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Bridging School-based Formal and Informal Learning Spaces

A Case of Advancing Interest-driven Education in Singapore Schools

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KEY IMPLICATIONS

- The successful implementation of interest-based learning in schools is dependent on how it is scaffolded within the curriculum and the provision of time for students to work on their tasks.
- For this approach to be well integrated in the curriculum, the linking of science concepts examples to student interests has to be made more explicit and consistent during lessons.
- Teachers have to help students identify those connections if students themselves are not aware. For that, teachers need to be skillful in relating the concepts and interests

BACKGROUND

Students often find science lessons boring and do not see the relevance of science in their lives (Shirazi, 2017). They feel that the science curriculum has too much theoretical content which is exam driven, and the way the content is presented is not engaging. The informal approach to science learning could be a way to engage students as research has shown that the informal approach can influence learning and student development positively (Gerber, Cavallo, & Edmund, 2001). However, a gap remains between the informal and formal learning spaces; learning (and not learning) in these two spaces are totally isolated from each other. Instead of trying to replicate conditions and stimuli that enables and empowers interest that is happening within informal environments, our intention is to connect elements of the informal and formal approach in an interest-driven learning environment.

FOCUS OF STUDY

There are learning opportunities found in both the informal and formal environments, but there is a lack of connection between the two environments. Our aim is to make learning occur in both the formal and informal settings in an orchestrated manner, by amplifying interest through the informal approach into the formal learning space. In this study, we investigate how we can bridge the academic learning of Science in a learning environment where students engage with science concepts by making meaningful connections with their own interests. The instruction strategy adopted was context personalisation, in which formal lesson materials are customised in accordance to students' informal interests (Walkington & Bernacki, 2014).

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KEY FINDINGS

The results of the study showed that the interest-driven approach is effective for linking the informal, out-of-school interests of students to the formal curriculum. it was found that the process supported students to work independently and motivation for self-exploration and self-directedness, thereby positively influence learning outcomes. Building on this initial foundation, teaching and learning within the academic curriculum can help teachers make concrete changes to deepen their lesson pedagogies to reinforce interest-driven learning.

SIGNIFICANCE OF FINDINGS

Implications for practice

Discussions with teachers reveal that they recognise the usefulness of the interest-driven approach. However, its successful implementation in schools is dependent on how it is scaffolded within the curriculum and the provision of time for students to work on their tasks. Additionally, for this approach to be well integrated in the curriculum, the linking of science concepts examples to student interests has to be made more explicit and consistent during lessons. Teachers have to help students identify those connections if students themselves are not aware. For that, teachers need to be skillful in relating the concepts and interests.

Implications for policy and research

Our interest-based strategy is in line with MOE's Learn for Life initiative. Using students' interest is one strategy to balance the joy of learning and the rigour of education. Additionally, it addresses how learning can be customised for students, despite their different background and family resources. This provides greater flexibility in terms of instruction to help develop students' strengths.

Learning gains (for studies involving intervention)

In this study, the concepts of context personalisation, in which formal lesson materials are customised in accordance to students' informal interests that was utilised. This instruction strategy has been incorporated into the interest-driven lesson framework. We have also developed a framework to identify student interests, and this can be utilised together with the interest-driven lesson framework. This will help teachers to envision, assess, and strategise and facilitate interest-based lesson designs in future implementation planning.

Proposed follow-up activities

We can enact this interest-based approach in other subjects and to introduce collaborations for inter-departmental integration

PARTICIPANTS

The students (40 from the control class, 40 from the experimental class) who were selected for the study were between 9 to 11 years. Five teachers, (including one HOD) were involved in the study. The researchers, after conducting sessions of classroom observations, together with the teachers, selected students for FGDs based on the participants' artefacts and overall participation in school. FGDs were also conducted with the Science HOD as well as the teachers who were involved in the experimental and control class.

RESEARCH DESIGN

This study was a mixed methods study that utilised: pre/post surveys (with Likert scale), post-interviews with teachers, select post-interviews with students, observations of all activities. The focus group interviews were audio recorded. Extensive field notes were also taken during the initial classroom observations and during the focus group discussions to ensure that data could be cross-checked with the audio and video recordings.

We first designed a questionnaire to ascertain what the students' interests were. Based on the students' responses, we categorised their interests into five categories of (1) Performing arts (choir, dancing) (2) Arts (reading, drawing, lego building) (3) Sports (4) Games (card games, video games, board games, computer or mobile phone games) (5) Leisure (eating, sleeping, watching tv, watching youtube.

Next, with the teachers, we co-designed learning activities based on the five student interest groups, to create authentic connections between their interests and science concepts in the classroom. The content

was delivered through an informal approach, where students could access videos and YouTube links and use the internet to see examples of how light and heat concepts were present in everyday life, not just as theoretical concepts that exist in textbooks. Students were given online resources, categorised in the five interest groups, to refer to, and the resources tried to highlight how light and heat concepts could be linked to their interests.

Throughout the term, as an informal assessment, students had to log onto the Student learning space (SLS) and select problem scenarios to solve based on the five interest categories. They could pick the category that they were most interested in, or pick more if they were interested in more than one category and respond to the problems.

At the end of each semester, students worked on mini projects, based on the two topics, heat and light. The mini projects were aimed to help students appreciate the relevance of what they had learnt. Students were given a few hours a week to work on given tasks with more freedom to explore through creative experimentation and ideation.

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