

Competencies and model-based items in music theory and aural training in preparation for entrance exams

Anna Wolf^{*1}, Friedrich Platz^{*2}, Reinhard Kopiez^{*3}

^{*}Hanover Music Lab, Hanover University of Music, Drama and Media, Germany

¹anna.wolf@hmtm-hannover.de, ²friedrich.platz@hmtm-hannover.de, ³reinhard.kopiez@hmtm-hannover.de

ABSTRACT

Background

The study of music theory is part of any musicology and music education degree in Germany (RKM, 2009), presumably in most other countries as well (Colwell & Richardson, 2002). To enter such a study programme, every prospective student needs to pass an entrance exam including both aural training and notation-based music theory tasks. Skills will then be further developed in the course of study. Although these tests decide on the professional future of young people, they lack a theoretical, model-based validation.

Aims

A competency model will be developed and validated to illustrate the student's abilities in music theory and aural training on several levels. Music theory experts will prepare items which will then be tested with a group of students preparing for an entrance exam to devise an empirical basis for the sought competency model.

Method

The chord labelling task from an entrance exam from the year 2011 (n = 124) has been analyzed. It consists of 15 chords each in both versions of the task.

Subsequently, a questionnaire with novel music theory items is in preparation and will consist of approximately twenty items. This questionnaire will be handed out and filled in during weekly music theory classes at schools of music and sent back to be marked and analyzed, i. a. with Item response theory (Bond & Fox, 2007). This analysis is going to provide data about the items and provide the basis for an item's removal, revision or retention. In the latter case, item characteristics such as its difficulty allow for a classification into the competency model.

Results

The chord labelling task has shown a too narrow range in item difficulty for both task versions (-1.2 to +1.3 and -2.2 to +2.0 logits, respectively, whereas -3 to +3 is a typical aim for competence tests following Bond & Fox, 2007; de Ayala, 2009). Also, five items from the overall items (n = 30) had to be removed due to differential item functioning (random group allocation with n = 1,500 repetitions). After the removal, the Akaike information criterion has improved for both versions of the task (AIC_{1a} = 819.2 to AIC_{1b} = 612.0; and AIC_{2a} = 485.6 to AIC_{2b} = 375.5). Nonetheless, the compilation of items represent only a partial level of ability without making a point about the utterly relevant peak abilities (Wolf, Platz & Kopiez, 2012).

Moreover, we are also interested in the predictability of such an entry exam. In an ongoing analysis, its results will be compared with the marks received in three consecutive music theory modules to gain insight into the achievable development based on the prior knowledge and the learning curve nourished by seminars and tutorials.

Conclusions

This exemplary analysis of the chord labelling task has served two reasons. First, it has shown that the current design of an entrance exam is far from optimal and needs to be revised. As this was the only task in this exam which could be analyzed at all, we can only speculate about the validity of the other parts of the exam. Second, this procedure can function as a pattern for the long-term data collection which will begin this summer.

Ensuing these steps we will produce a competency model for music theory and aural training. As this model will be based on empirical data of students, we can integrate both disciplines into music pedagogy and instrumental training and enable the understanding of music as a generalizable process.

Keywords

Item response theory, Music theory and aural training, Rasch model, Test theory

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