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Deliberate Practice Spells Success: Why Grittier Competitors Triumph at the National Spelling Bee

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Abstract

The expert performance framework distinguishes between deliberate practice and less effective practice activities. The current longitudinal study is the first to use this framework to understand how children improve in an academic skill. Specifically, the authors examined the effectiveness and subjective experience of three preparation activities widely recommended to improve spelling skill. Deliberate practice, operationally defined as studying and memorizing words while alone, better predicted performance in the National Spelling Bee than being quizzed by others or reading for pleasure. Rated as the most effortful and least enjoyable type of preparation activity, deliberate practice was increasingly favored over being quizzed as spellers accumulated competition experience. Deliberate practice mediated the prediction of final performance by the personality trait of grit, suggesting that perseverance and passion for long-term goals enable spellers to persist with practice activities that are less intrinsically rewarding—but more effective—than other types of preparation.

Keywords

deliberate practice, grit, spelling, expertise, academic achievement

> The roots of education are bitter, but the fruit is sweet.
>
> —Aristotle

On June 1, 2006, a 13-year-old girl correctly spelled the word *ursprache* to triumph over 273 other finalists in the Scripps National Spelling Bee. The current investigation examines the acquisition of spelling expertise in this elite competition. How effective are the various preparation activities widely recommended to improve spelling skill? Are the most effective preparation activities enjoyable and effortless for competitive spellers? Finally, what traits enable some spellers to accumulate more of the most effective types of practice? The answers to these questions are relevant not only to competitive spelling but also to academic learning in general. If the roots of education are indeed "bitter," as Aristotle speculated, then individual differences in the capacity to stay committed to a challenging, far-off, but "sweet" goal may help explain why some students learn more than others.

Prior studies have demonstrated that the cumulative time that National Spelling Bee finalists devote to preparing for competition predicts performance, but these investigations have not distinguished among different types of preparation activity (Duckworth, Peterson, Matthews, & Kelly, 2007; Duckworth & Quinn, 2009). In many other domains, world-class performers have been shown to acquire their skills through thousands of hours of solitary deliberate practice, effortful activities designed to improve performance (Ericsson, 2006, 2007, 2009; Ericsson, Krampe, & Tesch-Römer, 1993; Ericsson & Ward, 2007). Deliberate practice entails engaging in a focused, typically planned training activity designed to improve some aspect of performance. During deliberate practice, individuals receive immediate informative feedback on their performance and can then repeat the same or similar tasks with full attention toward changing inferior or incorrect responses, thus improving the identified area of weakness. In the current investigation, the expert performance approach is applied for the first time to a domain directly related to academic learning in children. In particular, we distinguish among three types of activities widely recommended by experienced competitive spellers, their parents, and coaches to improve spelling skill (Trinkle, Andrews, & Kimble, 2006). The first type of preparation is verbal leisure activities, including reading for pleasure and playing word games, in which spelling is of incidental importance (Logan, Olson, & Lindsey, 1989;

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Olson, Logan, & Lindsey, 1989). The second type of preparation activity involves being quizzed by another person or a computer program (Logan et al., 1989; Olson et al., 1989). The final type involves the solitary study of word spellings and origins, a category of preparation activity that meets the criteria for deliberate practice.

Solitary deliberate practice activities have been found in many other domains to be more effective than practice completed with other people (Ericsson, 2006). For example, the accumulated time that musicians have spent practicing alone during development is the best predictor of expert performance (Ericsson et al., 1993). Similarly, studying chess games by oneself improves chess skill more than playing games of chess with other people (Charness, Tuffiash, Krampe, Reingold, & Vasyukova, 2005). If solitary deliberate practice activities are more effective than alternative preparation activities in the domain of spelling, then what explains individual differences in the willingness to engage in them? After all, National Spelling Bee finalists have access to dictionaries and word lists and can thus engage in solitary study whenever they have free time. It has been hypothesized that working in solitude on challenges that exceed one's current skill level (e.g., memorizing words one does not already know) is more effortful and less enjoyable than other kinds of preparation activity (Ericsson et al., 1993). Thus, individuals who accumulate more hours of deliberate practice likely do so because they are committed to improving their performance, not because they find these hours of practice intrinsically rewarding.

Consistent with this prediction, prior research has shown that National Spelling Bee performance is associated with two personality traits: grit and openness to experience (Duckworth et al., 2007; Duckworth & Quinn, 2009). Spellers higher in grit—defined as the tendency to pursue long-term challenging goals with perseverance and passion—perform better at the National Spelling Bee, whereas spellers higher in openness to experience—defined as preferring using their imagination, playing with ideas, and otherwise enjoying a complex mental life—perform worse. If deliberate practice is indeed more effortful and less enjoyable than rival preparation activities, then we would expect grittier spellers to initiate and sustain more deliberate practice than that of their less gritty competitors. Thus, cumulative deliberate practice experience may mediate the association between final competition performance and the personality trait of grit. Likewise, if deliberate practice is not stimulating to spellers who prefer creative and novel intellectual experiences, then a lack of cumulative deliberate practice may explain why spellers higher in openness to experience perform worse in final competition (Duckworth & Quinn, 2009).

In the current investigation, we tested the following hypotheses in a longitudinal study of competitors in the 2006 Scripps National Spelling Bee:

- Time devoted to deliberate practice activities predicts spelling performance better than time being quizzed or time engaged in leisure reading.
- As spellers accumulate experience, they increasingly privilege deliberate practice over being quizzed when preparing for competition.
- Deliberate practice is more effortful and less enjoyable than being quizzed or engaging in verbal leisure activities.
- Grittier spellers are more likely to engage in deliberate practice, and their cumulative time devoted to this activity explains their superior performance.
- Spellers higher in openness to experience accumulate less deliberate practice, which explains their inferior performance in final competition.

Method

Participants

Of the 274 finalists in the 2006 Scripps National Spelling Bee, 190 participated in this study. The mean age of participants was 12.88 years ($SD = 1.07$); 47% were female. Participants did not differ from nonparticipants on age, gender, or spelling performance.

Procedure

Before the May 31 competition, all 274 finalists were mailed consent forms, self-report questionnaires, and prestamped return envelopes. Those who elected to participate in the study returned the questionnaires in April and May 2006.

Measures

Spelling performance. Performance was measured as the final round that participants achieved at the 2006 National Spelling Bee.

Grit. The personality trait of grit was assessed with the Short Grit Scale, an eight-item self-report questionnaire with established construct and predictive validity (Duckworth & Quinn, 2009). Participants endorsed items indicating consistency of passions (e.g., "I have been obsessed with a certain idea or project for a short time but later lost interest"; reverse-scored) and consistency of effort (e.g., "Setbacks don't discourage me") over time using a 5-point Likert-type scale (5 = *very much like me*, 1 = *not at all like me*). The observed internal reliability for the Short Grit Scale was $\alpha = .82$.

Openness to experience. Participants completed the Big Five Inventory (John & Srivastava, 1999), a 44-item questionnaire that includes 10 items assessing openness to experience (e.g., "I see myself as someone who has an active imagination," "I see myself as someone who likes to reflect, play with ideas") and is completed with a 5-point Likert-type scale (5 = *agree strongly*, 1 = *disagree strongly*). The observed internal reliability of the Big Five Openness to Experience subscale was $\alpha = .68$.

Cumulative deliberate practice and quizzing. Participants read the following prompt

> We want to make a distinction between study activities in which you study and memorize words alone and activities in which you are tested on your spelling by somebody who pronounces a word (including a computer program) and tells you whether you spelled it correctly.

Then they estimated their weekly engagement in these two types of activities for the previous 4 weeks.

A section of the questionnaire entitled "Longitudinal Development" asked participants to complete a table with estimates of the average hours per week spent studying in solitary or doing quizzing activities for each year in which they were regularly practicing spelling. We log transformed these variables before analyses to reduce their skew. Estimates of recent and cumulative lifetime study time were correlated, $r = .57$, $p < .001$, as were estimates of recent and cumulative lifetime quizzing time, $r = .55$, $p < .001$. To reduce multicollinearity and increase reliability, we created a composite score for cumulative deliberate practice by averaging standardized weekly and lifetime estimates of time spent studying alone. We followed an identical procedure to create a composite score for cumulative time being quizzed.

To validate questionnaire estimates for weekly practice, 59 participants were interviewed by phone, as selected among 152 who had volunteered contact information. This subsample of interviewed participants did not differ from the complete sample in composite studying time or time being quizzed (as reported in the questionnaire) or in final round achieved. At the start of each interview, participants were asked to estimate the time spent studying and being quizzed during the prior week. Although the questionnaire estimates of recent studying time and time being quizzed were made a month or two before the spelling bee, they were still significantly correlated with the interview estimates for the 2 weeks before the competition, $r = .46$ and .58, respectively, $p < .001$.

Leisure reading time. Participants answered three questions beginning with "About how many books (excluding textbooks) have you read from start to finish in . . . " and then indicating the "past week," "past month," or "past year." Responses to these items were skewed and highly correlated (average $r = .78$), so we log transformed, then standardized and averaged estimates to create composite scores for leisure reading time.

Attitudes toward verbal activities. Using 9-point Likert-type scales, participants rated 11 activities on the degree to which each was enjoyable, effortful, and relevant to improving performance in spelling bees. Deliberate practice was operationally defined with three items: "learning to spell new words from a list or Paideia by yourself,"[1] "reviewing words in your spelling notebook," and "studying word origins." Two other activities related to being quizzed: "spelling words pronounced by someone else (parent, coach, etc.)" and "typing words pronounced by a computer spelling program." Two items related to verbal leisure activities: "leisure reading (comic books, magazines, newspapers, novels, etc.)" and "playing word games." Finally, we included four reference activities (e.g., "eating your favorite food," "cleaning your room.") similar to those used in prior research (Ericsson et al., 1993). Enjoyment, effort, and relevance ratings were separately computed by averaging the ratings for deliberate practice, being quizzed, and verbal leisure activities.

Results

Prospective Associations Between Preparation Activities and Spelling Performance

Deliberate practice time predicted performance in final competition better than time being quizzed or leisure reading time. Because final round was ordinal, we fit ordinal regression models and standardized continuous predictors to facilitate interpretation of odds ratios (OR). In separate models predicting final round and controlling for age and gender, deliberate practice and time being quizzed were significant predictors, OR = 2.64, $p < .001$, and OR = 1.61, $p < .01$, respectively. In contrast, leisure reading time did not predict performance, OR = 0.99, $p = .97$.

Time devoted to deliberate practice and that to being quizzed were each highly correlated when controlling for age and gender (partial $r = .49$, $p < .001$). Leisure reading time was not related to time being quizzed (partial $r = .02$, $p = .82$) but was inversely correlated with deliberate practice time, partial $r = -.16$, $p < .05$. To estimate the unique variance in spelling performance explained by each type of preparation activity, we included all three as predictors in a simultaneous ordinal regression model predicting final round and controlling for age and gender. Deliberate practice time remained a significant predictor of performance, OR = 2.49, $p < .001$, but time being quizzed and leisure reading time did not, OR = 1.09, $p = .66$, and OR = 1.10, $p = .56$, respectively.

Because estimates of preparation experience were self-reported, one concern is that the observed associations with performance in final competition were affected by spellers' knowledge of the relative efficacy of these activities. In particular, it is possible that more expert spellers recognized deliberate practice activities as being more effective and therefore inflated their estimates of time devoted to such activities. To eliminate judged relevance of practice activities as a potential bias on reported engagement in each activity, we fit a simultaneous ordinal regression model predicting final round from the perceived relevance to improving spelling performance of each type of practice activity as well as time devoted to these activities. The predictive validity of deliberate practice (OR = 2.85, $p < .001$), being quizzed (OR = 1.27, $p = .25$), and verbal leisure activities (OR = 1.20, $p = .31$) was largely unchanged. In this model, the perceived relevance of verbal leisure activities predicted worse spelling performance (OR = 0.59, $p < .01$), but the rated relevance of deliberate practice (OR = 0.83, $p = .43$) and being quizzed (OR = 0.90, $p = .64$) did not.

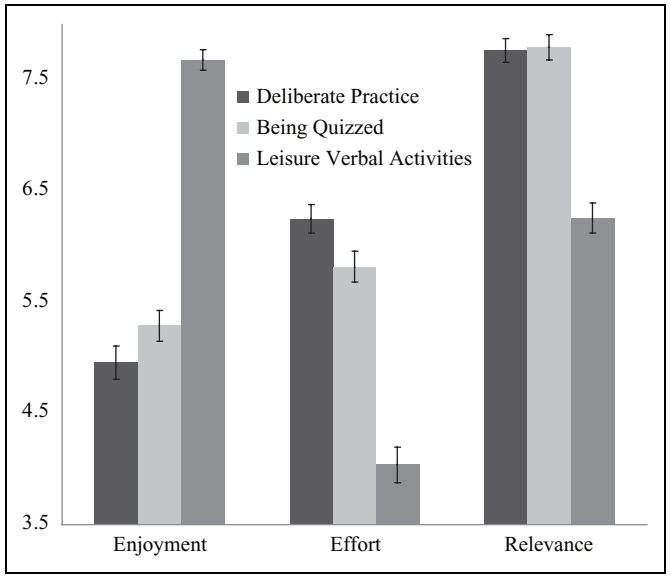

Figure 1. Ratings of enjoyment, effort, and relevance for deliberate practice, being quizzed, and verbal leisure activities.
Note: Error bars indicate one standard error of the mean.

Increases in Deliberate Practice With Experience

Early in their competitive spelling careers, spellers devoted more time to being quizzed than to deliberate practice, but over time, they increasingly favored deliberate practice over being quizzed to prepare for competition. An analysis of the 130 spellers who had been preparing for spelling bees for at least 3 years showed that 3 years before the 2006 competition, spellers spent an average of 78 hours per year in solitary deliberate practice, about 11% less than the 88 hours they spent being quizzed by others, paired-samples $t(129) = -2.52$, $d = -.22$, $p = .01$. Two years before the 2006 competition, these spellers spent an average of 113 hours per year in solitary deliberate practice, compared to 128 hours being quizzed by others, $t(129) = -1.91$, $d = -.16$, $p = .06$. In the year immediately before the 2006 competition, spellers spent an average of 226 hours per year in solitary deliberate practice, compared to 238 hours being quizzed by others, $t(129) = -0.94$, $d = -.10$, $p = .35$. Finally, in the month directly preceding the final competition, spellers spent an average of 9.9 hours per week in solitary deliberate practice, 31% more than the 6.8 hours per week they spent being quizzed by others, $t(129) = 3.40$, $d = .35$, $p = .001$.

To confirm this trend, we used hierarchical linear modeling to model within-individual trajectories of the proportion of time annually devoted to deliberate practice as opposed to being quizzed. Hierarchical linear modeling allowed for the inclusion of all spellers who provided data on their preparation activities for at least 1 year, $n = 183$. The average intercept was .42, $t(182) = 18.81$, $p < .001$, indicating that the average participant initially devoted 42% of preparation time to deliberate practice and 58% of time to being quizzed. The average slope of .02, $t(182) = 2.64$, $p < .01$, indicated that the average participant increased the proportion of preparation time devoted to deliberate practice by an incremental 2% each year.

Subjective Experience of Preparation Activities

The pattern of increasing deliberate practice with each year of competition experience was interesting given the subjective experience of such activities. As shown in Figure 1, a repeated-measures analysis of variance revealed a significant difference in how enjoyable spellers found deliberate practice, being quizzed, and verbal leisure activities, $F(1.91, 357.24) = 217.13$ $p < .001$. Post hoc paired-samples t tests confirmed that verbal leisure activities were rated more enjoyable ($M = 7.68$, $SD = 1.29$) than being quizzed ($M = 5.29$, $SD = 1.97$), $t(188) = 17.15$, $p < .001$. Being quizzed was in turn rated more enjoyable than deliberate practice ($M = 4.96$, $SD = 2.12$), $t(187) = 2.53$, $p = .01$. Figure 1 also illustrates a repeated-measures analysis of variance revealing a significant difference for effort ratings, $F(1.76, 330.86) = 101.62$, $p < .001$. Post hoc paired-samples t tests confirmed that verbal leisure activities were rated less effortful ($M = 4.04$, $SD = 2.21$) than being quizzed ($M = 5.82$, $SD = 1.95$), $t(188) = -10.57$, $p < .001$. Being quizzed was in turn rated less effortful than deliberate practice ($M = 6.25$, $SD = 1.78$), $t(188) = -3.28$, $p = .001$. Finally, a repeated-measures analysis of variance showed a significant difference in the perceived relevance of preparation activities to improving their spelling performance, $F(2, 376) = 86.34$, $p < .001$. Post hoc paired-samples t tests showed that verbal leisure activities ($M = 6.26$, $SD = 1.84$) were perceived by spellers as being less relevant than either deliberate practice ($M = 7.77$, $SD = 1.45$) or being quizzed ($M = 7.79$, $SD = 1.60$).

Deliberate Practice as a Mediator of Grit and Spelling Performance

Prior analyses demonstrated that the personality traits of grit and openness to experience each explained unique variance in performance in the 2006 National Spelling Bee[2] (Duckworth et al., 2007; Duckworth & Quinn, 2009). Specifically, grittier spellers performed better, whereas spellers higher in openness to experience performed worse. Using path analysis in MPlus 5, we fit a multiple-mediator model to assess which type of preparation activity accounted for these predictive relationships. We treated spelling rank as an ordered categorical variable. Because MPlus permits a maximum of 10 categories in ordered variables, we grouped spellers who reached the highest three rounds. In a model without the mediators, both grit (standardized effect = .22, $p = .008$) and openness to experience (standardized effect = –.22, $p = .013$) predicted spelling performance. The multiple-mediation model fit the data well, $\chi^2(2) = 1.57$, $p = .46$, comparative fit index = 1.00, root mean square error of approximation < .001. Table 1 presents the means, standard deviations, and correlations for the variables in the multiple-mediation model. As illustrated in Figure 2, grittier spellers accumulated more deliberate practice and more time being quizzed but not more leisure reading time. Deliberate practice time in turn predicted spelling performance, but time being quizzed and leisure reading time did not. A test of the specific indirect effect confirmed that time in deliberate

Table 1. Means, Standard Deviations, and Correlations of Variables in the Mediation Model

Measure	*M*	*SD*	1	2	3	4	5	6	7
1. Spelling performance	3.13	2.05	—						
2. Grit	3.44	0.78	.17*	—					
3. Openness to experience	3.99	0.55	–.11	.17*	—				
4. Deliberate practice	0.00	1.00	.31***	.30***	–.04	—			
5. Being quizzed	0.00	1.00	.19**	.17*	.07	.49***	—		
6. Leisure reading	0.00	1.00	–.01	–.04	.09	–.07	.05	—	
7. Gender[a]	0.47	0.50	.02	.09	.05	.14	.12	.35***	—
8. Age	12.88	1.07	–.05	–.01	.03	–.10	.03	–.14	.11

[a] The mean of this variable multiplied by 100 represents the percentage of girls.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

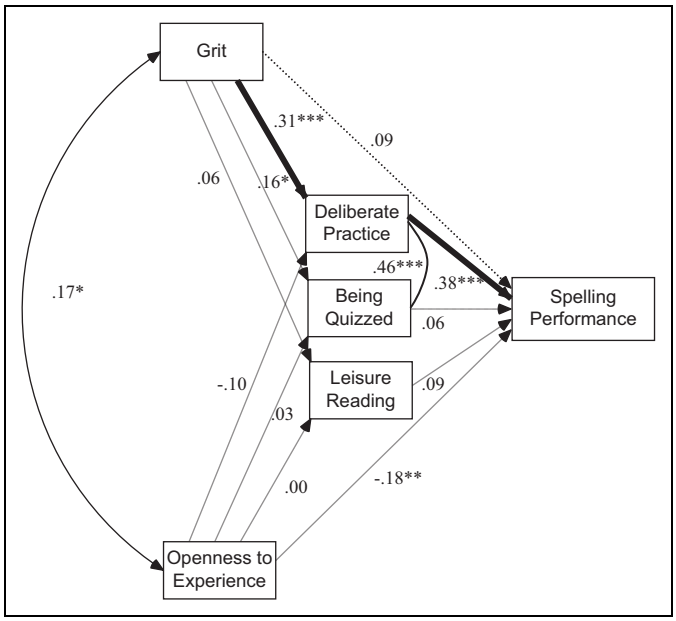

Figure 2. Deliberate practice, being quizzed, and leisure reading time as a function of grit.
Note: Associations with the covariates of gender and age are not shown.
*$p < .05$. **$p < .01$. ***$p < .001$.

practice mediated the effect of grit on spelling performance, indirect effect = 0.15 (bias-corrected bootstrapped 95% confidence interval = 0.08, 0.29). In contrast, there was no evidence that the inverse association between openness to experience and spelling performance was mediated by any of the three types of preparation activity measured in this study.

Discussion

Our major findings in this investigation are as follows: Deliberate practice—operationally defined in the current investigation as the solitary study of word spellings and origins—was a better predictor of National Spelling Bee performance than either being quizzed by others or engaging in leisure reading. With each year of additional preparation, spellers devoted an increasing proportion of their preparation time to deliberate practice, despite rating the experience of such activities as more effortful and less enjoyable than the alternative preparation activities. Grittier spellers engaged in deliberate practice more so than their less gritty counterparts, and hours of deliberate practice fully mediated the prospective association between grit and spelling performance. Contrary to our prediction, we did not find evidence that the inverse association between the trait of openness to experience and spelling performance was mediated by any of the three preparation activities measured in this study.

The current study had at least two important limitations. First, we relied on spellers' retrospective self-reported estimates of time devoted to deliberate practice and being quizzed. The strong association between these estimates and separate estimates from a subsample of spellers interviewed by phone provides some evidence for their reliability. Moreover, the significant variance in final competition performance explained by these estimates offers evidence of their validity. However, it is possible that spellers' estimates were biased by their recognition that deliberate practice was more effective. Against this possibility, on average, spellers rated deliberate practice activities and being quizzed as being equally relevant to improving spelling bee performance. Furthermore, associations between spelling performance and time devoted to various practice activities were largely unchanged when controlling for spellers' ratings of the relevance of these activities for improving their skill. This finding implies that the more successful spellers did not differ from less successful ones with respect to their insights into whether quizzing or study alone were more relevant for improving spelling performance. Nevertheless, future studies should employ experience sampling methodology or diary measures rather than retrospective self-report measures to obtain more reliable, unbiased estimates of relevant preparation activities.

A second limitation is that we did not collect data that thoroughly explored the potential contribution of being quizzed to spelling performance. A large literature demonstrates that being tested on material improves later retention (Roediger & Karpicke, 2006). In our investigation, time spent being quizzed by others predicted spelling performance, but this association

was reduced to nonsignificance when entered simultaneously with time spent in deliberate practice. One possibility is that being quizzed, which spellers enjoy more and find less effortful than solitary study, plays an important motivational role. Indeed, our findings are consistent with a narrative in which the association between time being quizzed and final performance is fully mediated by deliberate practice. In addition, effective solitary study and learning may involve some form of self-testing (Karpicke, Butler, & Roediger, 2009). For instance, spellers might use flashcards during solitary study or cover up words, attempt to spell them, and then uncover the words to check their accuracy. Finally, being quizzed by others should provide spellers with specific feedback (e.g., the identification of areas of weakness) and general feedback on the overall effectiveness of their study methods. Both kinds of feedback should improve the quality of subsequent deliberate practice activities. The current investigation was underpowered to identify an interaction between time spent in deliberate practice and time being quizzed. Clearly, an important avenue for future research is the exploration of the likely complex and dynamic relations between the quality and amount of deliberate practice and testing in the acquisition of superior academic skills.

In a series of essays entitled *Talks to Teachers*, William James (1899) opined that the "processes of verbal memorizing," like

> most schoolroom work, till it has become habitual and automatic, is repulsive, and cannot be done without voluntarily jerking back the attention to it every now and then . . . It flows from the inherent nature of the subjects and of the learning mind. (pp. 108–109)

Consistent with this sober view of the learning process, the most effective preparation activities for developing spelling skill were perceived by spellers as more effortful and less enjoyable than alternative preparation activities.

Prior research has demonstrated that more successful middle school students choose more difficult learning tasks as compared to their less successful peers, who choose easier learning tasks (Owings, Petersen, Bransford, Morris, & Stein, 1980; for a more general review, see Bransford, Brown, & Cocking, 1999). If more effortful and less enjoyable preparation activities more efficiently develop academic skills, then perhaps it is not surprising that homework time does not reliably predict academic achievement for children in elementary school (Cooper, Robinson, & Patall, 2006) but that study time does reliably predict academic achievement when the quality of study activity is taken into consideration (Plant, Ericsson, Hill, & Asberg, 2005; Trautwein, 2007; Trautwein & Ludtke, 2007). The current findings suggest that teachers should distinguish between more and less effective academic preparation activities. Offering opportunities for deliberate practice of academic skills has the potential for dramatically improving student performance (Kellogg & Whiteford, 2009). The present investigation suggests an additional, cautionary note, however: Deliberate practice is more effortful and less enjoyable than less effective forms of academic preparation; thus, less gritty students, who are dispositionally less inclined to sustain long periods of deliberate practice, might benefit from learning self-regulatory strategies, including goal setting and planning techniques (Gollwitzer, 1999; Mischel & Mendoza-Denton, 2003; Oettingen & Stephens, 2009). Such metacognitive strategies have been shown to facilitate the effort of college students (Oettingen, Barry, Guttenberg, & Gollwitzer, 2009), high school students (Duckworth, Grant, Loew, Oettingen, & Gollwitzer, in press), middle school students (Duckworth, Kirby, Gollwitzer, A., & Oettingen, 2010), and possibly even much younger children (Patterson & Mischel, 1975) toward long-term goals whose benefits are not immediate.

In sum, whereas there is surely some truth to the adage that champions pursue "what they love," our investigation suggests that the solitary practice required to excel is more effortful and less enjoyable than rival pursuits. This finding is consistent with qualitative interviews of a small number of spelling bee participants (Guo, 2007). The winner of the 2006 National Spelling Bee, for example, was a young girl who had steadily improved her final ranking during 5 consecutive years of competition. By her 4th year, a journalist observed that she "does more word study by herself. She works with numerous spelling study guides, makes lists of interesting words from her reading, and labors her way through the dictionary" (Maguire, 2006, p. 222). Immediately before her fifth, victorious year, she said, "I'm trying to learn words off the regular list, to learn more obscure words that have a chance of coming up.. .. I'm studying as hard as I can for my last year—to go for it" (p. 360). Our investigation suggests that this young victor's flawless march through the words *tmesis*, *izzat*, *kanone*, *aubade*, *psittacism*, *recrementitious*, *clinamen*, *hukilau*, *Shedu*, *towhee*, *synusia*, *cucullate*, *terrene*, *Bildungsroman*, *chiragra*, *Galilean*, and *gobemouche* in the final competition was made possible by tremendous passion and perseverance for the long-term goal of becoming the best speller in the nation. Such grit facilitated 5 years of very effortful—and not particularly enjoyable—deliberate practice.

Notes

1. The Paideia was the official study booklet of the Scripps National Spelling Bee in 2006.
2. None of the other Big Five factors (i.e., Agreeableness, Conscientiousness, Extraversion, and Neuroticism) accounted for unique variance in spelling performance, whether Grit was included in the model or not (see Table 10 in Duckworth & Quinn, 2009).

Declaration of Conflicting Interests

The authors declared no potential conflicts of interests with respect to the authorship and/or publication of this article.

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