

# SELF-REPORTED PERFORMANCE GOALS PREDICT ACTUAL PRACTICE BEHAVIOUR AMONG ADULT PIANO BEGINNERS

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## ABSTRACT

Deliberate practice has been recognized as a central aspect of skill acquisition, and individual differences in efficiency of practice have been documented in child beginners and for different levels of expertise. As the numbers of adult instrumental beginners are soaring, empirical research on this population is scarce. To date, no study exists about the practice behavior of adult beginners.

The aims of this study were therefore to investigate the motivation of adult piano students and search for links between motivation and practice. It was hypothesized that actual practice behavior, as a self-regulated activity, should be influenced by the students' personal goals.

A preliminary survey study was undertaken with 33 piano students (ages 19 to 74) who had started as adults. The survey covered mastery/achievement goals, motivations for playing, willingness to exert effort, desire for recreation and relaxation, and practice intensity. Subsequently, subjects with particularly high ( $n = 3$ ) and low ( $n = 3$ ) achievement goal scores were videotaped during a typical practice sessions in their homes. The video sequences were analyzed for qualitative and quantitative indicators of deliberate practice.

The survey revealed large individual differences regarding subjects' goals and practice intensity. Specifically, subjects' performance expectations were related to the reported duration of practice, with more ambitious persons reporting longer practice times. In the analyses of the videos we found a very strong association between observed deliberate practice activities and self-reported performance expectations. Subjects with high achievement goals displayed a larger variety of practice strategies occupying major portions of the practice session, while subjects with low performance goals used fewer strategies over shorter spans of time.

The strong link between self-reported achievement goals and use of deliberate practice behavior shows how instrumental learning is self-regulated in the absence of a teacher. Practice behavior is commensurate with the student's own (but not always not the teacher's) goals!

## 1. MOTIVATION FOR STARTING TO LEARN AN INSTRUMENT

There are various sources of motivation for people to start learning an instrument. From the qualitative analysis of

interviews with 156 young brass and woodwind players and their parents, Pitts and McPherson (2000) found that starting to learn an instrument is perceived differently by parents and children. While the parents are more aware of the implications for learning such as commitment to practice and costs involved, the student are hoping to gain enjoyment from being a member in the band. Thus, the child's view is focused on short-term positive outcomes while the parents' already consider mid- to long-term benefits for the education and development of their child. McPherson and Renwick (2000) find that students who had an intrinsic motivation to start instrumental lessons made more progress than students who stated extrinsically motivating reasons for starting to play an instrument.

Adults are a particular population because they tend to make their own decision and have already gone through long stretches of education. Their desire to play an instrument is the complex result of biographical antecedents and current situation (Grimmer, 1989), and one could hypothesize that their motivational basis would be conducive to successful music learning.

## 2. PRACTICE TIMES

Accumulated practice times have been successfully related to final levels of attained performance in various domains of expertise (Ericsson & Lehmann, 1996), yet recent research by Williamon and Valentine (2000) has been more cautious regarding the connection between mere practice time and performance outcome, emphasizing quality of practice (i. e., "deliberate practice") over sheer quantity of time at the instrument (see also Williamon, Lehmann, & McClure, this conference).

There does not seem to be any doubt that amount and quality of practice are together the building blocks of any skill. Most children are advised to practice a certain amount of time per day, and so are adult beginners. Unfortunately, many adults can spare less time than they want for practice due to their various commitments to work and/or family. Although we have some data on students' and children's practice times, there is little information on adult intensity of practice.

**Self-regulation and use efficient practice strategies.** Practicing requires self-regulation, and experts have been shown to successfully self-regulate in order to attain personal goals (Zimmerman, 2002). Thus, the question is whether or not an individual has the means that would allow for successful self-regulation and if those means are actually applied in a certain learning episode.

### 3.1. Level of attainment

Gruson (1988) was one of the first authors to document the progression from novice to expert musicianship with regard to the associated practice behaviors. Although multifaceted, her results show that more advanced players make use of their meta-cognitive skills and employ more and better practice strategies. Hallam (2001) also suggested that novices tend to use simple or no strategies when practicing such as playing through and correcting individual mistakes whereas more advanced learners allocate their effort according to encountered difficulties and use more elaborate strategies. The play-through method of beginners was also documented by Renwick and McPherson (2000).

Because more sophisticated methods seem to emerge as a function of skill level and chronological age (which is often confounded with skill acquisition in children), it would seem that adults should be using effective practice strategies and self-regulate according to their goals. Also, adults ought to bring to the task knowledge and skills from other domains having to do with learning.

### 3.2. Motivation and goals

The influence of motivational factors of music students is clear in Renwick and McPherson (2000). A young clarinetist who on a motivation survey proved to be mostly extrinsically motivated showed rather inefficient practice strategies in her third year of study. However, when trying to learn a self-selected piece of popular music, this same student displayed increased perseverance and use of self-regulatory behavior. Increases in practice times for more motivated students were also found in a study by O'Neill (1999).

The purpose of this study was to uncloak the relation between goals and motivations on the one hand and (resulting?) self-regulated practice behavior on the other hand.

**Study.** The study consisted of two parts. In the first part we surveyed adult piano students regarding their musical background, motives and goals, and in the second part we assessed the possible influence of those motives and goals on solitary home practice.

#### 4.1. Part 1: Background, motivation, and goals of adult piano students

**Method.** 33 adult piano students completed a questionnaire regarding previous experience, practice habits, motivation to start, and achievement goals. A sample of convenience of 33 adult piano students between the ages of 19 and 74 (median age = 42) was surveyed which consisted of mostly female students (the German adult music student population in Germany is mostly female). 24 subjects had had instrumental lessons as children or adolescents; recent continuous piano lesson taking time was 2.5 years; 9 subjects had never received instrumental lessons before they started piano as adults. Due to large differences in life-time piano lesson taking, the level of performance varied greatly within the sample.

**Results.** Subjects practiced a median of 4 times a week ( $x = 4.6$ ;  $sd = 1.6$ ) with a total daily median practice of 30 minutes ( $x = 34.2$ ;  $sd = 18.7$ ). Most subjects (26 or 80 %) indicated that they would like to practice more but could not due to various hindrances (e.g., job, family, other activities). Amount of daily practice correlated with number of times practiced per week,  $r(20) = .55$ ;  $p < .01$ . Weekly practice was computed by multiplying frequency of weekly practice by duration of average daily practice (median = 120 minutes;  $x = 177$ ;  $sd = 133$ ).

The 11 motivation-related items had been answered by agreeing to written statements using a 5-point scale. These items were factor analyzed (PC, varimax rotation), which resulted in a three-factor solution that explained 67.5 % of the variance. The first factor could be labeled MASTERY ORIENTATION (MO) (30.5 % variance; items such as „I have to see progress otherwise piano playing is no fun“), the second factor was labeled EFFORT AVOIDANCE (20.7 % variance; items such as „After a tiring day I don't want to also exert myself at the piano“), the third factor contained TASK VALUE items (e.g., „I play the piano for relaxation/recreation“). We expected and found a positive correlation between MO and practice per day ( $r[25] = .62$ ;  $p < .01$ ) and per week ( $r[20] = .62$ ;  $p < .01$ ). Correlations of our practice variables with the other two factor scores were not significant.

**Discussion.** Adults who reported stronger mastery orientations practiced more than others. Assuming that the reported practice times were reliable, and having thus established a connection between achievement goals and intensity of practice, the next phase will show differences in quality of practice.

#### 4.2. Part 2: Microstructure of practice of mastery-oriented and enjoyment-oriented subjects

**Method.** We video-taped and subsequently analyzed the solitary home practice of some of the adults from Part 1 of this study. Subjects were selected on the basis of their factor scores on the MASTERY ORIENTATION (MO) factor (see above); only subjects with extreme scores of more than one SD above or below the mean were admitted to this sample. All qualifying subjects were contacted for the video-taping, resulting in a final sample of 3 volunteers with very high and 3 with very low scores.

The video-taping took place in the homes of the subjects in the course of a reportedly representative practice session (similar to McPherson & Renwick, 2000). Videos were analyzed with regard to the number of practice strategies used, and we measured how much time was used for effortful practice („work“) versus playing through, resting or for other activities. The immediate correction of a singular wrong note or improvisatory play was considered „playful practice.“ Use of efficient practice strategies etc. counted as „deliberate practice“. A break of 5 seconds or more was considered a resting phase if not accompanied by obvious practice related activities (e.g., marking of the score; for details on the procedure see Papoušek, 2002).

**Results.** Since there are only very few subjects, statistical tests are difficult to compute, especially group differences. Since our prediction suggest a positive effect of achievement goals, one-

tailed tests were used (and alpha level of .1). The first result was expected based on our selection criterion, namely that the groups differed with respect to their MO scores,  $t(4) = 10.8$ ,  $p < .01$  (high MO  $x = 1.56$ , low MO  $x = -1.28$ ). Differences on the other two factors were not significant. The average practice times per week correlated with MO,  $r(4) = .76$ ,  $p < .08$ . Subjects in the high MO group spent larger portions of their time practicing deliberately (one-tailed  $t[4] = 1.84$ ,  $p < .07$ ; 92% vs. 16%, respectively), and they also used more strategies (one-tailed  $t[4] = 2.3$ ,  $p < .05$ ; 5 vs. 1.7, respectively). This effect is more obvious in the association of higher MO scores with number of practice strategies used,  $r(4) = .87$ ,  $p < .05$ .

**Discussion.** Although the small number of subjects and sessions only allows preliminary conclusions, the results revealed surprisingly clear group differences in practice behavior. Higher performance expectations and achievement goals were clearly linked to more effective practice behaviors and longer practice times.

## 5. CONCLUSION

At first glance, adults ought to bring everything to their music training that a teacher may expect including intrinsic motivation to (re)start learning an instrument, monetary resources, and experience in competitive and non-competitive settings for learning and working. The literature suggests that these conditions may be conducive to optimal learning and the use of self-regulation during solitary practice. Children and young novices sometimes lack these efficient strategies.

The adult amateurs in this study maintained a higher practice regimen than children in studies by other authors (e.g., McPherson & Renwick, 2000) even though most of our subjects would have liked to practice more. This is certainly a wonderful basis for continued learning given the research on deliberate practice. However, the quantity of practice stood in marked contrast to the quality of practice we recorded on video tape.

Granted, a number of low achievement oriented subjects did not want to participate in the taping, presumably because they sensed that their way of practicing may not be conducive to skill building. Even so, the subjects who volunteered showed practice behaviors that were completely compatible with their low achievement goals, thus self-regulating their practice optimally to suit their needs. It is likely that the persons we were able to tape were those who were satisfied with what they were doing (and maybe also with how their teachers responded to the outcomes). What we saw mirrored closely the behavior described by Renwick and McPherson (2000), namely the mere playing through of material. In one case the subjects simply improvised without referent for most of the time. This behavior cannot be labeled “deliberate practice” and is most likely not increasing playing skills. The more achievement oriented subjects displayed partly exemplary practice habits that we would expect foster skill building. It is non-trivial that we were able to show this effect so clearly in this study with small numbers of subjects, because it could have happened that all volunteers “show off” their best socially desired practice behavior for the researcher.

In the past, the literature on practice has viewed practice solely in terms of “deliberate practice”, a means to increase performance, thus adopting the view of the teacher and focusing on task or ego goals. Although this perspective may make sense from the educators standpoint (or the researcher in skill acquisition), it may not from a music student’s point of view. In children and advanced music students, we assume that practice should be efficient and disclose self-regulatory behavior that leads to skill increase. However, for some adults (and some children apparently) informal practice may serve very different functions which do not result in skill building but in self-expression and relaxation.

In summary, our study showed that self-reported motivations to play an instrument was associated with actual behavior: “informal practice” was observed in individuals with low mastery orientation and “deliberate practice” in individuals with higher performance expectations. A strong correlation was found between the actual use of different practice strategies and achievement orientation. With a larger sample it would have been possible to quantify this relationship more precisely using regression techniques. Our preliminary data analysis however suggests a rather strong connection that has far-reaching implications for the teaching of music to adult learners and for the training of music teachers. How subjects with low performance goals – who essentially enjoy playing without much need for progress and performance – may be taught without inflicting a nervous breakdown on their mastery-oriented teachers requires further research.

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