Pictorial Notations of Pitch, Duration and Tempo: A Musical Approach to the Cultural Relativity of Shape

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ABSTRACT

Background

In a previous cross-cultural study we demonstrated that literacy makes a difference in the way that performers regard the textual representation of music[1]. Cognition may also differ across cultures in aspects such as shape[2] and possibly time[3]. We carried out fieldwork involving performers from distinct cultural backgrounds (Japanese musicians both familiar and unfamiliar with western standard notation (W.S.N.); members of the Bena tribe, a non-literate rural community in Papua New Guinea; and classical-trained musicians based in the United Kingdom). Performer responses to original auditory stimuli were examined in order to explore distinctions between cultural and musical factors in the visual organization of musical sounds. Participants demonstrated three major styles of symbolic representation: linear-notational (x-y axial representation, with time located on x axis and variable parameter on y axis); linear-pictorial (axial time indication, variable parameter represented pictorially); and abstract-pictorial (no axial representation). Results showed that over 90% literate participants used linear-notational representation. Of the non-literate participants, less than one quarter (22%) of responses were linear-notational, over a third (39%) were linear-pictorial while the rest were abstract-pictorial.

Aims

In this follow-on study, we analysed the resulting pictorial representations in order to explore whether participants showed any notable preferences that could be based on their cultural background.

Method

The initial fieldwork research involved 102 performers from distinct cultural backgrounds and took place at five fieldwork sites in three countries, including the same participant groups as on our first study[1]. Participants heard up to 60 short stimuli that varied on three musical parameters (pitch, duration and attack rate). The instructions given were simply to represent these visually on graph paper so that if another community member saw the marks they should be able to connect them with the sounds. Additionally, ethnographic interviews were carried out at fieldwork sites to provide richer, qualitative data regarding the participants' response to the research. These data were considered alongside an examination of the resulting pictorial representations.

Results

From the first study, three styles of symbolic representation emerged: linear-notational (x-y axial representation, with time located on x axis and variable parameter on y axis); linear-pictorial (axial time indication, variable parameter represented pictorially); and abstract-pictorial (no axial representation). Participants from the pilot group had a minimal response in pictorial representations opting for linear-notational models. Japanese participants from both groups (familiar/un-familiar with English, WSN) provided comparable pictorial responses amongst themselves by providing a horizontal time frame. Non-literate Benas - the only group who produced a majority of pictorial and abstract-pictorial responses - provided significantly different responses to other groups in that their method of application did not follow the axial representational model of time versus variable parameter.

Conclusions

Although resemblances among participant responses opting for linear-notational models of representation could suggest underlying universality in music representation (particularly among literate participants), the variety in pictorial and abstract-pictorial responses indicates otherwise. Rather, this suggests that the association between music and shape (where it takes place) is affected by cultural norms. Cross-reference of the data from participant interviews and those from the qualitative material suggest that for pictorial responses, literate participants attempted to produce a form of analogue notation in an axial time frame without developing a consistent model of musical representation. Conversely, non-literate Bena participants attempted to reproduce executive notation based on common cultural signifiers to represent variable parameters. This form of representation lacked time frame and tended to focus on hue, dynamics and musical articulation (although variable parameters of the experiment stimuli were pitch, duration and tempo) thus indicating that different musical qualities may matter more than others in the specific community.

Keywords

Pictorial notation, graphic representation of music, cross-cultural representation of pitch, duration, tempo, music and shape.

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