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Effectiveness of School Wide Enrichment Model (MPSS) in Mara Junior Science College

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Abstract

MRSM Curriculum is an integrated curriculum which integrates the Curriculum of Ministry of Education Malaysia with emphasis on three key areas: Academic, Personality Development and Talent Development. This study concentrated on Talent Development Programme (TDP) which was developed based on MPSS. According to MPSS Model, students will go through three enrichment level namely Enrichment Type I, Enrichment Type II and Enrichment Type III. This study aims to seek MRSM students' views on TDP. 40 MRSM students were involved. This study revealed that MRSM students have positive views on MPSS Model.

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Keywords: Integrated Curriculum; Secondary School; Research-Based Learning; Transferable Skills; Talent Development

1. Introduction

A nation’s greatest asset is its intellectual resource cultivated through the process of education. High quality education system will be able to create individuals which are able to function intellectually and productively in society. Therefore, it is very important to have world quality education system in order to ensure the development of a country. One of the remarkable studies in enhancing human potential to its fullest is done by Prof. Lewis Terman of Stanford University. He conducted a research on the intellectual development of 1500 children which he defined as gifted and talented. The children were selected through the Stanford-Binet test and they were proven to be academically gifted. The work of Terman inspired Malaysia which then began a similar experiment on identifying academically gifted student.

A nationwide search was made in the mission to search for the “best and the brightest” to be screened and admitted in a newly established group of three schools named MARA Junior Science Colleges (MJSC) in Seremban, Kota Bharu and Kuantan. MJSC are special residential schools which aim to encourage the development and interest of students especially in Science and Mathematics. According to Sulaiman (1975), students selected to MJSC must go through MARA Test which act as a systematic filtration of student designated as academically superior.

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Sulaiman (1975) added, MARA Test comprised on IQ test, an English test, a Science test and a Math test. Students which succeeded to admit the MJSC will go through a differentiated curriculum.

MJSC curriculums are integrated curriculum which stressed more on science and mathematics-based education. This is to support the purpose of creating MJSC- to screen the “best and brightest” among Malay children and creating intellectual elites to build the nation in the process of modernizing. Science and Mathematics-based education in MJSC was then shifted when Prof. Azman Wan Chik introduced a more holistic and enriched curriculum for MJSC.

Prof. Azman Wan Chik was one of our nation’s top educationists and he was the pioneer of gifted and talented training in Malaysia. His work on training Malaysian children and educators on the philosophy and pedagogy of Gifted and Talented Education received high appreciation by World Bank. They then, awarded research and development grant to financially support his project. Therefore, Prof. Azman Wan Chik together with his team of committed educators began transforming educational training system nationwide and started preparing the teachers in the MJSC. The whole system of MJSC gain benefit from this tireless and exemplary work of educator. Each of the MJSC has at least one or two classroom for the gifted and talented student.

In the early 1990s, MJSC Taiping was build and was designated as the first fully-comprehensive gifted and talented residential school in Malaysia. MJSC Taiping was build based on the work of Universiti Malaya’s Projek BAKA and based on an enculturalized model by Joseph Renzulli (School wide Enrichment Model). Curriculum followed by MJSC Taiping is quite different from the mainstream curriculum of Ministry of Education. The MJSC Taiping Curriculum is an enriched curriculum which includes academic rigor and higher thinking skills at all level and in all subject areas. The idea of creating fully-comprehensive gifted and talented residential school expanded and three more MJSC were created which is MJSC Jasin, MJSC Pengkalan Chepa and the latest was MJSC Langkawi. MJSC Curriculum was developed based on the School wide Enrichment Model (SEM).

Figure 1: Alignment of National Philosophy of Education and Mara Junior Science College Philosophy in producing knowledgeable Malaysian
2. MARA Junior Science College

MJSC curriculum consists of three programmes;
(a) Academic Programme,
(b) Personality Development Programme, and
(c) Talent Development Programme.

According to SEM, the curriculum should be compacted so that more time can be used to explore on new ideas. Therefore, MJSC students will undergo express, accelerated and compacted academic classes.

(a) Academic Programme

Students in MJSC will undergo the same subject like other students in mainstream but there are six subject specially prepared for the MJSC student, these subject aim to promote learning skills, research skills and communication skills. The subjects are; Science Computer, Art Design, Entrepreneurship, Thinking Skills, Learning Skills and Career Development and Communication Skills. Table 1 shows the main subject provided by the Ministry of Education and subjects specially design for MJSC students.

<table>
<thead>
<tr>
<th>Main Subjects</th>
<th>Upper Secondary Subjects</th>
<th>Special Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bahasa Melayu</td>
<td>Matematik Tambahan</td>
<td>Sains Komputer</td>
</tr>
<tr>
<td>Bahasa Inggeris</td>
<td>Kimia</td>
<td>Senireka</td>
</tr>
<tr>
<td>Sejarah</td>
<td>Fizik</td>
<td>Keusahawanan</td>
</tr>
<tr>
<td>Pendidikan Islam/Moral</td>
<td>Biologi</td>
<td>Perkembangan Kerjaya &amp; Kemahiran Berkomunikasi</td>
</tr>
<tr>
<td>Matematik</td>
<td>Rekacipta</td>
<td>Kemahiran Berfikir</td>
</tr>
<tr>
<td>Pendidikan Jasmani &amp; Kesihatan</td>
<td>Prinsip Akaun</td>
<td>Kemahiran Belajar</td>
</tr>
<tr>
<td>English For Science Technology</td>
<td>Teknologi Maklumat</td>
<td></td>
</tr>
<tr>
<td>Pendidikan Seni</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pendidikan Jasmani &amp; Kesihatan</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) Personality Development Programme

The MJSC students were trained to be a leader not a follower. They were introducing to an activity requiring them to think and act fast while considering all consequences due to their decision. This type of activity can encouraged the student to think in a more matured and rational way. Table 2 shows list of activity prepared to support students’ personality development.

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<table>
<thead>
<tr>
<th>Personality Development Programme</th>
<th>Special Subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kursus Jayadiri</td>
<td>Sains Komputer</td>
</tr>
<tr>
<td>Program Penyesuaian Diri</td>
<td>Senireka</td>
</tr>
<tr>
<td>Program Pembangunan Kecerdasan Emosi</td>
<td>Keusahawanan</td>
</tr>
<tr>
<td>Perkembangan Kerjaya</td>
<td>Perkembangan Kerjaya &amp; Kemahiran Berkomunikasi</td>
</tr>
<tr>
<td>Konsep Kendiri</td>
<td>Kemahiran Berfikir</td>
</tr>
<tr>
<td>Etiket</td>
<td>Kemahiran Belajar</td>
</tr>
<tr>
<td>Latihan Temuduga</td>
<td></td>
</tr>
</tbody>
</table>
Entrepreneurship Activity
- Aktiviti Koperasi
- Penerbitan Majalah
- Program Usahawan Muda

Society and Club
- Persatuan Sains Sosial dan Kemasyarakatan
- Persatuan Matematik
- Persatuan Seni Kreatif
- Kelab Pertukangan
- Kelab Kembara
- Kelab Fotografi
- Kelab Bomba
- Persatuan Kadet Bersatu Malaysia (Darat & Laut)
- Pandu Puteri
- Kadet Polis
- Pengakap
- Seni Pertahanan Diri

Summer Camp
- Kem Cuti Sains
- Kem Astronomi
- Kem Rekreasi Mendaki Gunung
- Kem Arkeologi Muda

Spots and Games
- Kelab Bola Sepak
- Kelab Olahraga
- Kelab Sepak Takraw
- Kelab Catur
- Kelab Senamrobik
- Kelab Golf
- Kelab Kayak

(c) Talent Development Programme
Talent Development Programme aims to promote creative-productive giftedness by emphasizing the use of thinking skills in an integrated, inductive and real problem oriented manner. Students will work on problems and areas of study that have personal relevance to the student and can be escalated to appropriate challenging levels of investigative activity.

2.1 *Five main principle of MRSM Curriculum*
(a) Suitable for all: Teaching strategies are suitable for all learning styles.
(b) Flexible: Curriculum and teaching strategies are flexible and can be change according to students’ interest.
(c) Efficient transmission of knowledge: Information are delivered efficiently to all students to make sure they understand the concept.
(d) Class size and learning space: number of students in a class is limited to only 25 students besides that, learning space is provided to encourage group activities.
(e) High teacher expectation: teachers have high expectation to all students and provide appropriate guidance to all students during teaching and learning process

3. The School wide Enrichment Model
The main goal of the School wide Enrichment Model (SEM) is to promote both challenging and enjoyable learning. Besides that, SEM also allows school to develop a collaborative school culture that takes advantage of resources and appropriate decision-making opportunities in order to create meaningful, high-level and potentially
creative opportunities for all students to develop their talents. Curriculum compacting in SEM is a procedure used for modifying regular curricular content to accommodate advanced learners.

The interesting aspect in SEM is that SEM appreciates the creative-productive giftedness. This aspect was taken in consideration when developing Talent Development Programme (TDP) in MJSC. TDP tend to promote creative-productive giftedness among the MJSC students by putting students’ abilities to work on problem and areas of study that have personal relevance to the students. The problem then will be escalated to appropriate investigative activity.

TDP was designed to encourage creative productivity on students by exposing them to various topics, areas of interest and fields of study. The students then were train to apply advanced content, process-training skills and methodology training to self-selected areas of interest. There are three stages in TDP:

(a) Type 1 Enrichment: is designed to expose MJSC students to a wide variety of disciplines, topics, occupations, hobbies, persons, places and events that would not ordinarily be covered in regular curriculum.

(b) Type II Enrichment: consists of materials and methods specially designed to promote the development of thinking process. Training activities in Type II is general and usually carried out both in classrooms and in enrichment programme. The training activities includes the development:  
- Creative and critical thinking, problem solving skills and affective process  
- A wide variety of specific learning how-to-learn skills  
- Skills in the appropriate use of advanced-level-reference materials  
- Written, oral and visual communication skills

(c) Type III Enrichment: involves students who become interested in pursuing a self-selected area and are willing to commit the time necessary for conducting scientific research in which they play the role as a first-hand inquirer and a researcher.

![Figure 2. Three stages in Talent Development Programme](image)

The MJSC students is compulsory to conduct one scientific research in a group of four guided by a mentor (teacher) as a requirement to graduate as MJSC students. The MJSC students must undergo the TDP since they were in form four (TYPE I ENRICHMENT and TYPE II ENRICHMENT) and this continues when they were in form five. At this stage, they were required to conduct a research, write a report regarding the research and finally present the research. They will present their research during MJSC Open Day, parents and students from nearby schools were invited to see and gain knowledge from their research.

4. Limitations

Due to constraints in time and finance, this study only involved 40 MJSC students (MJSC Taiping, MJSC Jasin, MJSC Pengkalan Chepa and MJSC Langkawi). The reason for selecting only 40 respondents is because MJSC Taiping, MJSC Jasin, MJSC Pengkalan Chepa and MJSC Langkawi are fully-comprehensive gifted and talented residential school and they stressed on differentiated curriculum especially on research activity.
5. Methodology

This research is a survey design research which use questionnaire in order to collect data. The questionnaire were distributed to 40 MJSC students which were selected randomly from 4 selected MJS; MJSC Taiping, MJSC Jasin, MJSC Pengkalan Chepa and MJSC Langkawi. Respondents are required to state their opinion based on 5 scales; HDA= Highly Disagreed, DA= Disagree, A= Agree and, HA= Highly Agree. The reliability of the questionnaire is 0.85. Examples of item used in the questionnaire are as follows:

Table 3. Examples of items used in the questionnaire.

<table>
<thead>
<tr>
<th>ITEMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doing research has increased my interest in science subject.</td>
</tr>
<tr>
<td>I enjoy doing research.</td>
</tr>
<tr>
<td>I am willing to spend extra time searching for reading materials on</td>
</tr>
<tr>
<td>my research topic.</td>
</tr>
<tr>
<td>I am stressed as I have to finish up the research in order to</td>
</tr>
<tr>
<td>graduate from MJSC.</td>
</tr>
</tbody>
</table>

6. Results

Data collected from the questionnaire were analyzed using descriptive statistic (frequency and percentage). According to Moore and Blankenship (1978) and Kamariah and Rohani (1995), when the percentage is >40%, it shows that the respondents highly agreed on Talent Development Programmes (TDP) importance. From this research, most of the respondents state that they enjoy doing research (93%) and they are willing to spend extra time searching and conducting the research (88%). 82% of the respondents state that they can manage their time appropriately for both academic and research activities. Only a small percentage of the respondent felt stressed to finish up the research activity (8%).

7. Discussion and recommendation

Based on this research, researcher can conclude that MJSC students enjoy doing research. They like to explore areas not covered by mainstream curriculum. Furthermore, their interest in science area increased as they were given an opportunity to learn on their own (with little guidance from teacher). Respondents suggested this programme (Talent Development Programme) should be implemented in all schools as research activity can cultivate student’s critical and creative thinking skills. But, before the Talent Development Programme (TDP) is being integrated to all schools, many aspects must review especially on teacher preparedness to guide their students in conducting systematic and scientific research. Problems that hinder MJSC teachers from guiding their students is because the lack of knowledge and skill in research area. This could be due to the fact that the MJSC teachers do not have some kind of training or attended any courses related to the use of research activity for teaching and learning purposes. Therefore, to overcome this problem, adequate training and technical support staff must be prepared to help teachers. When the Talent Development Programme is fully comprehensive after several adjustments, then the idea of integrating the programme to all schools can be considered.
References


