

# TRANSITION FROM PRIMARY TO SECONDARY SCHOOL: AN EXAMINATION OF STUDENTS' SCIENCE LEARNING

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The transition period between primary and secondary school is a critical period in maintaining the interest of students in science. Studies (eg. Osborne, Simon & Collins, 2003) found that there is a decline in student interest in science and school in general. Students at this age have to deal with a cacophony of physical, emotional and social changes, coupled with the stress of moving to a new environment.

Learning science at primary school in many Asian countries focuses on retention of knowledge presented in textbooks and it is the top priority of instruction (Cheng, 1999) and Malaysia is no exception. Students found difficulty in learning science at secondary level despite getting good grades in Science at primary level, such as getting excellent results in their Science UPSR paper (Puziah Mohd. Naw, 2006). If transition is addressed appropriately, the process could improve the continuity and progression of students' learning (Braund & Driver, 2005). Unfortunately, students' personal journeys from primary to secondary school through education are often disjointed and discontinuous and this often result in regression in learning (Nicholas & Gardner as cited in Braund & Driver, 2005).

## Objectives

The study generally aims to unravel the challenges students faced in learning Science when they enter secondary school. This study is the first phase of a three phase project which focuses on the science learning in both primary and early secondary school learning environment.

## Research Questions

Specifically, the study seeks to answer the following questions:

1. What is the nature of science learning environment in Year 6 as compared to Form 1 science learning environment?
2. What are the challenges students faced in learning science in Form 1?

## Methodology

The study employed qualitative research methodology. The techniques used were focus group interviews with primary and secondary schools students, face-to-face interviews with the teachers, classroom observations and analysis of documents such as students' worksheets and textbooks. Four primary schools were involved, where two were located in an urban area and two in a rural area. One science teacher and 10 pupils from each primary school were selected for the interviews. The interviews took place after the students have sat for their *Ujian Penilaian Sekolah Rendah* (UPSR) examination. Lessons were observed and were video-taped. After 10 months, the same students were traced and they were re-interviewed (i.e., when they were in the secondary schools). The researcher did not manage to trace all the 40 students since some of them have gone to schools in another state and a few attended residential schools. Lessons were also being observed and video-taped in the secondary schools attended by the students. The science teachers at the secondary schools were also interviewed.

## Findings

The findings reported in this paper will only focus on the science learning environment at the primary level since the study is still in progress. Initial findings showed that learning science at primary schools involved more of note-taking, whole class demonstration, using mind-maps, 'recipe-type' of science activities and 'drill and practice'.

Teachers from all the four schools admitted that they completed their Year 6 syllabus by June. In order to complete the syllabus, most of them gave notes during their science lessons. They believed that by giving them notes, students will at least have some concrete materials for them to refer. The notes were sometimes given in the form of mind-maps. After completing the syllabus, the students were given model UPSR science question papers as 'drill and practice'. This is to familiarize students with the format and type of examination questions.

Besides note-taking and 'drill and practice', teachers also performed whole class demonstration. They brought materials and apparatus to class and demonstrated experiments such as how to take temperature using the thermometer. They also use models such as a globe to illustrate the earth's rotation on its axis, and so forth. Students in the rural schools revealed that their teachers used overhead projector in their teaching, while teachers in urban schools sometimes used the teaching courseware to teach. According to the teacher, the use of the teaching courseware would help students to understand better since the courseware had animations and the narration was clear enough for the students to understand the concepts taught in English.

Students revealed that they hardly went to the Science Room or the laboratory to do activities. If there were any activities, it was done as demonstration by the teacher in their classrooms. It is not only because of the teaching style but the schools have only one Science Room in every school and it was impossible to accommodate all classes. Students in the rural schools had a better opportunity to utilize the science room more often since their school's enrolment was lower.

When asked what they remember of learning science, most of them remembered about the experiment of 'rusting', preservation of fruits and 'speed'. The majority of students like science and they look forward to learning science in Form 1. They anticipated that science in secondary school will have more experiments.

## Discussion and Conclusion

The initial findings concur with Cheng's (1999) concern where primary science instruction focuses on retention of knowledge presented in the textbooks. Teaching and learning of science was done didactically. Teachers in these schools prepared students for the national examination.

Students remembered 'science' as the little experiments and other 'hands-on' science activities they have done. They described science as a subject with experiments that made science enjoyable and they are motivated to learn more science at secondary school. They expected to do more experiments in secondary schools, confirming the findings of other studies (Braund & Driver, 2005; Jarman, 1993)

However, this study suggests that the students lack exposure of 'hands-on' and 'minds-on' activities at primary level. This could lead to students' lack of manipulative skills and other scientific skills in handling experiments at secondary level. This scenario might impede science learning at secondary level as one of the factors that influence post transfer regression in science learning is the teaching environment and style and teachers' language that differs in the secondary school (Pointon, 2000).

What has been presented in this chapter are only some of the initial findings of this study. It is hoped that a deeper insight into the situation in the secondary school could address some of the concerns on the challenges that the students face during the transition to secondary school.

## References

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