

# Effort and Enjoyment in Deliberate Practice: A Research Note

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## Introduction

All activities we undertake in our personal and professional lives require some amount of effort, be it cognitive, physical, or motivational effort; and at the same time, all activities provide different degrees of enjoyment. Sometimes an activity might be more fun to engage in because of the mere act of performing it; sometimes it is the likely outcome that entices us. Thus effort and enjoyment are central aspects to all our behaviors.

The most time-consuming activity in musicians' lives is practicing a musical instrument. The anecdotal literature abounds with first-hand experiences of the intense love-hate relationships professional musicians maintain with this time-devouring activity of practicing. While some musicians downplay its vital role in the acquisition of expert skills, others emphasize its importance. The violin teacher Auer calls it “mental labour” (Auer, 1921/1980:14), while a more recent pedagogue talks of practicing as a type of “commitment to yourself to improve by developing skills from lesson to lesson” (Snitkin, 1997:11). “Tackling the monster” is the title of an educational video on practicing by Wynton Marsalis (1995). A collection of opinions from famous pianists about practice can be gleaned from a recent book by Chaffin, Imreh and Crawford (2002): “Claudio Arrau and Janina Fialkowska claim that practicing is 'fun', while John Browning compares it to dishwashing. Others – Lazar Berman and Jorge Bolet – say they dislike it” (p. 43). Given that the statements quoted were mostly made during interviews, it is unclear how much they can be trusted, especially those that seemingly contradict common sense. Yet most musicians agree that practice is oftentimes not exactly about having a great time.

The aim of this short research note is to show the interdependence of effort, enjoyment, and relevance for a number of activities, some of which are musically relevant while others belong to the domain of everyday life. We will report on a small replication of part of a larger study on deliberate practice (Ericsson, Krampe and Tesch-Römer, 1993). Our results are based on a survey study using advanced music students as subjects. It is not our goal to get into the intricate motivational

issues surrounding practicing, nor to question whether or not practice can be enjoyable, nor to review literature on practice (e.g., Hallam, 1997; Jørgensen, 1997) and expert performance (e.g., Ericsson and Lehmann, 1996). We will simply study a central assumption of expertise research in music, namely, that effort and enjoyment may be negatively correlated.

## **Effort, enjoyment, and relevance ratings of practice**

In their initial papers Ericsson, Krampe and Tesch-Römer (1993) introduced the concept of deliberate practice to explain individual differences in expert performance. This concept has proven to be quite influential in many domains of expertise, particularly in sports (Ericsson, in press). In their 1993 paper, the authors predicted that experts would consider deliberate practice an activity "rated very high on relevance for performance, high on effort, and comparatively low on inherent enjoyment" (Ericsson et al., 1993:373). A more recent definition states that deliberate practice is a

Structured activity, often designed by teachers or coaches with the explicit goal of increasing an individual's current level of performance. In contrast to work and play, it requires the generation of specific goals for improvement and the monitoring of various aspects of performance. Furthermore, deliberate practice involves trying to exceed one's previous limits, which requires full concentration and effort. Consequently, it is only possible to engage in these activities for a limited amount of time until rest and recuperation are needed. (Ericsson and Lehmann, 1999:695).

Ericsson et al. (1993) asked their subjects to rate a number of activities (i.e., practice alone, musical activities, everyday activities) with regard to the relevance for improving performance, the effort required to perform the activity, and how enjoyable it was to engage in the actual activity regardless of its outcome. The results can be seen in Table 1. Deliberate practice (practice alone) was highest on effort after performing and taking lessons, but lower on the enjoyment component (pleasure) than the aforementioned activities. It was also highest on relevance which speaks to its importance for skill acquisition.

Practice alone was rated as a single activity, while in fact it consists of a wide variety of specialized activities geared toward learning pieces initially, polishing them for performance, memorizing them, and finally maintaining them as part of one's repertoire. In an attempt to expand on the 1993 study, the present study used several

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*Table 1. Mean Relevance, Effort, and Pleasure Ratings for 12 Music-Related and 10 Everyday Activities Collapsed Over Three Groups of Young Expert Violinists.<sup>1</sup>*

Activities	Relevance	Effort	Pleasure
Music related			
Practice (alone)	9.82 H	8.00 H	7.23
Practice (with others)	8.73 H	6.97 H	7.57
Playing for fun (alone)	5.67	3.27 L	8.33 H
Playing for fun (with others)	6.67	3.93	8.60 H
Taking lessons	9.63 H	8.60 H	7.67
Giving lessons	7.03	7.51 H <sup>a</sup>	6.79 <sup>a</sup>
Solo performance	9.03 H	9.80 H	7.28 <sup>a</sup>
Group performance	7.67 H	8.14 H <sup>a</sup>	8.07 H
Listening to music	8.33 H	4.38 <sup>a</sup>	8.38 H
Musiv theory	7.63 H	6.37 H	6.07
Professional conversation	6.50	4.33	6.40
Organization and preparation	2.90 L	4.70	1.53 L
Everyday			
Household chores	1.80 L	2.23 L	3.63 L
Child care	2.64 L <sup>b</sup>	6.14 <sup>b</sup>	6.43 <sup>b</sup>
Shopping	0.77 L	2.80 L	3.97 L
Work (not music related)	1.79 L <sup>b</sup>	5.56 <sup>c</sup>	3.74 L <sup>c</sup>
Body care and health	4.90	1.43 L	5.23
Sleep	8.17 H	0.47 L	7.70
Education (not music)	4.52 <sup>a</sup>	5.45 <sup>a</sup>	7.17 <sup>a</sup>
Committee work	1.93 L <sup>a</sup>	5.55 <sup>a</sup>	5.07 <sup>a</sup>
Leisure	6.30	3.00 L	8.93 H
Sports	6.07	2.67 L	7.07
Grand mean	5.89	5.03	6.52

*Note.*  $N = 30$ , unless shown with a superscript. (Some subjects could not make their ratings because of a lack of familiarity with the activity in question.) The grand means over all activities and information about the significant deviation from the grand mean is given based on post hoc analyses using Bonferroni's method. The statistical test is conservative as the grand mean includes the ratings for the particular activity in the respective comparison. H = significantly higher than grand mean; L = significantly lower than grand mean.

<sup>a</sup>  $N = 29$ . <sup>b</sup>  $N = 28$ . <sup>c</sup>  $N = 27$ .

items to assess the enjoyment and effort of deliberate practice in music performance.

In their studies in sports with skaters and wrestlers, Starkes, Deakin, Allard, Hodges and Hayes (1996) wanted to test the applicability of some aspects of the deliberate practice concept in sports. Among other things, they presented a list of different types of activities to their subjects who were asked to rate those activities in terms of effort, relevance (for the improvement of skill), enjoyment, and concentration. The activities chosen covered a number of "practice alone" or "practice with others" activities, other domain-related activities, and everyday activities. The authors found strong support for the notion that relevance and effort are associated, but did not find a negative association between effort and enjoyment.

To gain a closer insight into the relation between effort and enjoyment, we correlated the effort and enjoyment scores published in Starkes et al. (1996:97 for the figure skaters and p. 85 for the wrestlers). For the figure skaters the correlation was positive,  $r(12) = .25$  (not significant), whereas for the wrestlers it was negative,  $r(26) = -.28$  (also not significant). However, when the correlation is calculated for practice activities only, it becomes positive for the wrestlers as well ( $r[15] = .33$ , n.s.), meaning that effortful activities tended to be enjoyable. Although the correlations are not reliable due to the small number of items, they suggest a positive association between the effort invested in skill-building behaviors and the enjoyment derived from them. This pattern of results is at odds with the description of deliberate practice stated earlier, and Starkes et al. (1996:99) commented on this inconsistency. They noted the high positive correlation between relevance and effort and the absence of a high relevance/low enjoyment correlation. The authors reconcile the results by claiming that effortful activities may still be experienced as being enjoyable when they are perceived as relevant – i.e. the more they resemble the actual performance situation.

In a recent paper surveying methods for investigating expert performance in sports (Cote, Ericsson and Beamer, 2002), the authors criticize the apparently low re-test reliability and the difficulties of validating such ratings of effort, enjoyment, and concentration. They suggested that the aggregation of ratings over long periods of time for different activities may be difficult for the athletes. For example, it is possible that some training activity may be more enjoyable compared to another activity at some point in the skill development while it may be less so later. In music practice, memorizing music could be perceived as extremely tedious by some beginners, whereas experienced memorizers may find it challenging and fun. Thus, the ratings would depend on which specific instance an athlete recalls at the time of providing the rating. Cote et al. suggest asking for ratings of effort or enjoyment in close temporal proximity to the activity they refer to, for example right after its termination. In the present study, no attempt

was made to address this issue; however, the instructions given referred to the present time rather than asking subjects to aggregate ratings over their life times.

The study reported here looked at the high effort/high relevance and high effort/low enjoyment predictions made by Ericsson et al. (1993). However, given the evidence presented by Starkes et al. (1996), we might also expect to find that some activities resembling typical performance conditions would be more enjoyable than other activities.

## Method

A short survey was designed in which subjects were asked to rate a number of activities with regard to four aspects, hereafter referred to as attributes: (a) how much effort is involved in performing the activity? (b) how much enjoyment does the activity elicit? (c) how much concentration is necessary to engage in the activity? (d) and how relevant is the activity with regard to the improvement of one's level of musical performance? Of the 15 activities listed on the survey, six were concerned with aspects of deliberate practice (memorizing repertoire, performance preparation, playing through familiar repertoire, working on trouble spots, technical practice, learning new repertoire); three other activities were related to musicians' daily lives (doing library work, playing a concert as a soloist, doing homework for the music theory lesson); and five were non-musical, everyday activities (cleaning the house, sleeping, helping friends to move, going out to eat, exercising). The ratings were made using a bipolar five-point scale, anchored by verbal opposites such as "not effortful – very effortful."

Subjects in this small study were 26 undergraduate music students from an introductory music education class at a German music academy. Roughly two thirds of the respondents were female. All but one person were first year students. Having passed a demanding entrance audition, the subjects were proficient players of different instruments (including voice), studying music at the academy with the goal of becoming either private music teachers or orchestra musicians. The instructions on the survey stated clearly that all musically relevant questions ought to be answered with reference to the participants' primary instruments (including voice). The subjects who had volunteered to participate completed the survey within 30 minutes in a classroom situation.

## Results

### Interrelation among aspects of performance

The first analysis concerns the relation among the attributes effort, enjoyment, relevance, and concentration for the different types of activities. The first table (Table 2a) shows the correlations across all activities and subjects, the following two tables represent the types of activities, separated for practice behaviors and all other activities (see Tables 2b and 2c).

*Table 2a. Intercorrelations of effort, enjoyment, concentration, and relevance ratings collapsed across 14 different activities. All 26 subjects rated the different activities.*

	Effort	Enjoyment	Concentration
Effort			
Enjoyment	-.336 **		
Concentration	.492 **	.117 *	
Relevance	.152 **	.279 **	.538 **

\*  $p < .01$ ; \*\*  $p < .05$ ;  $df = 181$

A reliable negative correlation exists between effort and enjoyment, while all other correlations are positive. Reliable correlations exist for relevance and effort and between relevance and concentration. This pattern of results is not surprising and confirms Ericsson et al.'s contention about the negative relationship between effort and enjoyment. At the same time, the correlation between relevance and effort replicates Starkes et al.'s findings.

The next table (Table 2b) shows the correlations for deliberate practice activities only. The correlations remain roughly the same, although some correlations drop slightly due to the fact that low effort and concentration activities from the everyday domain have been eliminated. Still, relevance is positively correlated with concentration and effort. Effort and enjoyment are still negatively correlated.

The final table (Table 2c) in this section shows the correlations for all other activities collapsed across musical and everyday activities. Effort tends to be positively associated with concentration, but not with enjoyment. When we analyze

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separately those musical activities that are not deliberate practice, the correlation between enjoyment and efforts drops to near zero. This is most likely due to the fact that performing a concert is included in the category of non-deliberate practice activities, and that performing a concert is perceived both as highly effortful and enjoyable.

*Table 2b. Intercorrelations of effort, enjoyment, concentration, and relevance ratings collapsed across 6 deliberate practice activities. All 26 subjects rated the different activities.*

	Effort	Enjoyment	Concentration
Effort			
Enjoyment	-.390 **		
Concentration	.309 **	.007 n.s.	
Relevance	.198 **	.094 n.s.	.518**

\*  $p < .01$ ; \*\*  $p < .05$ ;  $df = 78$

*Table 2c. Intercorrelations of effort, enjoyment, concentration, and relevance ratings collapsed across 8 non-practice activities including everyday activities. All 26 subjects rated the different activities.*

	Effort	Enjoyment	Concentration
Effort			
Enjoyment	-.363 **		
Concentration	.467 **	.125 n.s.	
Relevance	.041 n.s.	.353 **	.320 **

\*  $p < .01$ ; \*\*  $p < .05$ ;  $df = 104$

Table 3. Mean enjoyment, effort, concentration, and relevance ratings for music-related and everyday activities.

Activities	Enjoyment	Effort	Concentration	Relevance
Practice-related				
Memorizing	3,20	3,80	4,50 H	4,40 H
Study new repertoire	4,20 H	3,90 H	4,50 H	4,70 H
Playing familiar repertoire	4,00	3,00	3,90	4,00
Practicing performance	4,00	3,30	4,60 H	4,35 H
Problem spot practice	2,65 L	4,50 H	4,80 H	4,80 H
Technical practice	3,80	3,50	4,35 H	4,70 H
Everyday				
Cleaning house	2,50 L	3,00	2,30 L	1,70 L
Exercising	3,30	3,30	2,90	3,40
Help friends move	3,30	3,85 H	2,40 L	1,35 L
Restaurant visit	4,10	1,50 L	2,00 L	2,20 L
Sleeping	4,30 H	1,10 L	1,20 L	4,50 H
Musical, not practice				
Doing music theory homework	2,50 L	3,40	3,80	3,50
Going to the library	3,40	2,35 L	2,70 L	2,80 L
Playing a concert	4,40 H	4,50 H	4,90 H	4,80 H
Grand mean				
	3,54 (SD=1,19)	3,20 (SD=1,41)	3,50 (SD=1,42)	3,70 (SD=1,47)

N = 26. H = significantly higher than grand mean, L = significantly lower than grand mean (both at  $p < .05$  after Bonferroni correction).

In sum, our analysis of the correlations among the perceived attributes of activities confirms the expertise contention that increasing effort is associated with decreasing enjoyment in an activity, and this finding holds true for deliberate practice and everyday activities. Let me mention again that the practice activities chosen did not include lesson taking, performing in front of an audience or any extra-musical activities.



## **Ratings of individual activities on relevance, enjoyment, effort, and concentration**

The next analysis looks at the ranking of activities on the attributes (relevance, enjoyment, effort, and concentration). Like other authors (Ericsson et al., 1993; Starkes et al., 1996), we compared each activity's mean rating to the grand mean of all activities on a particular attribute. To control for the 14 tests performed for each performance aspect, a Bonferroni correction was applied. Here, we are interested in what activities are rated significantly higher or lower than the grand mean. Those activities are indicated with H (meaning higher) and L (meaning lower) respectively in Table 3.

Significantly higher than the grand mean on the effort scale were activities such as helping friends move, learning new repertoire, working on problem spots, and playing a concert; low on the effort scale were sleeping, visiting a restaurant, and going to the library. High on the concentration scale were playing a concert and all practice activities (except playing through familiar pieces); low on concentration were sleeping, going to the restaurant, cleaning the house, helping friends move, and going to the library. It appears that the effort attribute also entails a physical component that is common in everyday life and is also present in extremely demanding cognitive activities that may evoke anxieties. Conversely, the concentration aspect dominates deliberate practice, while everyday activities are mostly void of this demand. Thus, both rating scales (effort, concentration) capture the personal cognitive involvement, and practice activities and playing concerts are rated highly on both scales.

High on the relevance scale were all deliberate practice activities (except for playing through familiar pieces), playing a concert, and sleeping; the lowest scores on the relevance scale were awarded to helping friends move, cleaning the house, going to a restaurant, and going to the library. Almost all musical activities were ranked higher than average on the relevance scale, while non-musical activities (including going to the library) ranked lower in their relevance for improving performance. This pattern of result was expected and adds validity to our findings.

The high points of enjoyment were studying new repertoire, sleeping, and playing a concert; contrarily, the lowest ratings were given to cleaning the house and doing music theory homework. It is clear that highly positive and negative feelings are associated with certain activities despite the sometimes bothersome side-effects of highly stressful activities such as a solo performance or the positive end results of a thorough house-cleaning.

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## Discussion

As we expected, the deliberate practice activities were considered to be effortful, requiring high levels of concentration, and were deemed relevant for the advancement of musical skills. Furthermore, they were not rated especially high on the enjoyment scale. However, learning new repertoire was considered enjoyable, which certainly has to do with the initial excitement and novelty of a piece. Once the piece has been initially surveyed, the hard work of practicing it to perfection begins.

It is worth noting that playing through familiar repertoire, a practice activity that was listed because it is so similar to the activity of performing in front of an audience, was considered of average relevance. Thus, it seems to be the most middle-of-the-road thing to do in terms of the rated attributes. Casual observations suggest that it is one of the most frequent and time-intensive activity in the practice room, while working on problem spots is often not given due attention although this is the most effortful and probably most effective activity. As a matter of fact, McPherson and Renwick (2001) found that beginning music students' practice often consisted solely of playing through pieces. At higher levels of skill this "playing through" may result from the desire to "intoxicat[e] himself with the sheer pleasure of his own digital velocity" (Auer, 1921/1980:14), but it prevents the musician from listening to him or herself, detect inaccuracies and correct them. It is fair to assume that the latter may not be the goal while engaging in this behavior. At lower levels of performance "playing through" may well be triggered by the enthusiasm with which novices approach making music, but it could also be a result of the lack of self-regulation during practice that is typical for beginners.

The musical activity in our list that was closest to the professional activities of musicians was "performing a concert as a soloist." This activity was considered highly effortful but also highly enjoyable. It is probably while performing as a soloist that already mastered skills are applied in a challenging setting in which not the skill itself is the focus of attention but the artistic intentions and their communication. The performance in front of an audience would then be the most likely situation for optimal and "flow" experiences (Csikszentmihalyi, 1990).

Sleeping is an interesting everyday behavior because of its curious relation to more effortful skill building activities. In Ericsson et al.'s study (1993), sleep ranked among the most relevant activities for improving performance, presumably because it helps restore the attention required for effective practice, yet its effort score is the lowest. Consequently, the participants in Ericsson et al.'s study tended to nap in the middle of the day after morning practice and before engaging in a later afternoon practice bout. Sleep was also rated the least effort and concentration

requiring activity in this present study, yet it was considered high in terms of its necessity for improving performance and enjoyment.

The limits of this study are due to the survey methodology employed, which does not offer enough possibility to validate the ratings; however, there may be ways of assessing the effort and enjoyment of specific training activities in future studies. As Cote et al. (2002) point out, activities could be rated directly after their termination using diaries. Also, high and low achieving novices could be videotaped, the recordings analyzed for divergent practice behaviors, and the results correlated with effort and enjoyment ratings. Much progress has been made in research on practice over the last few years (e.g., Bastian, 1991; Chaffin, Imreh and Crawford, 2002; Jørgensen, 1997; 2002; McPherson and Renwick, 2001; Nielsen, 1999; Williamon and Valentine, 2000), and we expect the literature to continue growing fiercely using a variety of research methods.

In summary, as a cognitive activity involving problem solving and memory skills, deliberate practice requires attention and is limited to a certain amount per day, probably around 4 to 5 hours for adults (Ericsson et al., 1993; Ericsson and Lehmann, 1996). As a self-selected activity of high aesthetic appeal, playing an instrument is likely to be accompanied by strong feelings and identification on the part of the performer, and it may also provide positive experiences. It is because of this that practice time is likely to be divided in more and less effortful and enjoyable parts. While it appears that practice may comprise effort and fun, we would argue that the more tedious and inherently less enjoyable aspects of practice are those that actually improve the musician's performing skills. Those are the ones that can truly be labeled "deliberate practice." Conversely, the more enjoyable parts are likely to serve motivational goals rather than functioning solely to improve the skill. Only microanalyses of practice would reveal how those parts alternate during practice. My hypothesis would be that the two types of activities engage in a complex turn-taking.

I am tempted to speculate, and published results seem to support this conjecture, that individuals who favor the enjoyment component and thus chose overwhelmingly practice activities that require less effort and concentration eventually end up being the less skilled players and music students, because they miss out on the central benefits of deliberate practice, namely the improvement of performance. Conversely, those individuals who invest the effort at the expense of enjoyment, for example, by solving musico-technical problems during their practice sessions may become more proficient. This hypothesis could be validated by analyzing video tapes of subjects practicing and relating their practice behavior to their quality of performance.

That experienced teachers are aware of this trade-off between fun and hard work becomes obvious in Leopold Mozart's violin method where he

writes with brutal pedagogical honesty: “Hier sind die Stücke zur Übung. Je unschmackhafter man sie findet, desto mehr vergnügt es mich: also gedachte ich sie wenigst zu machen” [Here are the pieces for practice. The less enjoyable one finds them, the more I rejoice: this is how I intended to make them] (Mozart, 1756/1995:90).

## Note

<sup>1</sup> From “The role of deliberate practice in the acquisition of expert performance,” by K. A. Ericsson, R. T. Krampe and C. Tesch-Römer, 1993, *Psychological Review*, 100(3), 374. Copyright 1993 by APA. Reprinted with permission.

## References

- Auer, L. (1980) *Violin playing as I teach it*. New York: Dover (original work published in 1921).
- Bastian, H. G. (1991) *Jugend am Instrument*. Mainz: Schott.
- Chaffin, R., Imreh, G. and Crawford, M. (2002) *Practicing perfection*. Mahwah, NJ: LEA.
- Cote, J., Ericsson, K. A. and Beamer, M. (2002) *Tracing the development of elite athletes using retrospective interview methods: A proposed interview and validation procedure for reported information*. Unpublished manuscript, submitted.
- Csikszentmihalyi, M. (1990) *Flow: The psychology of optimal experience*. New York: Harper and Row.
- Ericsson, K. A. (in press) The development of elite performance and deliberate practice: An update from the perspective of the expert-performance approach. In: J. Starkes and K. A. Ericsson (Eds.) *The development of elite athletes: recent advances in research on sport expertise*. Champaign, IL: Human Kinetics.
- Ericsson, K. A. and Lehmann, A. C. (1996) Expert and exceptional performance: Evidence for maximal adaptations to task constraints. *Annual Review of Psychology*, 47, 273-305.
- Ericsson, K. A. and Lehmann, A. C. (1999) Expertise. In: M. A. Runco and S. Pritzker (Eds.) *Encyclopedia of Creativity*, Vol. 1, pp. 695-707. New York: Academic Press.

- Ericsson, K. A., Krampe, R. T. and Tesch-Römer, C. (1993) The role of deliberate practice in the acquisition of expert performance. *Psychological Review*, 100(3), 363-406.
- Hallam, S. (1997) Approaches to instrumental music practice of experts and novices: Implications for music education. In: H. Jørgensen and A. C. Lehmann (Eds.) *Does practice make perfect?*, pp. 89-108. Oslo: Norges musikkhøgskole.
- Jørgensen, H. (1997) Time for practising? In: H. Jørgensen and A. C. Lehmann (Eds.) *Does practice make perfect?*, pp. 123-140. Oslo: Norges musikkhøgskole.
- Jørgensen, H. (2002) Instrumental performance expertise and amount of practice among instrumental students in a conservatoire. *Music Education Research*, 4(1), 105-119.
- Marsalis, W. (1995) *Marsalis on Music: Tackling the monster*. New York: Sony Music [VHS Video].
- McPherson, G. and Renwick, J. (2001) A longitudinal study of self-regulation in children's musical practice. *Music Education Research*, 3(2), 169-186.
- Mozart, L. (1995) *Versuch einer gründlichen Violinschule*. Kassel, Germany: Bärenreiter. (Ed. by G. Moens-Haenen; originally published 1756 in Augsburg).
- Nielsen, S. G. (1999) Learning strategies in instrumental music practice. *British Journal of Music Education*, 16, 275-291.
- Snitkin, H. (1997) *Practicing for young musicians*. Niantic, CT: HMS Publications.
- Starkes, J. L., Deakin, J. M., Allard, F., Hodges, N. J. and Hayes, A. (1996) Deliberate practice in sports: What is it anyway? In: K. A. Ericsson (Ed.) *The road to excellence*, pp. 81-106. Mahwah, NJ: Erlbaum.
- Williamon, A. and Valentine, E. (2000) Quantity and quality of musical practice as predictors of performance. *British Journal of Psychology*, 91, 353-376.