also perceived their estimates for the task used in this study as accurate.

Table 1
Correlations Between Duration Predictions, Predictive Accuracy, Reading Speeds, and Accuracy Perceptions

| Measure | 2 | 3 | 4 | 5 | 6 |
|---------|-----|-------|-------|-------|--------|
| 1. Age | .11 | .01 | .09 | .04 | -.01 |
| 2. DP | | .73** | .59** | -.16 | -.24* |
| 3. PA | | | -.10 | -.23* | -.31** |
| 4. RT | | | | .05 | -.02 |
| 5. GPA | | | | | .72** |
| 6. TSPA | | | | | |

Note: $N = 104$. DP = Duration Prediction; PA = Predictive Accuracy; RT = Reading Time; GPA = General Perceptions of Accuracy Question; TSPA = Task Specific Perception of Accuracy. DP, RT noted in seconds; PA noted as a proportion; GPA and TSPA are based on a 5-point scale.

* $p < .05$ ** $p < .01$ (two-tailed).

Endorsements on the task specific perceived accuracy question were significantly negatively related to predictive estimates and accuracy scores. Thus, individuals who perceived themselves to be more accurate in predicting the amount of time needed to read the passage allowed themselves less time and were more accurate (smaller accuracy scores indicate more accuracy) in predicting the time needed to read the passage.

Scores on the general perceived accuracy question, were significantly negatively related to accuracy scores. Although in the expected direction, general perceived accuracy scores were not significantly correlated with predictive estimates. These results suggest that individuals who perceived themselves as generally more accurate in predicting the duration needed to complete a task are more accurate in predicting the duration of reading the passage. Neither the task specific perceived accuracy or the general perceived accuracy question were significantly related to actual reading times.

Next, gender differences in the variables used in this study were explored using a series of t tests. A significant gender difference was found for the general perceived accuracy question, $t(101) = 2.67, p < .01$, with males ($M = 3.17$) scoring higher than females ($M = 2.63$). A significant difference was not found for task specific perceived accuracy, $t(100) = 1.35, p = .18$, although males ($M = 3.03$) did endorse slightly higher task specific perceived accuracy scores than females ($M = 2.77$). A significant gender difference was also found for accuracy scores, $t(102) = 2.36, p < .02$. Males ($M = .38$) were more accurate than females ($M = .64$). No significant gender difference was found for predictive estimates, $t(102) = .91, p = .37$, although females ($M = 514.51$ seconds) provided greater predictions than males ($M = 471.98$ seconds). There was also no significant gender

difference in actual reading speeds, $t(102) = 1.67, p = .10$, although males ($M = 346.59$ seconds) had slightly longer reading times than females ($M = 314.37$ seconds).

Because of the gender differences observed, partial correlations were calculated among all variables while controlling for the effects of gender (dummy coded: 1 = males, 2 = females). Although there were minor changes from the correlations presented in Table 1, the only correlation which changed substantially was between the general perceived accuracy question and accuracy scores. Although it remained negative, the correlation coefficient was no longer statistically significant when controlling for gender ($r = -.18, p = .08$). Hence, separate from the influences of gender, individuals who reported they were generally accurate in predicting duration were still somewhat more accurate in predicting duration, but not significantly.

Discussion

The results of this study suggest that college students who perceive themselves as more adept and accurate in predicting duration are more accurate in predicting the time needed to perform a task. The results of this study have implications for educators and others working with college students. One important implication is the need to understanding students' perceptions of accuracy in predicting the time needed to accomplish academic tasks. Students who perceive themselves as inaccurate may allow themselves more time to study than individuals who perceive themselves as more accurate. Thus, it might be helpful for educators and others working with college students to identify students' perceived accuracy and then work with those students who perceive themselves to be accurate in predicting task duration to make certain they provide themselves adequate time to prepare assignments and study. Further, educators might assist students who feel they are inadequate by helping those students identify whether they provide too much time to complete one task and thus don't have adequate time to complete subsequent tasks.

The results of this study leave numerous unanswered questions. For instance, are students who perceive themselves to be more accurate in predicting duration better self-monitors who have a storehouse of information from previous tasks allowing them to be more accurate in predictions? Are students who perceive themselves to be more accurate better at analyzing tasks and are thus more efficient in their predictions? As reasoned in this study, are students who perceive themselves to be more accurate and adept in predicting the duration of an academic task more confident in their abilities to complete the task on time; thus allowing themselves a smaller amount of time (margin of error) to complete the task? These are only a few of the many questions which should be investigated in future research.

Another finding in the present study was that male college students generally perceive themselves to be more adept, or efficient, in predicting duration. Males were also more accurate in estimating the amount of time needed to complete a specific task. Similar questions as those posed above might be asked here. For example, are males more efficient in predicting duration, or do males allow themselves a smaller margin of error in predicting task duration? This is another area which future research should investigate. It should be noted that previous researchers found no significant gender differences for similar estimation tasks (Josephs & Hahn, 1995; McCown et al., 1987). It is also noteworthy that no significant gender differences were found for predictive estimates or actual reading times. This leads to the possibility, that the content of the passage was gender biased. Future research and replications are needed to explore this possibility.

Previous research has indicated that several affective and personality traits are related to predicting task duration (i.e., Kelly, 2002b; Kelly et al., 2003; McCown et al., 1987). Additionally, it may be that, as speculated earlier, individuals who believe they are more

in control of their time also perceive themselves to be more accurate in predicting duration. Another possible explanation for the results of this study is that individuals who perceive themselves as less accurate somehow perceive the task as being longer (i.e., Josephs & Hahn, 1995). Such a perception bias might include personality types, cognitive styles, or hypervigilance to environmental stimuli.

As was the case for gender differences, the finding that the majority of individuals in this study tended to overestimate the amount of time needed to complete the task is not consistent with previous research. Francis-Smythe and Robertson (1999) reported that about half of their participants underestimated, whereas Josephs and Hahn (1995) reported that nearly all of their participants tended to underestimate the amount of time needed to read a specified text. In the present study, 17 participants underestimated and the remaining 87 (84%) were either accurate or overestimated. The inconsistencies among studies of predictive accuracy are indicative of the large individual differences in predicting duration and suggest the need for further research on this topic.

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