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Sound Misconceptions in a Science Centre

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Abstract content
 (Max 300 words)
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Constructivist theory tells us that students come to our Science Centres with pre-existing ideas of how the world works (often called prior-, naïve- or mis-conceptions). When confronted with conflicting ideas from science they are forced to make a “border crossing” (Aikenhead, 1999) from the familiar territory of their cherished beliefs into the “unknown country” of science. How difficult this crossing is and how comfortable a student feels to remain in this new country depends on many factors both internal and external to the student. The challenge for our Science Centres is to assist students to cross these borders more easily and to remain in their new country without feeling threatened.

An example will be given of student prior conceptions with regard to sound and waves: a brief literature survey will outline pre-existent conceptions noted around the world. The 4 level framework of (Grayson et al, 2001) is used to classify these conceptions and modify them in the light of data gathered. Student responses to a questionnaire provide multiple mode (MCQ, written and drawings) feedback into this process. The result is a modified table of local students’ prior conceptions with regard to sound and waves. This is useful resource when designing (and improving) science shows, exhibits and other programme materials in this area.

While the specific example of sound and waves will be the focus of this presentation, suggestions will be made of how this resource can be used in other subject areas.

Apply to be considered for a student award (Yes / No)?

Yes

Level for award (Hons, MSc, PhD)?

PhD

Main supervisor (name and email) and his / her institution

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Would you like to submit a short paper for the Conference Proceedings (Yes / No)?

Yes

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