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***An overview of mentoring programmes
in six schools in Malaysia***

by

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Abstract

To prepare students for life in today's highly technical society, their science and mathematical knowledge must include and go far beyond knowledge in the simple skills of counting, computing, putting numbers into formulas, and even solving equations scientifically. As momentum for change in Malaysian education continues to grow, questions about the nature and goals of mathematics, science, and technology education take on increasing urgency. The Malaysian government is also targeting a ratio of 60:40 science to non-science students in secondary schools and universities. Thus, the University of Malaya, BP, and the Ministry of Education have been supporting a student-mentoring programme hoping to make this goal a reality. This paper presents the role of the mentor-mentee, mentoring and tutoring scheme, and the effectiveness of mentor schemes on the Malaysian mentoring programme.

Introduction

In this Age of Information, nations are facing new challenges as the new millennium approaches. Increasingly, students are required to be proficient learners aware of their own cognition and know what and when to select and use information available to enhance learning. An important goal of many education systems is to prepare students who are technologically literate, emotionally intelligent and cognitively competent. As they join the workforce, they need to participate in independent teams working on complex issues and projects which no individuals alone can solve.

Malaysia, like many nations, is cognisant of the need to facilitate the education of smart learners capable of working competently with others in teams in an information-technology environment and aware of their own learning and performance. We need to prepare students who know how to identify a problem and its solution, work in teams, communicate well, and know how to evaluate progress and learning.

The implementation of the Malaysian Smart School flagship under the Multimedia Super Corridor is an endeavour to serve this need (Malaysian Smart School Conceptual Blueprint, 1997). Thus, through the effort of BP Malaysia, the Ministry of Education and the University of Malaya (UM), we have organised a student mentor programme with the objective of enhancing the interest in secondary school students towards science, mathematics, and technology.

University of Malaya provided 39 mentors from undergraduates in the Science Faculty, who have the interest, spirit, willingness to face the challenge and ability to work as a team to ensure the success of the programme. On the other hand, BP plays an advisory role, publishing training packs, videos, and provides the funds. While the Ministry of Education (KP) acts as an intermediary body and provides the schools and students who are involved in the programme. The programme was officially launched by Tan Sri Dr. Hj. Abdullah Sanusi, Vice Chancellor of UM on 22nd of February, 1997.

The idea of student mentoring is similar to several tutoring programmes being conducted all over the world under various name such as tutoring, peer tutoring and student helpers. Learning from peers is sometimes referred to as co-operative learning. It is an educational procedure in which peers coach one another through their experiences and exposures. The coaching activities centre around demonstration, observation, collaborative practice, feedback/discussion, and problem solving. The use of discussion to enhance cognitive processing is described in the theoretical perspectives of several educational theorists. For example, Barker-Schwartz (1991) cites the work of Belenky et al who describe two concepts: connected knowing and separate knowing. Connected knowing, as a form of learning, encourages the sharing of common experiences and discussion of the feelings that inform these ideas.

Separate knowing, as a form of learning, is more impersonal and objective. It is commonly referred to as critical thinking. Student tutoring and mentoring is a proven educational technique that offers benefits to the programme. It also acts as a boost for areas of science, mathematics, and technology.

The Objectives of the Programme

Before the economy adapted to the information age, workers in every sector controlled processes. Most of the jobs now require analytical rather than merely mechanical skills, so in order to excel, students need more scientific and mathematical power in school as preparation for jobs. Thus the UM-BP-KP student-mentoring programme has four main objectives, namely:

- to encourage secondary school students to include interest in science and mathematics;
- to guide high school students to improve learning skills in science and mathematics;
- to train university students as student mentors to support secondary school students in developing effective study skills in science and mathematics,

and

- to help schools increase the number of students interested in science and mathematics, and hence to choose science and technology as their future career.

The implementation of the Programme

The UM-BP-KP student-mentoring programme was initiated in November 1996. The overall purpose of the programme is to encourage school students to think about science and technology by providing positive role models, that is, undergraduates in science and mathematics as mentors. This programme involves 17 lecturers from University of Malaya, 39 of University of Malaya's students (mentors) and about 400 secondary school students (mentees) aged 13 to 17 (Form 1 to Form 5). The ratio of mentor to mentee is about 1:10.

Before all the mentors carried out their duties at school, a two-day workshop was conducted. The aim of the workshop was to expose mentors to:

- counselling techniques;
- communication, organization, time management;
- effective delivery in teaching of science and mathematics;
- study skills in science and mathematics (to use in the mentoring process);
- career opportunities in science and technology

and

- completion of log/report book.

The workshop was conducted by experts from University of Malaya, representatives of BP, the Ministry of Education, and secondary school teachers. The materials presented were well accepted and were to be used as mentoring process in the schools. All the mentors are volunteers and they are mainly from the Faculty of Science majoring in Science Education. They are all trained to be future science and mathematics teachers. The mentors are fully committed and carry out their mentoring activities for a two-hour period each week outside school hours, and on a weekend.

The mentees are from six school in the Klang Valley of Kuala Lumpur. The schools are chosen because of convenience and easy access for the mentors, and for close monitoring of the programme by the organisers. Mentees are also taken to visit several faculties in the University of Malaya, especially the Science Center, Faculty of Science, Faculty of Dentistry, Faculty of Engineering, and Faculty of Medicine. This is another step to expose and to motivate the students about higher education especially in science and mathematics.

There is increasing use of the mentors to support learning. Given the widespread application of the mentor in education, it is not surprising to find a whole gamut of roles ascribed to mentors: trusted friend, guide, counsellor, information provider, door opener, role model and advocate have all been used in the programme.

The mentoring & tutoring scheme

The mentoring process involves four phases:

- Establishing rapport (initiation);
- direction setting (getting established);
- progress making (development)

and

- moving on (finalising/maintenance)

(Megginson & Clutterbuck, 1995; 30-6)

There is no doubt that most mentees feel positive about the experience of mentoring, both formal and informal. This is clear from case studies outside higher education (Megginson and Clutterbuck, 1995) and also from our own institutions. For example, when mentees were asked at the end of the year to respond to the statement 'my mentor has been helpful' on a scale of 1 to 4, where 1 is 'strongly agree' and 4 is 'strongly disagree', most of participants responded positively.

Mentoring and tutoring involve personal help given by mentor, it is designed to assist school students to decide where she/he wants to go, what she/he wants to do or how best they can solve problems, especially in science and mathematics. Its aim is to develop the capacity for self-direction, self-guidance, and self-improvement.

Rigorous and targeted monitoring is clearly necessary to establish that the scheme is working to mentees' satisfaction and this should be a priority for universities which purport to promote mentor schemes. Good outcome-based research is required to complement existing qualitative data if mentoring is to flourish in the long-term.

Benefits Of Mentoring & Tutoring

If a school's goal is to help students acquire the ability to function effectively in today's rapidly-changing society -- a quality achievement that builds the students' confidence in dealing with situations -- then the student-mentoring programme should be able to offer those. The UM-BP-KP programme has been implemented for about two years. From the advisors' observations and interviews, the majority of the mentees are doing well in the National Examination. Most of them qualify and choose to remain in the science class. Those involved in mentoring who completed their studies in the university were in the list for First Class Honours and Second Class Upper category. The mentoring and tutoring programme offers a simple and proven mechanism for improving educational standards, particularly in science and mathematics. It was found that mentees were able to share their worries and dissatisfactions with the mentors, but not with their teachers. For instance, in one of the schools, mentees were able to convey their difficulties in understanding additional mathematics and chemistry. Mentors then forwarded this information to the advisor who then made it aware to the teacher for any corrective measures.

Mentors were also able to identify and investigate disciplinary problems and emotional problems faced by the mentees. What the mentors had learned from the workshop and the advisor, they tried to use to motivate and encourage mentees to think positively. Thus, through the mentoring and tutoring programme, mentors were able to develop communication, presentation, problem-solving skills, patience, understanding, and improved self-confidence.

Conclusion

The roles of the mentor are various but are commonly set within a hierarchical model of learning and development. UM-BP-KP believes that the mentoring and tutoring programme is a win-win situation for everyone. This programme encourages students to develop their communication, teamwork, and leadership skills. There is evidence that university culture can sustain an egalitarian peer model in some circumstances.

The UM-BP-KP mentoring and tutoring programme hopes to establish a center equipped with basic necessities, such as resource materials, telephone, computer with internet connection etc. This is seen as necessary, especially for mentors and mentees to communicate, provide regular practice in solving problems so that they learn critically, and conduct some experiments that expose them to more science activities. It has been suggested that mentors form a club (to be called the Student-Mentor Club) so that they can be more responsible for the programme, and to further develop their organisational skill. The UM-BP-KP mentoring and tutoring programme will be extended to schools outside Klang Valley, where mentors can participate during their holidays in their own hometowns.

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