

# Learning and memorisation amongst advanced piano students: a questionnaire survey

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## ABSTRACT

Professional musicians are often advised to use mental rehearsal techniques, including musical imagery, but to date there is little evidence regarding the extent to which these techniques are actually used, or indeed their relative efficacy. We conducted an online questionnaire with piano students at six UK conservatoires, designed to examine their conceptions and experiences of the process of learning and memorisation, and to identify which strategies were most commonly recommended and implemented. Results from 37 respondents showed that statements about conceptions of learning and memorisation did not always fit with self-reports of actual practice, and that although widely recommended, mental techniques were less likely to be implemented than physical rehearsal techniques. These findings suggest that while students may know about certain approaches and strategies they may not know how to implement them. Future research should investigate the relative efficacy of specific mental learning techniques involving deliberate uses of musical imagery and examine ways of teaching these techniques effectively.

## Background

Professional musicians have reported that automated memory, developed through practice at the instrument, is not always sufficient for secure recall under performance conditions, as this type of memory is perceived as liable to failure under stress (Hallam, 1997). To consolidate memorisation, some experts therefore use score study and mental rehearsal to establish cognitive frameworks that supplement automated programmes. While score study and mental rehearsal techniques are generally accepted to be of value, and have been shown by some studies to be of benefit (e.g. Rubin-Rabson, 1937; Driskell et al., 1994), music pedagogy does not appear to incorporate their use widely (Holmes, 2005). Learning and memorisation skills are rarely taught explicitly (Ginsborg, 2004), and although several types of mental rehearsal for music performance have been identified (e.g. Holmes, 2005; Connolly and Williamon, 2004), it is not yet clear which techniques are most effective, or how to teach them, and mental skills training programmes are not widely applied within the performing arts (Hays, 2002; Clark and Williamon, 2011).

## Aims

This survey was designed to examine perceptions and experiences of learning and memorisation amongst advanced piano students, and to find out which memorisation and mental imagery techniques are being advocated, taught, and implemented at advanced training levels in the UK.

## Method

37 pianists were recruited from six UK music colleges, of whom 20 were undergraduates, 16 were postgraduates and 1 a continuing education student. 34 respondents were first-study

pianists, one a first-study repetiteur, and two studied piano as a second instrument. Respondents were recruited at five colleges via email and at one college via intranet posting to participate voluntarily in an online survey.

We designed an anonymous online questionnaire consisting of twenty-eight questions, using a mixture of Likert-type scales, forced-choice and open questions to address several topics, including a focus on two main areas of interest: 1) how students conceive of the process of learning and memorisation and 2) which strategies for learning and memorising are recommended and implemented.

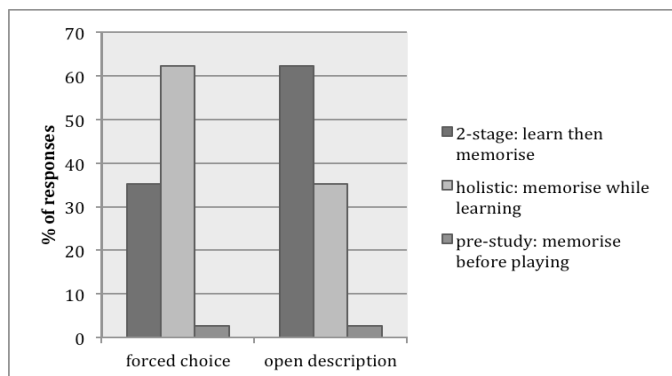
Two types of data were collected. Numerical data were generated by forced-choice and Likert-type answers, while open responses provided richer qualitative data about the actual practice habits of the respondents. The first two authors independently coded statements given in the open descriptions and then compared and discussed their decisions in order to agree on final codings. Comparative analyses of numerical and coded data were then performed.

## Results

1) We used three questions to examine whether learning and memorisation were approached as an integrated, holistic process or as two separate processes, and found that statements concerning conceptions of learning and memorisation differed from actual practice. In answer to the question 'Do you think that there is a difference between learning and memorisation?' 81% said yes (i.e. they viewed learning and memorisation as two separate processes) and 19% respondents answered no (i.e. learning and memorisation were conceived of as a holistic process).

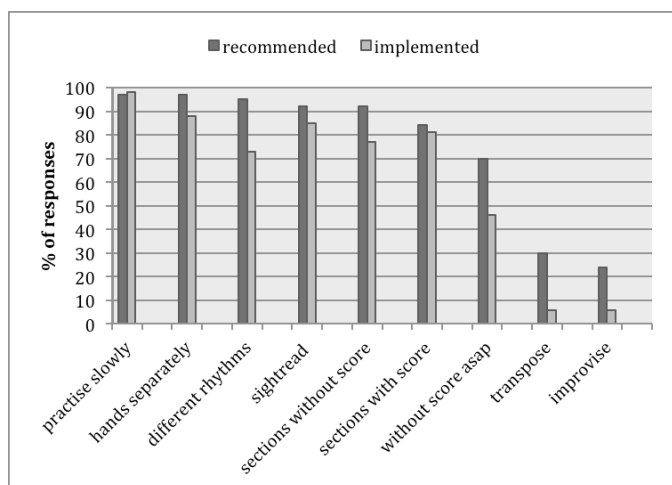
Two types of question then examined the actual strategies that these respondents had most recently employed to learn and memorise a previously unknown piece. Firstly, a forced-choice question offered three definitions of the learning and memorisation process. 13 pianists (35%) reported adopting a two-stage approach in which learning came first and memorisation was a second discrete stage, and 23 pianists (62%) reported adopting a holistic approach, integrating learning and memorisation.

Secondly, students were asked to describe the process in their own words. According to these open descriptions, which were independently analysed and coded by two of the authors, 23 pianists (62%) adopted a two-stage approach, in which learning came first and memorisation was a second discrete stage, and 13 pianists (35%) adopted a holistic approach in which learning and memorisation were viewed as an integrated process. (1 pianist (3%) memorised the material prior to playing according to both types of response). The difference in results was due to ten pianists who reported using a holistic approach when given a forced choice, but, when writing about their learning in their own words, described a two-stage process (see Figure 1).



**Figure 1: Bar chart to show comparison between forced-choice and open responses describing recent memorisation strategies.**

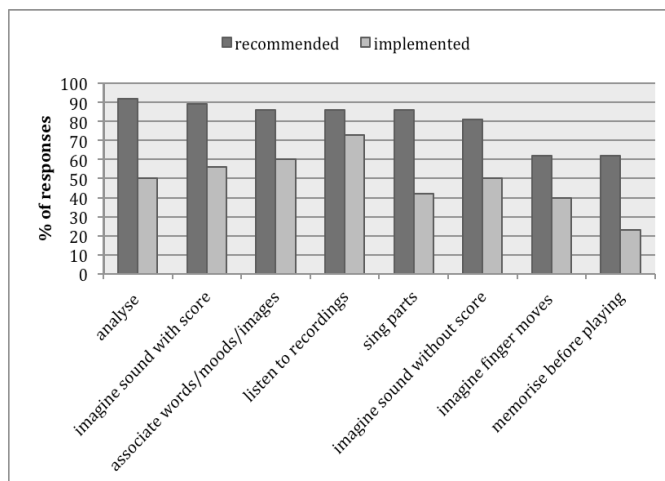
2) There were differences between the frequency at which strategies were recommended and implemented: although widely recommended, mental techniques were less likely to be implemented than physical rehearsal techniques. Students were given a list of practice strategies and asked which of these they had been advised to use. A separate question examined the frequency at which these strategies were adopted. The strategies that students most frequently adopted involved playing (e.g. slowly, with hands separately – see Figure 2). Although a range of mental practice techniques were recommended, they were less likely to be frequently implemented than were strategies for learning at the piano (see Figure 3).



**Figure 2: Bar chart showing % respondents advised to use each of these learning strategies at the piano, compared with % respondents who implemented the strategies 'always' or 'often'.**

### Conclusions

In a study of 37 pianists studying at conservatoires in the UK we found that statements about conceptions of learning and memorisation did not fit with self-reports of actual practice. Furthermore, using two different questioning methods we found discrepancies between a number of responses which suggested that although a holistic approach to learning and memorisation might be perceived as a better option, students did not adopt it as often as they thought they should. We speculate that this might be because some students find a holistic approach less familiar, or more difficult, than a two-stage process in which learning takes place first and memorisation occurs as a separate, second stage.



**Figure 3: Bar chart showing % respondents advised to use each of these mental learning strategies, compared with % respondents who implemented the strategies 'always' or 'often'.**

We also found that mental practice techniques were widely recommended but that implementation varied, whereas recommended physical practice techniques were more likely to be used regularly. Techniques requiring mental effort, such as analysis or memorising before playing, were much less likely to be implemented than techniques that were (presumably) more familiar and easier to demonstrate and implement, such as practising slowly or with hands separately.

These discrepancies - between what students were advised to do, what they thought they ought to do, and what they actually did – suggest that while students knew about certain strategies they might not know how to implement them, like using them, or be convinced of their efficacy. Pianists may thus benefit from future research investigating the relative merits of specific mental learning techniques and examining ways of teaching these techniques effectively.

### Keywords

learning, memorisation, mental practice, deliberate musical imagery

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