

Instrumental learning: is an early start a key to success?

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The question of when it is convenient to start with vocal and instrumental lessons is a much-debated issue. This article studies a group of conservatoire students and looks at the relationship between their current level of vocal and instrumental performance and the age when they started formal lessons. It concludes that, for the whole student population, those with highest grades started earlier. Looking at separate instruments, however, we see both a positive and a negative relationship between an early start and a high level of performance in the conservatoire. Additionally, there are large differences between students. The findings are discussed in the context of expertise theory.

Introduction

'If you want to reach a high level of instrumental performance, you have to start early.' A young person aspiring for a professional career in music is likely to hear advice like this from instrumentalists and instrumental teachers. Experience tells us that there is a lot of truth in this opinion, and recent research supports it. This article will describe a theory that has given special attention to this problem, expertise theory, and give an overview of relevant research, followed by a description of an investigation addressing this issue, with information from students in a Norwegian conservatoire.

Who are the experts?

In expertise theory and research the fundamental question is: What are the characteristics of the learning processes and learning contexts of people that have become experts in their chosen domain? Is it possible to find common features in the learning history of all these experts in physics, chess, swimming, piano performance etc. that can account for their excellence? The answer from these researchers is 'yes'. Among the strongest adherents to the expertise view are Ericsson (1997) and his colleagues. They have for the last ten years emphasized that expertise is the end result of an extended period of study dominated by what they call 'deliberate practice'. This level of performance is usually reached when a person has gone through several phases of development. When Ericsson, Krampe & Tesch-Römer (1993) summarized expertise research, they proposed a development through four stages from novice to expert. In phase III students are studying with acknowledged experts in a music school, and phase IV is the period after graduation, where the level of expertise shows itself through outstanding performance. More specifically, in vocal and instrumental performance, expertise 'involves mastery of established techniques and polished interpretations of musical works' (Krampe & Ericsson, 1995: 97).

Deliberate practice is this theory's concept for 'practice quality' or 'efficient practice'. It is 'a highly structured activity with the explicit goal of improving some aspect of performance. In deliberate practice, the performance is carefully monitored for weaknesses and specific tasks are devised to combat them' (Krampe & Ericsson, 1995: 86). Deliberate practice is different from recreational music-making, or simply 'playing for fun'.

Researchers in this tradition are sceptical to claims about genetic determinants of excellence in performance. They assert that, at least so far, heredity has not been able to explain 'how specific genetic differences may lead to differences in specific musical achievements' (Sloboda & Howe, 1999: 53). Instead of looking for special abilities or talents, they look for the time and type of effort people invest in their domain of expertise. (See Ericsson, 1997, for an overview related to instrumental performance, Ericsson & Smith, 1991, and Ericsson, 1996, for research in areas other than music.) With views like this, it is not surprising that reflections on expertise in performance and practice have been drawn into the 'nature or nurture' discussion (see Gagné, 1999, and Sloboda & Howe, 1999).

One of the most important aspects of this road to expertise through deliberate practice is the relationship between time used for practice and the level of performance. *The age the expert started with formal lessons in his or her domain of expertise* is one of several time-related issues. Two questions will be addressed in this presentation:

- How old were instrumental performers on a high level of achievement when they started lessons on their main instrument?
- Have instrumental and vocal students on different levels of performance achievement started with lessons on their main instrument at different ages? In other words: *Did the most accomplished performers start earlier than the less accomplished?*

Previous research on the age when lessons started

When professional musicians are interviewed about their performance history, and comment on how and when they started playing, most of them apparently started lessons very early. Sosniak (1985) interviewed twenty-four American concert pianists with international careers, and concluded that most had started lessons by the age of six.

Keyboard players of historical importance were the target group for Lehmann (1997). Using biographical information, he found that performers from Bach and Handel to Artur Schnabel had, by and large, started lessons when they were four to six years old. Some had started even earlier (Mozart and Schnabel), and others, later (Debussy). However, the main tendency was clear enough.

A broader range of instruments was represented in a study carried out in Poland from 1975 to 1980. Manturzevska (1990) interviewed 165 professional musicians, ranging in age from twenty-one to eighty-nine years. She reported on three selected groups from this population. The first group, the 'soloists', consisted of four pianists and four violinists. These had usually started lessons between the ages of five to seven years. After that, they needed to spend a period of at least twelve years of lessons and instrumental practising before entering a professional career. The second group, 'orchestral musicians', was more diverse. Some were as old as twenty when they started lessons. Most varied of all was the third group, a group of music teachers.

These tendencies are, of course, influenced by the fact that the oldest of these musicians was born before 1900, and the youngest in 1954. The radically changing opportunities for study during these five decades can explain many of the reported differences. Manturzevska gives no information about differences in starting age with lessons for separate instruments.

In England, Sloboda & Howe (1991 and 1992) interviewed forty-two students in a selective specialist music school. One-third of this school's curriculum was reserved for musical activities. Based on interviews with pupils and parents, they reported that the mean starting age with lessons 'provided by a professional teacher outside the family' was six years for these students, with dispersion from three to nine years 'or higher'. This information did not relate to specific instruments, and does not state whether this was their later major instrument, or if it was on whatever instrument they started on. Later, Sloboda *et al.* (1996) expanded this study, interviewing 257 students aged between eight and eighteen years. Retrospective reports on when these youngsters had started with formal lessons on their major instrument revealed an average 'around eight years'. Performance level was assessed within the Associated Board and Guildhall School of Music Examination Grades system. There was no difference in starting age between groups of students on different performance levels (Sloboda *et al.*, 1996: 296). There is no report of differences between instruments.

In Germany, young people aged fourteen to twenty-one can compete in the 'Jugend musiziert' competition ('Youth makes music'). Linzenkirchner (1994) asked participants in regional competitions when they started playing an instrument. The mean starting age was seven, and half of the young musicians had started on recorder. There is no information about when they started lessons on their main instrument.

Another research project concentrated on 100 professional singers in the USA (Rexroad, 1985). They were thirty years or older, and 90 per cent had started with private singing lessons before leaving high school. The strong emphasis on choirs in US high schools was regarded as a major influence on their motivation for a career in singing.

Singers were also focused in a German project. Kopietz (1997) compared two groups of singers. The first group comprised eighteen vocal students in a *Musikhochschule* (Academy of Music). Mean starting age with lessons was 13.2 year, with the youngest at seven and the oldest at twenty. The comparison group consisted of seventeen professional singers with international careers. From biographies, Kopietz assessed their mean starting age with lessons to 8.1 years, with a dispersion from four to twenty years.

Kopietz also found that the mean starting age for twenty-one violin students in the *Musikhochschule* was 7.1 years. Using biographical information once more, he compared this group with seventeen internationally known violinists. In this group, the mean starting age with violin lessons was 5.1 years.

Taken at face value, these results tell us that most of those who have reached a high level of expertise on piano and violin started early (five to seven years old), and that singers with an international career also started lessons early. However, the fact that many expert performers apparently started later suggests that an early start is neither a sufficient nor a necessary condition for later success. And many accomplished adult performers have started early without reaching expertise status. These and other related issues will be addressed in the discussion.

As shown, there is little research information about starting age with lessons. What there is mostly concerns piano, violin and voice. There is no explicit information about other instruments. This will also be addressed in this article.

Research project

Participants and research variables

The present study was carried out in a conservatoire. The students were in their early twenties, training for a professional career in music. They were all pursuing the four-year undergraduate course and enrolled in the following study programmes: instrumental, vocal, church music (with church organ as major instrument), and music education. Students in the instrumental department are dispersed on all the usual classical conservatoire instruments: piano, strings, woodwinds, brass, guitar etc. The music education students studied the same instruments, as well as instruments specific to jazz, pop and rock styles.

Students in their first study year, 1994–1995, answered a questionnaire about practice behaviour prior to entering the conservatoire. In addition, students in their second year (started in 1993) were included in the 1994 part of the study. One question asked for information about the age of starting formal lessons on their main instrument. The questionnaire explained that ‘formal lessons’ meant ‘lessons from an instrumental teacher outside the general music classes in school and outside instruction from a conductor of choir or brass-band if you participated in these activities. This teaching must have prevailed for at least half a year to be included.’

This is, as stated, the age when *they started formal lessons on what is now their main instrument in the conservatoire*. It is not when they started *playing* this instrument, and it is not when they started with lessons on any *other* instrument.

The second part of the study addressed the measurement of performance expertise. The most relevant measures of instrumental achievement in a conservatoire are students’ examination grades in their main instrument. The students have a final instrumental examination at the end of their fourth study year, consisting of a recital lasting about one hour. The examination board is comprised of three teachers. At least one of them is from another institution, sometimes from another country. For students in the instrumental, vocal and church music programmes, the grades are on a five-point scale: ‘excellent’, ‘very good’, ‘good’, ‘accepted’ and ‘failed’. These examination grades are mostly distributed between the three highest levels. For students in the music education programme, there is only a ‘pass’ or ‘fail’ grade. Therefore, these students are not included in the results for the relationship between starting age and level of performance. For these students, entering the institution in 1993–1995, examination grades were given in 1997, 1998 and 1999, with a few (for students delayed in their study progress) in 2000.

Age when lessons started on main instrument

The first research question was: How old were instrumental performers on a high level of achievement when they got their first lessons on their instrument? Table 1 shows the

distribution for 106 students answering this question. In addition to mean starting age, the table shows the lowest (min) and highest (max) starting age with lessons in each of the four study departments, as well as the standard deviation (SD) around mean age.

Table 1 *Age when students started with lessons on their main instrument in four study programmes*

Study department	N	Age started with lessons			SD
		Min	Max	Mean	
Instrumental	57	5	18	11.3	3.58
Music education	26	6	20	14.2	4.28
Vocal	9	9	20	14.4	3.30
Church music	14	9	20	16.6	2.79
	106	5	20	13.0	4.14

$F = 9.6729$, $df = 2 \text{ \& } 102$, $p = .0000^{***}$

There are several important aspects of this distribution. Firstly, the average starting age for instrumental lessons is about eleven. Vocal students tend to start later, and a mean of 14.4 years is similar to the mean age (13.2 year) found among German vocal students (Kopietz, 1997). Music education students tend to start around the age of fourteen. These students comprise the most disparate group as their choices of instruments embrace classical, jazz, pop and rock-styles. Organ students normally start with lessons on piano, transferring later to organ.

Secondly, the differences between the instrumental students and students in the other three study departments are statistically significant (t-test between groups: instrumental and music education, $p = .002^{**}$; instrumental and vocal, $p = .018^*$; instrumental and church music, $p < .001^{***}$). The differences between music education, vocal and church music students are not statistically significant.

There are also large variations in starting age within each of the four study programmes, with students distributed on a broad spectrum of ages, from five to nine as youngest to eighteen to twenty as oldest. The only comparison group is in the study by Kopietz (1997), where the vocal students had a dispersion from seven to twenty years around the mean age of 13.2. This is similar to the vocal students in this conservatoire.

Since the age when a student starts formal lessons obviously relates to the type of instrument, information about instrument groups in the instrumental programme is given in Table 2. 'Other instruments' are accordion, guitar and percussion.

A t-test for difference between instruments or groups of instruments shows no significant difference between piano and strings. However, it does show a difference between piano and all other instrument groups. Similarly, while there is no significant difference between strings and brass, there is a difference between strings and all other instrument groups.

Table 3 gives values for separate instruments in the instrumental programme. Most of the instruments are represented with very few students, so it is advisable to be careful with conclusions.

Table 2 Age when students in different instrument groups in the instrumental programme started with lessons on their main instrument

Instrument (group)	N	Age started with lessons			
		Min	Max	Mean	SD
Piano	5	5	12	7.8	2.40
Strings	18	5	18	9.9	4.24
Brass	11	8	16	11.6	2.62
Woodwinds	14	9	16	12.8	2.48
'Other instruments'	9	7	16	12.9	2.77
	57	5	18	11.3	3.58

$F = 3.5366$, $df = 4 \text{ \& } 52$, $p = .0126^*$

Table 3 Age when students in the instrumental programme started with lessons on their main instrument

Instrument	N	Age started with lessons			
		Min	Max	Mean	SD
Strings					
Violin	8	5	10	7.1	1.69
Viola	2	6	9	7.5	1.50
Cello	4	7	14	9.8	2.58
Db.bass	4	15	18	16.8	1.30
Brass					
Trombone	1			9.0	–
Trumpet	3	8	16	11.3	3.38
Euphonium	1			12.0	–
Tuba	4	10	15	12.3	1.92
Waldhorn	2	14	14	14.0	0.00
Woodwind					
Bassoon	1			10.0	–
Flute	4	9	16	11.3	2.85
Saxophone	4	10	16	13.0	2.11
Clarinet	2	13	14	13.5	0.50
Oboe	2	14	16	15.0	1.00
Recorder	1			15.0	–
Piano					
	5	5	12	7.8	2.40
Other instruments					
Accordion	2	7	11	9.0	2.00
Harp	1			12.0	–
Guitar	5	12	16	14.2	1.84
Percussion	1			15.0	–

The dispersion of starting age is rather pronounced in some of the instruments. For violin students, Kopietz (1997) found a mean starting age of 7.1 years, the same as in this study, where the violin students were from five to ten years old when they got their first formal lessons.

The music education students in the classical tradition started earlier with lessons than the instrumental programme students (average age 9.9 years), while the music education students with voice as main instrument started later than the voice students in the vocal programme (average age 16.6). The students working in the jazz, pop and rock traditions tended to start later, with 15.4 as mean starting age for lessons on their main instrument, percussion, wind, piano, electric bass and guitar, and voice.

Instrumental achievement and age when lessons started on main instrument

Have the most accomplished performers started earlier with lessons than the less accomplished? Table 4 shows starting age for grade groups in the instrumental, vocal, and church music study programmes. Two students with 'accepted' are excluded from the analysis. Both of them are instrumental students that started with lessons when they were twelve years old.

Table 4 *Age when students in grade groups in the instrumental, vocal and church music programmes started with lessons on their main instrument*

Grade group	N	Age started with lessons			SD
		Min	Max	Mean	
Excellent	18	6	18	11.3	3.35
Very good	35	5	20	12.5	3.71
Good	18	5	20	14.8	4.68
	71	5	20	12.8	4.09

$F = 3.5090$, $df = 2 \text{ \& } 68$, $p = 0.0355^*$

The result is as expected from expertise theory. Those with highest grades started earlier with lessons than those with lower grades. Spearman $r = 0.288$ ($p = 0.013^*$), confirms this tendency. (Even if both variables can be regarded as interval scales, 'grade' is treated as an ordinal variable in this study.)

This is the tendency when information from all students is combined. Table 1 showed, however, a pronounced difference in starting age in the three study programmes included in this part of the study. Tables 5–7 give the result for each of the study programmes.

For the students in the instrumental programme, there is no difference in starting age in the three grade groups. (This is confirmed by Spearman $r = -0.003$, n.s.) For vocal students, the mean starting age in the three grade groups is in the predicted direction (Spearman $r = 0.820$, $p < .05$). The church music students also show a difference in the predicted direction, but the difference is not statistically significant. Spearman $r = 0.561$ ($p < .05$) shows, however, that the relationship is moderately strong.

Table 5 Age when students in grade groups in the instrumental programme started lessons on their main instrument

Grade group	N	Age started with lessons			SD
		Min	Max	Mean	
Excellent	15	6	18	11.4	3.53
Very good	26	5	16	11.5	3.48
Good	8	5	18	11.0	4.51
	49	5	18	11.4	3.69

$F = 0.0615$, $df = 2 \text{ \& } 46$, $p = 0.940$

Table 6 Age when students in grade groups in the vocal programme started with voice lessons

Grade group	N	Age started with lessons			SD
		Min	Max	Mean	
Excellent	2	9	10	9.5	0.50
Very good	4	15	17	15.8	0.83
Good	2	16	20	18.0	2.00
	8	9	20	14.8	3.39

Table 7 Age when students in grade groups in the church music programme started lessons on organ

Grade group	N	Age started with lessons			SD
		Min	Max	Mean	
Excellent	1			14.0	–
Very good	5	9	20	15.2	3.54
Good	8	15	20	17.8	1.56
	14	9	20	16.6	2.80

$F = 1.8130$, $df = 2 \text{ \& } 11$, $p = 0.2087$

The challenging results are with the students in the instrumental programme. (The number of students in each instrument is very low, and asks for caution when drawing conclusions.) For the instruments where four or more students answered both the starting age and the time question, rank correlations were: Violin, $r = -0.251$ ($N = 7$, n.s.); piano, $r = 0.316$ ($N = 4$, n.s.); cello, $r = -0.5$ ($N = 4$, n.s.); flute, $r = -0.544$ ($N = 4$, n.s.); saxophone, $r = 0.816$ ($N = 4$, n.s.); guitar, $r = -0.917$ ($N = 5$, $p < .05$). The difference between instruments does not seem to follow any pattern. Instruments with both low and high average starting ages show both types of relationship between starting age and grade. This rules out a hypothesis that the effect of an early start will be most beneficial for

students with instruments with a relatively late average starting age. For these students, it should be expected that those who start at the age of seven to nine would have a profound advantage compared to students that start sixteen to eighteen years old. This is confirmed for the vocal and organ students, but not for the guitar students. In addition, among instruments with an early starting age, there is a negative relationship between early start and high grades among violinists and cellist, and a positive relationship for pianists.

Discussion and conclusion

For the whole student population, the conclusion is that those with highest grades started earlier with lessons on their main instrument than those with lower grades. Looking at separate instruments, however, we see both a positive and a negative relationship between early starting age and high grade. Additionally, there are large individual differences between students. Does this illustrate that starting age is, after all, of no consequence? This will be discussed in relation to expertise theory and research.

First, there are (at least) three time variables involved in practising. To single out initial starting age as the only variable does not imply that this is the only influence on level of performance. The amount of practice at one particular time or during a limited period is another. (See Ericsson, Krampe & Tesch-Römer, 1993, and Jørgensen, 1997, on practice time among students in higher music education, and Sloboda *et al.*, 1996 and Williamon & Valentine, 2000, studies of several age groups.) A third is the accumulated amount of practice from initial starting age to a present situation (see Ericsson, Krampe & Tesch-Römer, 1993 on students in higher education, and Sloboda *et al.*, 1996 for younger age groups.) All of these time factors apparently influence level of performance and must be included in reflections about the relationship between practice time and performance. Starting age with lessons, however, has a lot of attention as a very important isolated variable, especially from the music education community.

In expertise theory, the development of expertise is supposed to require at least *ten years of training*. Most students enter the conservatoire at the age of twenty. Table 6 shows that the two voice students with 'excellent' started with lessons at the average age of 9.5. Then we can suppose that they have had 10.5 years of lessons before entering the conservatoire, and four years with voice lessons in the conservatoire. This means that they have had 14.5 years of experience with voice lessons when they got their examination grade. For those with 'very good' the total is 8.2 years, and for those with 'good' it is six years. Table 7 shows a similar pattern for organ students. The only student with 'excellent' had ten years of lesson experience when he left the conservatoire, while the 'very good' had 8.8 and the 'good' had 6.2. Accordingly, the results would seem to confirm the expertise theory, as only the 'excellent' students have the year-span suggested for excellence in performance.

Looking at the instrumental students, the mean number of years with lesson experience on leaving the conservatoire is very similar in the three grade groups, 12.5–13 years. The major effect of this long span of experience is that the instrumental students have higher average grades than voice and organ students. With 'excellent' as 1, 'very good' as 2, and 'good' as 3, the mean grade for the instrumental students is 1.86 (N = 49). For voice students, the mean is 2.00 (N = 8), and for organ students 2.50 (N = 14). The difference

between the three groups is statistically significant. ($F(2 \text{ \& } 68) = 4.8571, p < .05$). This again supports the expertise prediction.

To account for the similarity in starting ages for the three grade groups in the instrumental programme, there are at least four possibilities. The first one is the talent hypothesis, that the expert is provided with 'the innate capacities relevant to the particular activity in the given domain' (Ericsson, 1997: 9). Since I have no information to enlighten this view, I will leave it at that.

The second explanation is based on one of the fundamental assumptions of expertise theory, stating that *careful and appropriate guidance from a teacher* is of vital importance for instrumental development. This is, of course, not a new assumption. In view of the dispute between expertise theory and talent theory, it is, however, relevant to emphasize the importance of long-term teaching. Krampe & Ericsson (1995: 86) write that 'The earlier musicians find appropriate coaching, the more considerable the benefits for their development'. In other words: if students get *appropriate* instruction, we can expect that those who get more of this instruction have a higher probability for reaching higher performance levels than those who have fewer years of appropriate instruction. The problem is that 'starting age with formal instrumental lessons' does not reveal how appropriate the instruction was. As one student remarked, a piano student who started with lessons when he was eight years old: 'I have had four teachers. Two were bad, one was good and one was very good.' This also reminds us that most instrumental students encounter more than one teacher during childhood and adolescence. In this study, the instrumentalists had 3.2 teachers before entering the conservatoire, while singers and organists had 2.1 teachers. This difference is probably mostly because singers and (especially) organists start at a late age. To conclude, there is a possibility that the difference in examination grades between instrumental students with similar number of years with lesson experience is partly due to differences in teaching quality during these years.

The third tentative explanation for the differences in examination grades between instrumental students with similar number of years with lesson experience derives from another fundamental assumption in expertise theory: that the students are supposed to engage in *deliberate practice*. There is, accordingly, the possibility that the difference in examination grade between instrumental students with similar number of years with lesson experience is partly due to differences in *quality of practice* during these years.

We may assume that the students' former teachers and the students themselves have the greatest influence on practice habits. (Parents may also be influential, especially for young children. The influence of teachers and parents on students' practising and instrumental development has, most recently, been studied by Duke, Flowers and Wolfe, 1997 and Davidson *et al.*, 1998, and Pitts, Davidson & McPherson, 2000). The expertise theory emphasizes the teacher's importance. According to Krampe & Ericsson (1995: 86), 'Methods of deliberate practice are taught by teachers who usually are experienced performers themselves'. The problem is that we cannot take for granted that instrumental teachers really teach methods of deliberate practice to their students. One question asked in the present study was: 'Did any of your former instrumental teachers (before you entered the conservatoire) emphasize practice advice?' Of the respondents, 38 per cent answered 'little' or 'nothing at all', while 27 per cent answered 'much' or 'very much' ($N = 80$). Furthermore, one of the key features of deliberate practice is its goal-directed, purposeful

nature. It would seem that instrumental teachers neglect to emphasize this aspect of practice for their students. The questionnaire also asked: 'Did any of your former instrumental teachers (before you entered the conservatoire) give you any advice and supervision concerned with setting aims and goals before a practice session?' 30 per cent of the students answered 'yes', 70 per cent answered 'no' (N = 79).

This illustrates that students on similar instruments will see different levels of engagement from teachers in their practice behaviour. However, does this have an observable influence on their performance? Looking again at the grade groups, there are no differences between them in former teachers' engagement in the students' practice behaviour ($p = .9395$). It is highly likely that teachers' influence on their students' practice habits is moderate, and that the students themselves are more important for their use of deliberate practice. This is illustrated by a remark from one of the students who wrote that he had received no help at all from his former teachers about practice behaviour, adding: 'This is what I have missed! Information about how much, how often, how etc. However, I believe I have been quite independent and conscious about these matters because it was all left to myself.' A further illustration of the students' own efforts to develop practice strategies of quality, compensating for lacking practice support from their teachers, is the question about goals and aims in practice. Above, it was shown that 70 per cent of the students said that they had not learned anything from their teachers about setting goals. In answer to another question, 66 per cent of the students in 1991 and more than 70 per cent of the students in 1995 and 1996 said that they formulated goals for a practice session. This is probably attributable to their own reflections about practice.

To conclude, differences in practice quality, or, what the terminology of expertise theory calls 'deliberate practice', may partly explain the differences in achievement among instrumental students with similar number of years of lesson experience. What we can expect from the expertise theory is that students with the same degree of deliberate practice will end up on different performance levels dependent on number of years they have engaged in this deliberate practice.

The fourth, and not the least important of explanations of the similarities in starting age in the three grade groups for the instrumental students, is a bundle of potentially influential variables that are not covered in this study. For instance, what type of influence is to be expected on the performance level of wind instrumentalists from band experience before starting formal instrumental lessons? What about those who started playing on their own, and continued for several years before they got any formal training? What about those who started on one instrument and later transferred to what became their main instrument? What about the transfer effect of early piano experience on those who started studying the organ at the age of eighteen? How does early experience with electric bass transfer to double bass? What about transfer from saxophone to flute? Moreover, what about motivation: how does a strong urge to play compensate for a relatively late start with an instrument? One student, who started piano lessons when she was twelve, wrote: 'Maybe this was a little late, but I was very eager and motivated when I finally got my chance'.

These and similar questions are, so far, mostly untouched by research. And they remind us of the variability in the distributions. Tables 1–3 illustrated large differences in starting age within each instrument, Tables 4–7 illustrated the variability in the grade

groups. There are many individual exceptions from the main effects of an early start with lessons.

Nevertheless, this study shows, above all, that there is a positive relationship between starting age with lessons and later levels of performance. Most of the instruments and their representatives seem to acknowledge this, and encourage children to start early. For two of the instruments, organ and voice, this is not an obvious situation. One reason that organ players are late starters may be that the organ, like the double bass, requires a certain level of physical development. This may, however, not be the main reason for the late start of most of the organists. The limited availability of instruments and teachers is probably more significant. However, since many of the organ players start on piano, research on the transfer effect of piano to organ is highly relevant.

Vocal studies are also started relatively late. A contributing factor to this situation is tendency among some of the voice teachers to advise parents and children to postpone lessons until adolescence. Participation in choirs is encouraged, but not individual voice training. Kopietz (1997) concluded in his study that an international career demanded an early start. The singers in Rexroad's study had, however, a late start, in adolescence. Decisions on an early start with voice training depend, first, on the availability of good teachers. If that is taken care of, research shows that it is possible to start with voice lessons at the age of five (see Welch & White 1993/94, and Welch, Sergeant & White, 1995/96). It is also possible to take care of the changes in both the female and male singing voice in adolescence (Cooksey & Welch, 1998).

To those who look for an answer to the question 'At what age should my child start with vocal or instrumental lessons?' my answer is: 'If you have ambitions for a professional career for your child, you are best advised to start as early as possible. However, many "late" starters have reached high levels of achievement. So, in a way, don't be too preoccupied with an early and goal-directed start, because much of your children's instrumental development depends on their efforts. If you simply want your children to have a rich life, and desire to take care of and nurture their expressive potential, they will also benefit by an early start, but there is no age limit for this type of aspiration.'

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