

Reply to Tai: On the inability of 10 soloists to tell apart Old Italian and new violins at better than chance levels

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Dr Tai wrote that our paper “reported the inability of violinists to distinguish Stradivari violins from modern ones with regard to timbre.”[1] This is incorrect. We neither stated nor implied that timbre is the sole (or even the main criteria) used by violinists in attempting to guess new or old. While timbre is no doubt important, so too are playability, articulation, dynamic range, and so forth. Because a comprehensive set of relevant criteria has not yet been established, we make no assumptions about which criteria were or were not used in guessing age. We simply report that *our ten subjects seemed unable to guess age at better than chance levels.*

It is not clear how the short term memory problem raised by Dr Tai applies to our study. In asking players to guess the age of violins, we were testing a widely-held belief that, in the words of Langhof [2], “any musician will tell you immediately whether an instrument he is playing on is an antique instrument or a modern one.” According to this belief, the experience of playing a violin is quite sufficient for a player to ‘recognize’ its oldness or newness, without reference to other instruments. Memory is therefore not the issue.

Now, if Dr Tai is still convinced that “the short term memory problem” is an obstacle to evaluating instruments, he should consider that violinists routinely take their instruments to violin-makers for tonal adjustments, and yet an adjustment takes much longer than 30 seconds. Nevertheless, players seem to know when the adjustment is right. True, they are not blind-folded, but nothing about the appearance of a violin changes during the adjustment process. Then there is also the question of how players know to come in for an adjustment in the first place. That said, 30 seconds is time aplenty for players to compare short phrases on two instruments.

Dr Tai seems to criticize our study on the basis that it contradicts his own. His study, however, is based solely on the analysis of measurements, and does not include perceptual validation. There is consequently no way of knowing whether the differences he measures can be distinguished by players or listeners – and if distinguishable, which instruments are actually preferred. Even if his measured differences were shown to be obvious to listeners, they still do not contradict our results. We readily admit that individual violins, new and old, may differ from one another in all kinds of ways. But we still claim that among our test violins, any general differences between old and new were evidently insufficient for our 10 soloists to identify new and old at better than chance levels.

As for Dr Tai’s suggestion that it would be “more reasonable to record various violins and let subjects perform blind listening tests . . .” our paper is concerned with judgements formed while playing instruments, rather than listening to recordings of them.

- [1] Tai H.-C. (2014) The role of timbre memory in evaluating Stradivari violins, Letter to the Editor, PNAS
- [2] Langhoff A (1994) Measurement of acoustic violin spectra and their interpretation using a 3D representation. *Acustica* 80:505