

TEACHER INSTRUCTIONAL PRACTICES AND STUDENT ACHIEVEMENT
IN SCIENCE STREAMING CLASSES: THE CASE OF ISLAMIC RELIGIOUS
SCHOOLS IN KELANTAN, MALAYSIA

IRNI BT ISMAIL

A project report submitted in partial fulfilment of the
requirements for the award of the degree of
Master of Education (Curriculum and Instruction)

Faculty of Education
Universiti Teknologi Malaysia

AUGUST 2013

Specially dedicated to my husband Nor Azri Othman, my daughter Nisreen Amaleen, my son Nabhan Affan and my *Mak* and *Ayah* and all my siblings.

Thank You.

ACKNOWLEDGEMENT

I would like to express my gratitude to my supervisor, Dr. Shafeeq Hussain Vazhathodi, for encouraging, guiding, teaching, and challenging me to complete this research projects. I would also like to thank the faculty members of Curriculum and Instruction, Faculty of Education, UTM; where each of them has been inspiring me to move forward till I achieve my goal.

I would also like to thank those from Ministry of Education and Yayasan Islam Kelantan, the school community involved in this study without their cooperation I would have finished the study.

Special thanks goes to my husband Nor Azri Othman and our children Nisreen Amaleen and Nabhan Affan, my *Mak* and *Ayah* and also my siblings who not only encouraged me to pursue my Masters but also took up the slack in making sure all family matters are taken care of. I am truly blessed to have you all in my life.

ABSTRACT

As teachers are pressed to extend their craft to prepare more diverse students for the challenge of work and life beyond school, they are challenged to provide more authentic instructional contexts and activities. In order to be successful, teachers must be reflective and analytical about their own practices. Toward this end, the study investigated instructional practices (IP) of teachers in Islamic religious schools in Kelantan, Malaysia. The focus was on these teachers' IP while teaching subjects of Biology, Chemistry and Physics in Science Streaming Classes. The four instructional practices measured are Inquiry-Discovery (ID), Constructivism, Science Technology and Society (STS) and Mastery Learning and the analysis of data indicate high mean score, i.e., ID (M = 3.75), Constructivism (M= 3.94), STS (M= 3.70) and mastery learning (M = 3.75). This means to prove all 18 teacher participants in the study adopt these IPs. The study also focused on students' achievement factors in terms of Motivation and Self-regulated learning (SRL). 233 students responded to two instruments; Students' Motivation Toward Science Learning (SMTSL) by Tuan *et al.* (2005) and SRL scale by the Paul R. P and Elisabeth V. D. G, (1990) which was modified accordingly. A moderate level of motivation (M=2.38) and moderate level of SSRL (M=2.49) was recorded among students. The study therefore concludes that the heavy subject load of integrating both Islamic Religious and Science streaming curriculums do not hinder teachers to adopt various IPs, or students from being motivated and self-regulate their learning.

ABSTRAK

Guru disarankan agar dapat melahirkan pelajar yang dapat berdaya saing di dalam kerjaya serta kehidupan selepas zaman persekolahan, oleh itu guru-guru dicabar untuk membekalkan pelajar dengan pengajaran dan aktiviti-aktiviti yang berkesan. Untuk menjayakan hasrat tersebut, guru mestilah lebih reflektif dan analitikal di dalam memilih pengajaran yang sesuai. Untuk mencapai matlamat ini, kajian dijalankan untuk mengkaji bagaimana amalan pengajaran guru-guru (IP) dan hubungkaitnya dengan pencapaian pelajar-pelajar dalam mata pelajaran sains di sekolah-sekolah agama di Kelantan. Tumpuan diberikan kepada kaedah dan teknik pengajaran yang biasa digunakan oleh guru-guru dalam subjek Biologi, Kimia dan Fizik aliran Sains Tulen. Empat amalan pengajaran telah dikaji iaitu inkuri penemuan (ID), konstruktivisma, Sains, Teknologi dan Masyarakat (STS) dan Pembelajaran Masteri. Keseluruhan min membuktikan bahawa kesemua 18 guru yang terlibat dalam kajian ini berjaya mengaplikasikan keseluruhan IP. Guru-guru menunjukkan amalan pengajaran yang tinggi di dalam ID ($M = 3.75$), konstruktivisme ($M = 3.94$), STS ($M = 3.70$) dan Pembelajaran Masteri ($M = 3.75$). Kajian ini juga memberi tumpuan kepada faktor-faktor pencapaian pelajar dari sudut motivasi dan pembelajaran sendiri (SRL). Sebanyak 233 pelajar dipilih sebagai responden kepada dua instrumen; Motivasi Pelajar terhadap Pembelajaran Sains (SMTSL) dari Tuan *et al.* (2005) dan SSRL dari Paul R. P dan Elisabeth V. D. G, (1990). Tahap motivasi peringkat sederhana ($M = 2.38$) dan tahap sederhana dalam pembelajaran sendiri ($M = 2.49$) dicatatkan di kalangan pelajar. Tahap motivasi sederhana ($M=2.38$) dan tahap SRL sederhana ($M=2.49$) direkod dikalangan pelajar. Kajian ini merumuskan bahawa bilangan subjek yang diintegrasikan antara sekolah agama dan kurikulum sains tidak menghalang guru mengaplikasikan kepelbagaian pengajaran serta tidak menjadi halangan kepada pelajar-pelajarnya dari sudut motivasi serta pembelajaran sendiri.

TABLE OF CONTENTS

CHAPTER	TITLE	PAGE
	DECLARATION	ii
	DEDICATION	iii
	ACKNOWLEDGEMENT	iv
	ABSTRACT	v
	ABSTRAK	vi
	TABLE OF CONTENTS	vii
	LIST OF TABLES	x
	LIST OF FIGURES	xii
	LIST OF SYMBOLS	xiii
	LIST OF ABBREVIATIONS	xiv
	LIST OF APPENDICES	xvi
1	INTRODUCTION	
	1.1 Introduction	1
	1.2 Background of the Study	2
	1.3 Statement of the Problem	10
	1.4 Objective of the Study	13
	1.5 Research Questions	14
	1.6 Significance of the Study	14
	1.7 Scope of the Study	15
	1.8 Limitation of the Study	15
	1.8 Operational Defination of Term	16
2	LITERATURE REVIEW	17
	2.1 Introduction	17
	2.2 Curriculum in Secondary Schools in Malaysia	18
	2.2.1 Integrate of Science Process Skills and Thinking Skill20	

2.2.2	The Change in Science Curriculum in Malaysia.....	22
2.3	Religious Schools in Malaysia	23
2.3.1	Public Religious Schools.....	24
2.3.1.1	National Religious School (SMKA).....	24
2.3.1.2	SABK Schools.....	25
2.3.2	Private Religious Schools	26
2.3.3	<i>Rakyat Religious School (SAR)</i>	27
2.3.4	Issue on Religious Schools in Malaysia.....	27
2.3.5	Implementation of Science Streaming Classes in Religious Schools.....	28
2.4	Science Instruction in Malaysia	29
2.4.1	Constructivism.....	32
2.4.2	Inquiry Discovery.....	36
2.4.3	Contextual Learning	39
2.4.5	Mastery Learning	41
2.4.5	Science Technology Society Learning	43
2.5	Factor of Students' Achievement	45
2.5.1	Self-regulated Learning	46
2.5.2	Motivation	48
2.5.3	Motivation and Self Regulating as Factor of Students' Achievement	49
2.6	The relationship between Instructional Practice Increase Students' Achievement	50
2.7	Conclusion	51
3	RESEARCH METHODOLOGY	52
3.1	Introduction	52
3.2	Research Design	52
3.3	Population and Sample	53
3.3.1	Teacher Population and Sample	54
3.3.2	Students Population an Sample	55
3.4	Research Instrument	56
3.4.1	Instrument on Teacher Instuctional Practices.....	56
3.4.2	Students Achievement Instrument	57

3.5	Pilot Study	58
3.6	Data Analysis	60
3.6.1	Variables.....	60
3.6.2	Statistical Analysis.....	60
3.7	Conclusion	62
4	DATA ANALYSIS AND RESULTS	63
4.1	Introduction	63
4.2	Demographic Data of Respondents	64
4.2.1	Background of Teachers.....	64
4.2.2	Students Respondent	68
4.3	Teacher Instructional Practice	69
4.3.1	Constructivism Practices among Teachers	70
4.3.2	Inquiry Discovery Practices among Teachers	71
4.3.3	Mastery Learning Practice among Teachers	74
4.3.4	Science Technology and Society Practice among Teachers	76
4.4	Motivation and SRL Influence Students' Achievement	78
4.4.1	Descriptive Data for Student Motivation	78
4.4.2	Descriptive Data for Students Self-Regulated Learning.....	85
4.5	The Relationship of Students' Achievement between Students' Motivation factor with SRL Factor	88
4.6	Conclusion	89
5	DISCUSSION, RECOMMENDATIONS AND CONCLUSION	90
5.1	Introduction	90
5.2	Discussion	90
5.2.1	Common IP of Teaching Biology, Physics and Chemistry Subjects in Science Streaming Class among Teachers	91
5.2.2	Effect of Students' Achievement in Religious Schools	95
5.3	Recommendation	100
5.3.1	Recommendations for Change	100
5.3.2	Recommendations for Further Study	102
5.4	Conclusion	106

REFERENCES
Appendices A - K

107
125-164

LIST OF TABLES

TABLE NO.	TITLE	PAGE
1.1	Option of religious schools in Malaysia	5
2.1	Model of Constructivism in teaching science	33
3.1	The overall population in religious schools in Kelantan	54
3.2	Teachers Population and Sample	55
3.3	Name of school and the minimal requirement	55
3.4	Students Population and Sample	56
3.5	Variables Reliability statistics result using Cronbach's Alpha	59
4.1	School that offer science streaming and selected for the study	64
4.2	Distribution of teacher respondents by gender.	65
4.3	Distribution of teacher respondents by race.	65
4.4	Distribution of teacher respondents by age	66
4.5	Distribution of teacher by the level of teaching	66
4.6	Distribution of teacher by subjects they taught	67
4.7	Teaching Experience of Science	67
4.8	Qualification of teachers	68
4.9	Distribution of student respondents by gender according to school	69
4.10	Scales of Evaluation by Mean	69
4.11	Mean and mean value relate to instructional practices	70
4.12	Results for constructivism.	70
TABLE NO.	TITLE	PAGE
4.13	Result of inquiry discovery	72

4.14	Result of mastery learning practice.	75
4.15	Result of STS practice	76
4.16	Scales of Evaluation by Mean	78
4.17	Descriptive Data for Students Motivation	79
4.18	Students self efficiency result	79
4.19	Students active learning strategies result	80
4.20	Students science learning value result	82
4.21	Students performance goal result	82
4.22	Students performance on achievement goal	83
4.23	Students' performance on learning environment stimulation	84
4.24	Descriptive Data for Students' Self Regulated Learning	85
4.25	Result on Cognitive Strategy Use	86
4.26	Result on Self Regulatory Use	87
4.27	Pearson correlations result	88
4.28	Correlation Matrix for motivation and self regulating factor in achievement of Participants	87

LIST OF FIGURES

FIGURE NO.	TITLE	PAGE
2.1	The structural of Science Curriculum in Malaysia	31

LIST OF SYMBOLS

α	-	Alpha
df	-	degree of freedom
f	-	frequency
μ	-	mean
p	-	level of significance
N	-	number of respondent
%	-	percentage
SD	-	standard deviation

LIST OF ABBREVIATIONS

CDC	-	Curriculum Development Centre
CSU	-	Cognitive Strategy Use
KBSM	-	<i>Kurikulum Bersepadu Sekolah Menengah</i> (Malaysian National Secondary School Syllabus)
KBSR	-	<i>Kurikulum Bersepadu Sekolah Rendah</i> (Malaysian National Primary School Syllabus)
ID	-	Inquiry Discovery
IPP	-	Instructions Practices Pattern
MAIK	-	The Council of Malay Kelantan Custom and Islamic Religion (<i>Majlis Agama Islam dan Istiadat Melayu Kelantan</i>)
MOE	-	Ministry of Education
NPE	-	The National Philosophy of Education
PMR	-	Lower Secondary Assessment (<i>Penilaian Menengah Rendah</i>)
PPSMI	-	Teaching and Learning of Science and Mathematics in English (<i>Pengajaran dan Pembelajaran Sains dan Matematik Dalam Bahasa Inggeris</i>)
SABK	-	Government Aided Religious Schools (<i>Sekolah Agama Bantuan Kerajaan</i>)
SAN	-	State Religious Schools (<i>Sekolah Agama Negeri</i>)
SAR	-	<i>Rakyat</i> Religious Schools (<i>Sekolah Agama Rakyat</i>)
SAS	-	<i>Rakyat</i> Religious Schools (<i>Sekolah Agama Swasta</i>)
SBP	-	National Control School (<i>Sekolah Berasrama Penuh</i>)
SMKA	-	Government Religious Schools (<i>Sekolah Menengah Kebangsaan Agama</i>)

SMU	-	Religious Examination <i>(Sijil Menengah Ugama)</i>
SPM	-	<i>Sijil Peperiksaan Malaysia</i> (Malaysia Certificate of Education)
SRL	-	Self-regulating Learning
SRU	-	Self Regulatory Strategy Use
STMSL	-	Students' Motivation toward Science Learning
STS	-	Science Technology and Society
STAM	-	Malaysian Higher Islamic Religious Certificate <i>(Sijil Tinggi Agama Malaysia)</i>
STPM	-	Malaysian Higher School Certificate <i>(Sijil Tinggi Persekolahan Malaysia)</i>
YIK	-	Kelantan Islamic Foundation <i>(Yayasan Islam Kelantan)</i>
YPINK	-	<i>Yayasan Pelajaran Islam Negeri Kelantan</i>

LIST OF APPENDICES

APPENDIX	TITLE	PAGE
A	List of Subjects in Islamic Religious	125
B	Questionnaires: Teacher perspectives	127
C	Students' Motivation towards Science Learning Instrument	133
D	Students' Self-regulated Learning Questionnaire	139
E	Letter from UTM: Status of Confirmation	143
F	Letter of Approval from the Ministry of Education	145
G	Letter of Approval from Kelantan Education Department	148
H	Letter of Approval from <i>Yayasan Islam Kelantan</i>	150
I	Analysis of Results: Reliability for pilot testing	152
J	Analysis of Results: Teachers' IPP	157
K	Analysis of Results: Students' Achievement Factor	161

CHAPTER 1

INTRODUCTION

1.1 Introduction

In the year 2020, Malaysia is aiming to become a fully industrialised and developed country as envisaged in the nation's 'Vision 2020.' In the effort, currently Malaysia is focusing on the provision of a good education and effective learning and teaching strategies than before. For certain, this includes a good science education as science is considered as a key growth area for the Malaysian economy. In line with this, various new measures are being taken to develop and innovate the science curriculum in schools. The recent Malaysia Education Blueprint 2013-2015 (2012), (hence forth referred as 'the Education Blueprint 2013'), for example, lays out various long-term policy directions to achieve rapid, sustainable and fundamental transformation of the Malaysian education system.

Historically, the modern education system in Malaysia has been emphasising the development of strong content knowledge in key subjects including science. Besides this, the Education Blueprint 2013' calls for a refocus on developing higher-order thinking skills. This is in line with the concerns over risks and decline in

standards with regards to ‘a variety of scientific cognitive skills such as application and reasoning’ (The Education Blueprint 2013, p. E5).

The Education Blueprint 2013, hence, suggests various policy guidelines for religious, sports, arts, and other educational pathways in the country. It is in this context, the present study aims to address the instructional practices and student achievement among the Malaysian Religious schools. The study focuses on impact of instructional practices adopted by such schools in providing the learning of science stream subjects. The study specifically focuses on such religious schools in Kelantan. The following section on the background of the study further elaborates on these schools, their curriculum for teaching religious and sciences stream subjects.

1.2 Background of the Study

Religious schools are the earliest forms of schooling known in Malaysia. In the past, mostly they offered non-formal education through Qur’anic schools, then in schools known as *Sekolah Pondok* and then in *Madrasah*. This pattern of education concerned mostly on Islam and the Holy Quran, provided a non-systematic education, with no written curriculum, fixed schedule and teaching aid (Fakhrurrazi A.M, 1998). As Rosnani Hashim et.al.(2011) stated Kelantan and Terengganu could be considered as pioneers of *Pondok* education. The first *pondok* in Kelantan was *Pondok Tok Pulai Chondong*, establish in 1820 (Rosnani, 2004, p. 24). In 1962, there were over 100 *Pondoks* in the then Kelantan District (Yayasan Islam Kelantan, 1995/1996).

The more organized forms of religious schools known as *madrasah* was established since the twentieth century (Rosnani *et.al* . 2011). The first Madrasah or

Arabic school named as Madrasah Muhammadiyah was founded by the Council of Malay Kelantan Custom and Islamic Religion (Majlis Agama Islam dan Istiadat Melayu Kelantan, MAIK) in 1915 (Fakhrurrazi A.M, 1998). This *Madrasah* or Arabic school had three streams: Malay and English stream in 1917 and Arabic stream in 1924 (Kam Kim, 1994). This school initially received less support from people because of the high influence of *Pondok* in that time. In 1920s, some branches of these schools, including schools for girls were established (Nik Mohamed N.M.S, 1988).

Later on, *Madrasahs* was turned into *Rakyat* (Arabic) Secondary School (*Sekolah Menengah (Arab) Rakyat*). The *Rakyat* (Arabic) Secondary School (*Sekolah Menengah (Arab) Rakyat*) were constructed by certain individuals or by local residents in the village, mostly through charitable donations and school fees. They were established due to the inability of MAIK to provide sufficient religious schools in the state Kelantan. However in terms of registration and the curriculum, they were under MAIK supervision as it was the highest body (Abdul Razak M. 2002. P. 125).

In 1976, all schools under MAIK were taken over by the State Government through Department of Religious Schools in Kelantan (*Jabatan Sekolah-sekolah Agama Kelantan*, JASA). In 1979, they were re-registered under Kelantan's Education Foundation (Yayasan Pelajaran Islam Negeri Kelantan or YPINK) through the Kelantan Enactment bill 5/1979. To give more power to the Foundation, the modified of enactment in 8/1982 was done. Thus, YPINK was changed into Kelantan Islamic Foundation (Yayasan Islam Kelantan or YIK). Accordingly to Fakhrurrazi A.M (1998) this modification also was due the financial constraints. YIK was established to strengthen the management and control of schools, religious or Arabic.

Currently, YIK administration has a total of 18 secondary schools fully registered under the State, 45 state assisted religious schools, 20 schools under Government Aided Religious Schools (*Sekolah Agama Bantuan Kerajaan* or SABK), 5 Maahad Tahfiz, a *Pondok*, an Islamic Foundation College, and 3 Islamic Kindergarten located in various locations in 10 territories around the Kelantan state (Pelan Startegik YIK 2010-2015, 2010 pp 32). All school under YIK administration

(either registered fully under the State or assisted religious schools, SABK and Maahad Tahfiz) used its own curriculum, and kept a separate identity from those of the National Secondary Religious Schools (*Sekolah Menengah Kebangsaan Agama or SMKA*), which was introduced by the Ministry of Education in 1977 to offer Arabic language and higher Islamic religious study for all its students beginning with the first year of secondary school (Rosnani, 2004, p. 9).

By establishing the SMKA, the MOE aimed to make students of SMKA to ‘penetrate various professions, but with their Islamic values intact’ (Rosnani, 2004, p. 86). In 1989, following the formulation of the National Education Philosophy (NEP), the Integrated Curriculum for Secondary Schools (*Kurikulum Bersepadu Sekolah Menengah or KBSM*) was introduced to the SMKA.

In the beginning there were only eleven SMKAs. One of the first schools of Rakyat Religious Schools (Sekolah Agama Rakyat or SAR) in Kelantan involved in this program was SMKA Naim Lilbanat. Thus, in the SMKA students are taught not exclusively in the religious subjects but also in one of three available streams: arts, science, and technical/vocational. Currently, there are about 55 schools of this type in Malaysia and six of them are in Kelantan (MOE, 2013). Currently, the MOE is exploring opportunities to increase the number of religious schools available to students. This could include attempts to increase the number of SMKAs and encouraging greater conversion of private religious schools to SABKs (Blueprint, 2012, p. 7/12). More and more parents are interested in sending their children to SMKA, as demonstrated by the fact that it is one of the fastest growing schooling options in Malaysian education. However, 50% of applications are rejected due to limited places (Blueprint, 2012, p. 7/10). Thus, besides SMKA, there are other religious school pathways that ‘may fall under the jurisdiction of either the federal or state governments’ (Blueprint, 2012, p. 7).

To put this long narration in short, the contemporary religious schools in Malaysia can be grouped into five types, i.e., National Religious Schools, (*Sekolah Menengah Kebangsaan Agama or SMKA*), Government Aided Religious Schools (*Sekolah Agama Bantuan Kerajaan or SABK*), State Religious Schools (*Sekolah*

Agama Negeri or SAN), Rakyat Religious Schools (*Sekolah Agama Rakyat* or SAR) and Private Religious schools (*Sekolah Agama Swasta* (SAS) (Table 1.1).

Table 1.1: Option of religious schools in Malaysia

Option of religious schools	Registration	Type of curriculum
Government Religious Schools, (<i>Sekolah Menengah Kebangsaan Agama</i> or SMKA)	Federal government	National curriculum
Government Aided Religious Schools (<i>Sekolah Agama Bantuan Kerajaan</i> or SABK)	Federal government	National Curriculum and religious curriculum
State Religious Schools (<i>Sekolah Agama Negeri</i> or SAN)	State government	National Curriculum
Rakyat Religious Schools (<i>Sekolah Agama Rakyat</i> or SAR)	State government	National Curriculum and religious curriculum
Private Religious schools (<i>Sekolah Agama Swasta</i> or SAS)	Federal government	National Curriculum or National Curriculum and religious curriculum

At present, the MOE supports many of the schools identified with the federal government through financial, administrative and infrastructural supports to religious schools, but not pertaining to curricular content, although the MOE was keen to continue improving the international recognition of the religious education qualifications in Malaysia. The criticism goes that various core religious subjects introduced by the MOE namely the Al-Quran and Al-Sunnah, Syariah Islamiyah Education, Tasawwur Islam and Higher Arabic language do not come at par with the the Al-Azhar secondary curriculum. Rather they are taught in Malay than Arabic medium. Then, only about 30% of class teaching time is allocated to religious curriculum compared to 60% to 70% which was the case before KBSM was introduced (Azizi U. *et al*, 2011). This remains as the reason why many Rakyat (people) Religious Schools (*Sekolah Agama Rakyat* or SAR) authority was not confident of the MOE (Azizi U. *et al*., 2011).

SAR reflects Malaysia's long tradition of formal form of religious education established and managed by individuals or a group of local residents in villages, independent Islamic foundations, or other nongovernmental organizations. This adds to highly diverse curriculum followed by them. However, mostly they follow closely the curriculum set by the state religious departments for state religious schools, but not the national curriculum or any other formal Islamic studies curricula made available through government agencies (Raince, 2009; Rosnani, 2004, p. 132). Thus, they maintain their autonomy over educational issues and have tended to resist state and national government intervention which seeking religious schools to move forward in line with other schools (Raince, 2009). However, due to the government policy requiring students from secondary religious schools to sit for public examinations the scope of vocation expanded and the vocational aim grew in importance that from 1995 onwards many of SAR also offer the science streaming classes.

The case of Government Aided Religious Schools (*Sekolah Agama Bantuan Kerajaan* or SABK) is particularly relevant at this point. The MOE introduced Government Aided Religious Schools (*Sekolah Agama Bantuan Kerajaan* or SABK) in 2005 based on the recommendations Tan Sri Murad report on reviewing Islamic Education issues and role of Islamic religious schools (Azizi U and H. Hanafi Atan, 2012). SABK schools are registered with and administered by the Ministry of Education, which entitle them to get various supports and facilities from the ministry. They are considered as public schools which include primary and secondary schools which formerly were SAR and had agreed to receive government assistance in return for converting to the government curriculum. Key difference between SABK and the SMKA is that religious subjects in curriculum in SABK are taught in Arabic (Blueprint 2012, Exhibit 7/8). Similarly with SMKA, they also follow the Integrated Curriculum for Secondary Schools (*Kurikulum Bersepadu Sekolah Menengah* or KBSM). According to MOE till Jun 2012, there are about 169 out of 384 religious schools had been registered under SABK and 21 of them are in Kelantan.

One of the similarities between SABK and SAR in Kelantan is their practice of two groups of subjects or two curriculums; a religious curriculum and National Curriculum, i.e., KBSM. The religious curriculum in SAR is based on the model of the *Maahad Al- Bu'uth Al-Islamiah al-Azhar*, which includes subjects on Islamic studies, Arabic language and literature, and they are taught in the Arabic medium. SABK, meanwhile, follow a curriculum prepared by the state and the subjects are taught in Bahasa Malayu. Once students complete Form 2 under this curriculum, they would sit for the Lower Secondary Religious Examination (*Penilaian Menengah Rendah Ugama* or PMRU). Once qualified they can further their study under the same curriculum till Form 4, upon which sit for Secondary Religious Examination (*Sijil Menengah Ugama* or SMU) (Nik Kamliyah N.A (2006).

In Kelantan, the Kelantan Islamic Foundation (Yayasan Islam Kelantan or YIK) is responsible for the dissemination and development of Islamic education in the state. The foundation maintains the autonomy of the schools under it. Thus, many SAR under YIK did not convert to the group of SMKA. However, it manages few SABKs, but are aided by the government. As per a Memorandum of Understanding (MoU) signed by state with MOE, these SABK follow the state religious curriculum, which is not the case in many other states. Similarly with SAR, they teach two-pronged curriculums simultaneously: a religious curriculum in line with the Al-Azhar secondary curriculum, and a National curriculum in line with the Ministry of Education (MOE). In line with MOE, they follow the Integrated Curriculum for Secondary Schools (*Kurikulum Bersepadu Sekolah Menengah* or KBSM) and students are taught in one of three available streams: arts, science, and technical/vocational.

The religious curriculum was based on the model of the *Maahad Al- Bu'uth Al-Islamiah al-Azhar*, which includes subjects on Islamic studies, Arabic language and literature, and they are taught in the Arabic medium. SABK, meanwhile, follow a curriculum prepared by the state and the subjects are taught in Bahasa Malayu. Once students complete Form 2 under this curriculum, they would sit for the Lower Secondary Religious Examination (*Penilaian Menengah Rendah Ugama* or PMRU). Once qualified they can further their study under the same curriculum till Form 4, upon which sit for Secondary Religious Examination (*Sijil Menengah Ugama* or

SMU) (Nik Kamliyah N.A (2006). This system of combining two curriculums thus makes students to qualify for religious studies in any university either within or even outside state, in religious or other streams (Pelan Strategik YIK 2010-2015, 2010 p. 13).

To put it differently, the implementation of two curriculums means more subjects need to be learned by students; class learning time to be shortened so that all subjects in both curriculums are taught effectively, but consequently reducing student-teacher interaction and utilization effective teaching and instructional methods. This study aims to explore effects of following such two heavy curriculums on student achievement in science stream subjects, i.e., Biology, Physics and Chemistry. Also the study aims to find out the patters of instructional practice of teachers teaching these subjects. The study therefore does not involve discussion on policy and administrative issues, whereas the above background was given to put the study in a context.

1.3 Statement of Problems

In the debate on what factors cause students to achieve in their study, many factors have been identified to contribute to different aspect of their academic achievement. Academic achievement is defined by Crow and Crow (1969) as the extent to which a learner is profiting from instruction in a given area of learning. In other words, achievement is reflected by the extent to which skill and knowledge has been imparted to pupils. Academic achievement also denotes the knowledge attained and skill developed in the school subject, usually designed by test scores. The level of achieving is how far students succeed in a particular exam or standardized test (Reber, 1985).

The factors that lead to academic achievement include factors include the students' background and general social context or parents' socio-economic status (Anisef and Bunch, 1994; Cassidy and Lynn, 1991), parenting styles (Darling and

Steinberg, 1993; Steinberg, 1996; Nooraini and Azizi, 2004), parental expectations and involvement such as amount of time that parent spent with children (Muola, 2010), teachers' expectancies (Haynes and Johnson, 1983), class size (Mosteller, 1995), teacher qualifications (Ferguson, 1991), school size (Haller, 1993), school climate, teaching and learning or instructional practices by teachers and peer relationship (Adeyemo and Torubeli, 2008; Berndt et al., 1990; Levitt et al., 1994). Other things that may influence academic achievement include student motivation (Nunez et al., 1998) and self-regulated learning or SLR (Pintrich & de Groot, 1990; Zimmerman & Martinez-Pons, 1990).

Ryan S.J.D. Baker and Philip H. Winne (2013) suggested how motivation together with metacognition and self-regulated learning offers significant affordances to learning science. The three together provide *raison d'être* about why and how learners develop knowledge, beliefs, attitudes and interests. Motivation is considered in relation to the object of motivation, and the behaviours that may be engaged in. In the context of learning, theories of motivation strive to account for why people initiate thoughts and why pupils continue to behave in a particular way.

Steffen (2006) suggested that self-regulated learning has become an important topic in educational and psychological research. Self-regulated Learning is the ability of students to plan, monitor, and evaluate their own behaviour, cognition and learning strategies McCaslin & Hickey (2001) and to have the ability to self-regulate, students must also be motivated to use developed or newly acquired self-regulation strategies effectively.

Thus, now days, in the face of globalisation and ever increasing influence of various technologies and global competition, the emphasis of education is no longer just on the transfer of content knowledge, but on developing instructional strategies that promote motivation and self-regulated learning among students. Stake and Easley (1978) found that many teachers emphasize facts in science contents and provide students with few opportunities to develop high level cognitive skills. Thus, in teaching, teachers not only must be knowledgeable of the content but be able to deliver them rightly to promote learning among students. This is extremely important, especially for secondary schools students because their achievement can

be related to their choices of subject and scholarship at the university level or their choices of future professions. Good academic results will provide more career choices and job security (Kong B. L., 2011).

A lot of instructional practices such as cooperative, collaborative, contextual and mastery learning, etc. have been already identified as very effective measures that inculcate motivation, metacognitive development and self-regulated learning. Adopting such practices would enhance an environment in which learners can acquire ideas, skills, and positive attitudes towards various subjects that they learn. This study concerns on how such practices are utilized in science-stream classes in secondary schools in Malaysia. This is done in the context of the report from Trends in International Mathematics and Science Study (TIMSS) that shows that students in Malaysia although they understand basic Mathematics and Science concepts, generally struggled to apply this knowledge. A breakdown of student performance in the most recent TIMSS 2007 results in comparison to other systems shows that relatively few of Malaysia's students are excelling. Only 2-3% of Malaysian students perform at the highest benchmark level, such as complex problem-solving, whereas in comparison, more than 30% of students in Singapore scored at the advanced level in Mathematics and Science (Blueprint MOE, 2012 p. 3/10).

Further this study is carried out in the specific context of SABK and SAR, where compared to the national type schools or SMKA students need to learn more subjects for they implement two curriculums. That means they have shortened class learning time consequently resulting in the reduced student-teacher interaction and less utilization of effective teaching and instructional methods. For example, in SABK and SAR schools, students need to learn twenty three subjects meanwhile in the national type schools then need study only ten subjects. In the context of this increased number subject matter, this study investigates how students adapt with the situation. Specifically the study is interested to find out firstly, how students maintain their achievement in the science-stream subjects, how motivated these students are learn them, and how they self-regulated their learning; and secondly how they are correlated to the instructional practices adopted by the their teachers.

1.4 Objective of the Study

Objectives of this study are:

- i. To identify instructions practices (IP) of teaching Biology, Physics and Chemistry subjects in science streaming class in Religious Schools in Kelantan.
- ii. To identify the effects of these IP on the achievement of students in science streaming class in Religious Schools in Kelantan.

1.5 Research Questions

In this study, three questions will be addressed:

- i. What are the common instructional practices (IP) adopted by teachers of Religious Schools in Kelantan while teaching science subjects in science stream classes?
- ii. What are the effect of IP on student achievement, in terms of motivation and self-regulated learning in science subjects in science stream classes in Religious Schools in Kelantan?

1.6 Significance of the Study

Not many studies were done on the aspects of the instructional practices in the Malaysian context either in the context of science subjects matter or focussing on the Islamic religious schools. The Islamic religious schools represent only 4% of total amount of secondary schools in Malaysia. And what is studied about them mainly is on teacher instructional practices of subject such as Bahasa Melayu, English, Advanced Arabic and Qur'an and as-Sunnah from the perspective of teachers and students. Practices in science instruction as in these types of schools were not much discussed, may be because instructional practices in science should be following an approach are different from any other subjects. According to CBC (2005), teaching and learning strategies in the Biology, Physics and Chemistry should emphasise thoughtful learning. Thoughtful learning is a process that helps students acquire knowledge and master skills that will help them develop their minds to the optimum level. Thoughtful learning can occur through various learning approaches such as inquiry-discovery, constructivism, contextual learning, and mastery learning. In this regard, as Nurfaradilla *et al* (2010) reveal, uncovering problems faced by science teacher and discussing the gaps between theories of teaching and teaching practice is very much significant. It is hoped that this research will help find out details on any gaps in sciences instructional and teaching practices among the religious schools in Malaysia. Adoption of suitable instructional practices will help to increase student achievement. Thus, the study also will look on the relation between student achievement and teacher instructional practices. The finding of this study will help teachers to get better insights on what instructional practice should be continuously used to help students, and thereby teachers could modify their practices of teaching science and improve the quality in education.

1.7 Scope of the Study

This research concerns to collect the data on Instructional Practice Patterns among teachers of Biology, Chemistry and Physics in Science Streaming Classes in SABK and SAR. There are several schools that offer Science Streaming Class in SABK and SAR but only a few of them were chosen. These schools select student to place them in science stream according to their respective result in Lower Secondary Assessment (Penilaian Menengah Rendah (PMR)). They are: SMU (A) Maahad Muhammadi Lelaki, SMU (A) Maahad Pengajian Islam, SMU (A) Maahad Muhammadi Pasir Mas and SMA Tengku Amalin Aishah and SMU (A) Maahad Amir Petra. Details on these schools will be discuss in Chapter 2.

1.8 Limitation of the Study

Limitations of the present study are:

- a) This study is only limited to Instructional Practice Patterns (IPP) such as Inquiry Discovery, Mastery Learning, Constructivism, Science Technology and Society (STS) in science learning.
- b) Student achievement in this study only concern on motivation and Self-Regulated Learning.
- c) The study is limited to Form 5 students of religious schools in Kelantan which cover SABK and SAR who study in science streaming classes.
- d) In this study, only the science teachers of certain religious schools in Kelantan that have science streaming classes are included as participants.

1.9 Operational Definition of Terms

Students

Student in this study are secondary school learners enrolled in Form 5 science streaming classes in religious schools in Kelantan.

Teachers

In this study, the term teacher is used to refer to those who instruct and teach Biology, Chemistry and Physics subjects in in Form 5 science streaming classes in religious schools in Kelantan.

Instructional Practices (IP)

In this study, Instructional Practices (IPP) is defined as the general principle, guidelines and suggestions for the systematic of instruction based on the Inquiry-discovery, constructivism, Mastery learning and Science-Technology Society (STS),

Inquiry-Discovery

Inquiry-discovery emphasises learning through experiences. Inquiry generally means to find information, to question and to investigate a phenomenon that occurs in the environment. Discovery is the main characteristic of inquiry. Learning through discovery occurs when the main concepts and principles of science are investigated and discovered by students themselves (CBC, 2005)

Constructivism

Constructivism suggests that students learn about something when they construct their own understanding. The important attributes of constructivism are as follows: i.e.: taking into account students' prior knowledge, learning occurring as a result of students' own effort, learning occurring when students restructure their, existing ideas by relating new ideas to old ones, providing opportunities to cooperate, sharing ideas and experiences, and reflecting on their learning. (CBC, 2005)

Mastery Learning

Mastery learning is an approach that ensures all students are able to acquire and master the intended learning objectives. This approach is based on the principle that students are able to learn if they are given adequate opportunities, to learn at their own pace, with the incorporation of remedial and enrichment activities as part of the teaching learning process (CBC, 2005)

Science, Technology and Society (STS)

STS approach suggests that science learning should take place through investigation and discussion based on science and technology issues in society. In the STS approach, knowledge in science and technology is to be learned with the application of the principles of science and technology and their impact on society. (CBC, 2005)

Achievement

A student's current level of achievement is at a standard above their year group, which means that special consideration needs to be given to their learning needs in order to provide them with sufficient challenge to continue their accelerated rate of progression into the future.

Motivation

Theories of how students initiate behaviour, including thoughts, and why they continue to behave in a particular way or they change behaviour. Implicit in this view of motivation are six key features self efficacy, active learning strategies, science learning value, performance goal, achievement goal, learning environment stimulation.

Self-Regulated Learning (SRL)

SRL is an active, constructive process whereby learners set goals for their learning and then attempt to monitor, regulate, and control their motivation, cognition, and

behavior, guided and constrained by their goals and contextual features of the environment. Implicit in view of SRL are two major strategy; cognitive strategies use (students use to remember, and understand the material) and self regulatory strategies (planning, monitoring, and regulation, students' management and control of their effort on classroom academic material (Pintrich, 1990).

REFERENCES

- Ahmad Fauzi Abdul Hamid. (2005). *The Strategy of Islamic Education in Malaysia: An Islamic Movement's Experience*. In Abdul Wasik, Badrudin Harun, Farhan Effendy, S. Yunanto, Sri Nuryanti, and Syahrul Hidayat (Edt.). *Islamic Education in South and South East Asia: Diversity, Problems and Strategy*. Jakarta: The RIDEP Institute. Pp. 151-204.
- Abd. Rahim Abd. Rashid (1999). *Pendidikan Sejarah Falsafah, Teori dan Amalan*. Kuala Lumpur: Percetakan Cergas (M) Sdn. Bhd.
- Abd. Rahim Abd. Rashid. (1999). *Kemahiran Berfikir Kritis Merentasi Kurikulum: Pendekatan Pedagogi dan Wawasan Pendidikan Bestari*. Shah Alam: Penerbit Fajar Bakti.
- Abdul Razak Mahmud (2002). *Ikhtisar Sejarah Kelantan : Tanah Serendah Sekebun Bunga*. Pustaka Aman Press.
- Abdurrahman, M. and Bintaro (2000). *Memahami dan Menangani Pelajar dengan Problema dalam Belajar. Pedoman Guru*. Jakarta; Proyek Peningkatan Mutu SLTP, Direktorat Pendidikan Menengah Umum, Direktorat Pendidikan Dasar dan Menengah, Departemen Pendidikan Nasional.
- Abedi (2008) *Self-esteem and achievement motivation as determinants of students' approaches to studying*: EJ503294 <http://www.eric.ed.gov>
- Adeyemo and Torubeli (2008). Self-Efficacy, Self-Concept and Peer Influence as Correlates of Academic Achievement among Secondary School Students in Transition, *Pakistan Journal of Social Science*, 5:10-16.

- Airasian, P. W., and Walsh, M. E. (1997). Cautions for classroom constructivists. *Education Digest*, 62 (8), 62-69.
- Akcay, H., and Yager, R. E. (2010). The impact of a Science/Technology/Society teaching approach on student learning in five domains. *Journal of Science Education and Technology*, 19(6), 602–611.
- Ahmad Zabidi Abdul Razak (2003). *Teachers perception on the characteristics of effectives school: A research on several religious secondary schools in Selangor*. Seminar PJP 2003. University of Malaya, Kuala Lumpur.
- Alimuddin Mohd. Dom. (2011, Februari 3). *Cabaran, Perubahan Dasar Pendidikan. Utusan Malaysia* Retrieved June 1, 2013, <http://www.utusan.com.my>
- Ames, C. (1992). Classrooms: goals, structures, and student motivation. *Journal of Educational Psychology*, 84, 261e271
- Anderman, E.M., and Anderman, E.M. (1999). Social predictors of changes in students' achievement goal orientations. *Contemporary Educational Psychology*, 25, 21-37. Ao M.C. (2006)
- Anderman, E.M., and Anderman, E.M. (1999). Social predictors of changes in students' achievement goal orientations. *Contemporary Educational Psychology*, 25, 21-37.
- Ao M.C. (2006), *The effect of use of self regulated learning strategies on college students' performance and satisfaction in physical education*. PHD Thesis. Australian Catholic University
- Askari J. (2006), Assessment of risk factors of motivational deficiencies in university students from their viewpoints. *Quarterly Journal of Andeesheh Va Raftar* 2006; 43(11): 455-623.

Asma Hanim Mahmud (2013, Mac 10), *Utusan Malaysia*, 36000 Pelajar YIK Nikmati BBIM, Bantuan Awal Sekolah, Retrieved May 15, 2013, from <http://www.utusan.com.my>

Atkinson, J. (1964). *An introduction to motivation*. step toward a theory of academic motivation? *Review of Educational Research*, 41(2), 143–161.

Attenweiler W.J. and Moore D. (2006). Goal orientation: Two, three or more factors. *Educational and Psychological Measurement*, 66, 342 – 352.

Awg Kasmurie Awg Kitot et al, (2010). The Effectiveness of Inquiry Teaching in Enhancing Students'Critical Thinking, International Conference on Learner Diversity 2010 *Procedia Social and Behavioral Sciences* 7(C) (2010) 264–273.

Azizi, (2010). Sumber-sumber kewangan dan masalah pengurusanannya di sekolah-sekolah SAR/KAFA persendirian Selangor *International Conference on Islamic Education (ICIEd 2010)*

Azizi and Supyan (2010). Cabaran Penyelarasan Kuasa antara Kerajaan Negeri dan Persekutuan dalam Mengurus Sekolah Agama Bantuan Kerajaan(SABK), *Journal of Islamic and Arabic Educatio*. 4(1), 2012 21-30.

Azizi Umar , Supyan Hussien (2012),Cabaran Penyelarasan Kuasa antara Kerajaan Negeri dan Persekutuan dalam Mengurus Sekolah Agama Bantuan Kerajaan (SABK), *Journal of Islamic and Arabic education*, 4 (1),2012 21-30.

Azizi Umar, Wan Zulkifli Wan Hassan and Aminuddin Basir (2011). *Cabaran Melahirkan Ulama melalui Pelaksanaan Kurikulum Diniyah di Sekolah Agama Dalam Sistem Pendidikan Kebangsaan, Prosiding Nadwah Ulama Nusantara (NUN) IV: Ulama Pemacu Transformasi Negara.*

Azizi, Umar. (2011). *Penginstitutionan Sekolah Menengah Agama Rakyat dalam Polisi Pendidikan Kebangsaan : Suatu Kajian Kes di Kelantan*, PHD Thesis. University Kebangsaan Malaysia Kuala Lumpur.

Bandura, A. (1988). *Self-regulation of motivation and action through goal systems.* In V. Hamilton, G. H. Bower and N. H. Frijda (Eds.), *Cognitive perspectives on emotion and motivation* (pp. 37-61). Dordrecht, the Netherlands: Kluwer Academic Publishers

Barron, K. E., and Harackiewicz, J. M. (2001). Achievement goals and optimal motivation: testing multiple goal models. *Journal of Personality and Social Psychology*, 80(5), 706–722.

Beck, C. R. (2001). Matching teaching strategies to learning style preferences. *Teacher Educator*, 37(10), 1-5

Berndt, Thomas J.; Laychak, Ann E.; Park, Keunho (1990). Friends' influence on adolescents' academic achievement motivation: An experimental study, *Journal of Educational Psychology*, Vol 82(4), Dec 1990, 664-670.

Biggs, J. B. (1987). *Student Approaches to Learning and Studying.* Melbourne: Australian Council for Educational Research.

Bloom, B. S.(1976). *Human Characteristics and School Learning.* New York: McGraw-Hill.

- Brown, J. S., Collins, A., and Duguid, P. (1989). Situated cognition and the culture of learning. *Educational Researcher*, 18(1), 32-42.
- Carroll, J. B. (1989). The Carroll model: A 25 years retrospective and prospective view. *The Educational Researcher*, 18(1), 26-31.
- Cassidy and Lynn (1991). Achievement motivation, educational attainment, cycles of disadvantage and social competence: Some longitudinal data, *British Journal of Educational Psychology*, 61, 1-12.
- Cátia Bettencourt, José Lopes Velho, Patrícia Albergaria Almeida (2011). Biology teachers' perceptions about Science-Technology-Society(STS) education. *Procedia Social and Behavioral Sciences*, 15 (2011) 3148–3152
- Cohen's (1988). *Statistical power analysis for the behavioral sciences*. (2nd ed.). Hillsdale, NJ: Erlbaum.
- Correio, E. E., Griffin, L. R. and Hart, P. E. (2008). A constructivist approach to inquiry-based learning: A TUNEL assay for the detection of apoptosis in cheek cells. *American Biology Teacher*, 70 (8), 457-460
- Covington, M. V. (2000). Goal theory, motivation, and school achievement: an integrative review. *Annual Review of Psychology*, 51, 171–200.
- Craik, F. I., and Lockhart, R. S. (1972). Levels of processing: a framework for memory search. *Journal of Verbal Learning and Verbal Behavior*, 11(6), 684–971
- Crow, L.D., and Crow, A. (1969). *Adolescent development and adjustment*, United States: Mc Graw-Hill.

Curriculum Development Centre (2001). *Learning by means of inquiry*. KL: Curriculum Development Centre, Ministry of Education Malaysia.

Curriculum Development Centre (2003). *Curriculum Specifications: Biology Form 4*, Ministry of Education, Kuala Lumpur

Curriculum Development Centre (2005). *Curriculum Specifications: Physics Form 4*, Ministry of Education, Kuala Lumpur:

Dagiran Mustapha (2008). *Program pendaftaran sekolah agama sebagai sekolah bantuan kerajaan satu sorotan. Kertas kerja Seminar Pemantapan Kurikulum Sekolah Agama Bantuan Kerajaan Peringkat Kebangsaan. 3-5 Disember 2008. Port Dickson, Negeri Sembilan.*

Darling, N., and Steinberg, L. (1993). Parenting style as context: An integrative model. *Psychological Bulletin*, 113(3), 487-496.

Davis, D and Sorrell, J. (1995). Mastery Learning in Public Schools. *Educational Psychology* 51, 171–200

Dillman (1978), The importance of adhering to details of the Total Design Method (TDM) for mail surveys in New Directions for Program Evaluation Volume 1984, Issue 21

Eccles, J. S., Midgley, C., Wigfield, A., Buchanan, C. M., Reuman, D., Flanagan, C., (1993). Development during adolescence: The impact of stage-environment fit on young adolescents' experiences in schools and in families. *American Psychologist*, 48, 90–101

Eisner, E. W. (2000). Benjamin Bloom (1913-99). *Paris, UNESCO: International Bureau of Education* , XXX(3). Princeton, NJ: Van Nostrand.

- Elliot, A. J., and Harackiewicz, J. M. (1996). Approach and avoidance achievement goals and intrinsic motivation: A mediational analysis. *Journal of Personality and Social Psychology*, 70, 461-475.
- Entwistle, N. J., and Ramsden, P. (1983). *Understanding Student Learning*. London: Croom Helm
- Evi, S., Kamisah, O., and T.Subahan, M. (2010). The effectiveness of RANGKA contextual teaching and learning on student's problem solving skills and scientific attitude. *Procedia Social and Behavioral Sciences*, 9, 1717-1721.
- Fakhrurrazi A. Majid (1998) *Perceived And Observed Roles Of The Principals In The State Islamic Secondary Schools*. Masters Thesis, Universiti Islam Antarabangsa Malaysia.
- Felder, R. M., and Spurlin, J. E. (2005). Applications, reliability and validity of the Index of Learning Styles. *International Journal of Engineering Education*, 21(1), 103-112.
- Ferguson R. (1991). Paying for public education: New evidence of how and why money matters, *Harvard Journal on Legislation*, 28, (Summer 1991): 465-98.
- Furnivall, John S. (1965), *Colonial Policy and Practice: A Comparative Study of Burma and Netherlands India*, New York University Press.
- Galvão, C., and Freire, A. (2004). The STS perspective into the curricula of natural sciences in Portugal. In I. Martins, F. Paixão and R. Vieira (Eds.), (pp. 31–37). Aveiro: Universidade de Aveiro.
- Geelan, D. (1997). *Epistemological anarchy and the many forms of constructivism*. *Science and Education*, 6, 15–28.

- Gibson, H. L. and Chase, C. (2002). Longitudinal impact of an inquiry-based science program on middle school students' attitudes toward science. *Science Education*, 86 (5), 693-705.
- Greene, B. A., and Miller, R. B. (1996). Influences on achievement: goals, perceived ability, and reasoning engagement. *Contemporary Educational Psychology*, 21, 181–192.
- Guskey, T. R. (2005). Formative Classroom Assessment and Benjamin S. Bloom: Theory, Research and Implications. *Paper presented at the Annual Meeting of the American Educational Research Association*, Montreal, Canada.
- Habibollah Naderi , Rohani Abdullah Tengku Aizan H. , Jamaluddin Sharir , V. Kumar (2009). Self Esteem, Gender and Academic Achievement of Undergraduate Students, *American Journal of Scientific Research* ISSN 1450-223X Issue 3(2009),pp.26-37
- Hadwin, A. F., Winne, P. H., Stockley, D. B., Nesbit, J. C., and Woszczyzna, C. (2001). Context moderates students' self-reports about how they study. *Journal of Educational Psychology*, 93, 477–487.
- Haynes, N., and Johnson, S. (1983). Self- and teacher expectancy effects on academic performance of college students enrolled in an academic reinforcement program. *American Educational Research Journal*, 20(4):511–516 .
- Hofstein, A. and Lunetta, V. N. (2004). The laboratory in science education: Foundations for the twenty-first century. *Science Education*, 88 (1),28-54.
- Homayoni, A. Abdolahi, M. (2003). Investigating correlation between learning styles and cognitive styles and their roles in academic achievement of students. *Journal of Psychology*, 2: 179-197.

Ironsmith, M. and Eppler, M. A. (2007). Mastery Learning Benefits Low-Aptitude Students. *Teaching of Psychology*, 34(1).

Jones, M.G., Andre, T., Negishi, A., Tretter, T., Kubasko, D., Bokinsy, A., Taylor, R. and Superfine, R. (2003). *Hands-on science : The impact of haptic experiences on attitudes and concepts*. Paper presented at the National Association of Research in Science Teaching Annual Meeting. Philadelphia. PA.

Joseph .A.Maxwell, (2008) *Designing a Qualitative Study*, 07-Bickman-45636:07-Bickman-45636 Page 214

Joseph .A.Maxwell, (2008) *Designing a Qualitative Study*, 07-Bickman-45636:07-Bickman-45636 7/28/2008 6:13 PM Page 214

Kamisah Osman, Shaiful Hasnan Abdul Hamid, Arba'at Hassan (2009). Standard setting: inserting domain of the 21st century thinking skills into the existing science curriculum in Malaysia, *Procedia Social and Behavioral Sciences* , 1 2573–2577.

Karoly, P. (1993). Mechanisms of self-regulation: a systems view. *Annual Review of Psychology*, 44, 23-52.

Kirschner, P.A., Sweller, J., Clark, R.E., 2006. Why minimal guidance during instruction does not work: an analysis of the failure of constructivist, discovery, problem-based, experiential, and inquiry-based teaching. *Educational Psychologist* 41 (2), 75–86.

Kong B. L., (2011). The Relationship between Self-Concept, Intrinsic Motivation, Self-Determination and Academic Achievement among Chinese Primary School Students. *International Journal of Psychological Studies*, Vol. 3, No. 1; June 2011.

- Maehr, M. L., and Sjögren, D. D. (1971). *Atkinson's theory of achievement motivation: First constructivist view*. San Diego, CA: Academic Press.
- Majid, E. Damavandi and Zahra Shekari Kashani, (2010), Effect of mastery learning method on performance and attitude of the weak students in chemistry, *Procedia Social and Behavioral Sciences*, 5 (2010) 1574–1579.
- Mansoor Niaz (2008). Teaching and Teacher Education, Whither constructivism?— A chemistry teachers' perspective, *Epistemology of Science Group*, 24 400–416.
- Matthews M.R. (1998). *Constructivism in Science Education*. Dordrecht: Kluwer.
- McCaslin M. and Hickey D.T, (2001). *Self-regulated learning and achievement. A Vygotskian view* in B. Ziemmen and Schunk D. (Eds), *Self-regulated learning and academic achievement: Theory, research and practice*, 2nd Edition (pp. 227-252), Mahwah, NJ: Erlbaum.
- Melissa Ng Lee Yen Abdullah and Kamariah Abu Bakar (2006). *Motivational Beliefs and Self-Regulated Learning : A Study on Malaysian Students*. eprints.usm.my
- Miller, R. B., Greene, B. A., Montalvo, G. P., Ravindran, B., and Nichols, J. D. (1996). Engagement in academic work: the role of learning goals, future consequences, pleasing others, and perceived ability. *Contemporary Educational Psychology*, 21, 388–422.
- Ministry of Education Malaysia (2012). *Malaysia Education Blueprint 2013-2015*. , Ministry of Education Malaysia
- Mintzberg, H. (2004). *Managers not MBAs*, New York: Pearson Education.

- Mintzes, J., Wandersee, J.H., and Novak, J.D. (1998). *Teaching for understanding - A human Constructivist View*. San Diego: Academic Press, Inc.
- Mohamadi Y (2006). *Understanding motivation and emotion*. (4th ed). Tehran:Virayesh.
- Mohd Ayob Abd Razid. (2010). *Isu Bahasa: Memartabatkan bahasa Melayu sebagai saluran penguasaan ilmu*. <http://abihulwa.blogspot.com/2010/12/isu-bahasa-memartabatkan-bahasa-melayu.html>
- Molavi P, Rostami K.H, Fadaee Naeini A.R, Mohamadnia H, Rasolzadeh B. (2007), Factor responsible for lack of motivation among medical student's of Ardabil Medical University. *The Journal Iranian of Med Ass* 2007; 25(1): 53-8.
- Mosteller F. (1995). The Tennessee Study of Class Size in the Early School Grade, *Bulletin of American Academy of Art and Science, American Academy of Art and Sciences*. Vol 50, No 70, pp 14-25
- Moulton, K. D., Brown, S. D., and Lent, R. W. (1991). Relation of self-efficacy beliefs to academic outcomes: A meta-analytic investigation. *Journal of Counseling Psychology*, 38(1), 30-38.
- Muhammad Aryana (2010). Relationship Between Self-esteem and Academic Achievement Amongst Pre-University Students , *Journal of Applied Sciences* 10 (20)-2474-2477,2010. ISSN 1812-5654
- National Research Council (2003.) *National Science Education Standards*. Washington, DC:
- NCREL and Metiri Group. (2003). enGauge 21st century skills : Literacy in the digital age. [http:// www.ncrel.org/engage.org/engage](http://www.ncrel.org/engage.org/engage) [1 April2013].

- Nik Kamaliah Nik Abdullah, (2006), *Tamadun Islam di Kelantan: Analisi Khusus Mengenai Pengaruh Sistem Politik ke atas Sistem Pendidikan Islam Antara Tahun 1957 sehingga Tahun 2000*, Thesis Sarjana Uitm, Universiti Teknologi MARA.
- Nik Mohamed bin Nik Mohd Salleh (1988). *Penubuhan dan Perkembangan English School*", in *Nik Mohamed bin Nik Mohd Salleh (eds), Beberapa Aspek Warisan Kelantan VII*, him. 81. Kota Bharu: Perbadanan Muzium Negeri Kelantan,.
- Nik Mohamed N.M.S, (1988). Nik Mohammed Nik Mohd Salleh, *Perkembangan Pendidikan atau Pengajian Islam di Negeri Kelantan, Warisan Kelantan IV*, hlm .109. Kuala Lumpur: Perbadanan Muzium Negeri Kelantan.
- Noraziah bt. Ahmad. (2009). *Konstruktivisme dalam pengajaran dalam pembelajaran*.
<http://www.geocities.com/azam60/Tugasan2ASAS.htm#Konstruktivisme>.
- Norazzila Shafi e et al. (2010), *Mastery Learning Assessment Model (MLAM) in Teaching and Learning Mathematics*. International Conference on Mathematics Education Research 2010 (ICMER 2010), *Procedia Social and Behavioral Sciences* 8 (2010) 294–298.
- Omardin Ashaari and Yunus. 1999. *Kaedah Pengajaran Sejarah*. Kuala Lumpur: Utusan Distribution. Sdn Bhd.
- Özdem Y., Çava P. and Çava B. (2010). An Investigation of Elementary Students' Scientific literacy levels. *Journal of Baltic Science Education*,9(1), 1648–3898
- Ozden, M. (2008). Improving Science and Technology Education Achievement Using Mastery Learning Model. *World Applied Sciences Journal*, 5(1), 62-67.

- Pajares, F., Johnson, M. J., and Usher, E. L. (2007). Sources of writing self-efficacy beliefs of elementary, middle, and high school students. *Research in the Teaching of English*, 42, 104-120.
- Patrick, C. J., Hicks, B. M., Nichol, P. E., and Krueger, R. F. (2007). A bifactor approach to modeling the structure of the Psychopathy Checklist-Revised. *Journal of Personality Disorders*, 21, 118-141
- Perry, N. E. (1998). Young children's self-regulated learning and the contexts that promote it. *Journal of Educational Psychology*, 90, 715–729.
- Piaget, J. 1964. Cognitive development in children: Development and learning. *Journal of Research in Science Teaching*. 2: 176-186.
- Piburn, M. D and Baker, D.R. 1993. If I Were The Teacher.....Qualitative Study of Attitude Toward Science. *Science Education* 77(4): 393-406
- Pintrich, P. R., Smith, D., Garcia, T., and McKeachie, W. J. (1993). Reliability and predictive validity of the Motivated Strategies for Learning Questionnaire (MSLQ). *Educational and Psychological Measurement*, 53, 801–813.
- Pintrich, P. R., and De Groot, E. V. (1990). Motivational and self-regulated learning components of classroom academic performance. *Journal of Educational Psychology* 82,33-40.
- Pintrich, P. R., and Schunk, D.H. (1996). *Motivation in education: Theory, research and applications*(2nd ed.). Englewood Cliffs, NJ: Merrill Company.
- Pintrich, P. R., Smith, D. A .F., Garcia, T. and McKeachie W.J(1991). A manual for the use of the Motivated Strategies for Learning Questionnaire(MSQL). *Ann Arbor: Michigan* 48, 109 - 125.

- Punia Turiman et al., (2012) Fostering the 21st Century Skills through Scientific Literacy and Science Process Skills, UKM Teaching and Learning Congress 2011, *Procedia - Social and Behavioral Sciences*, 59 (2012) 110 – 116
- Ramlee Mustapha and Abu Abdullah. (2004). Malaysian transitions toward a knowledge-based economy. *The Journal of Technology Studies*.XXX(3), 51-62. <http://www.fep.um.edu.my.html>
- Reber A.R. (1985), *The Penguin dictionary of psychology*, Viking, National Academy Press.
- Reeve, J. M., and Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology*, 98, 209–218.
- Richard G, Raince K. (2009) Reforming Islamic Education in Mlayasia: Doctrain or Dialogue. In Hefner, Robert W (ed). *Making Modern Muslim: The Politics of slamic in Southest Asia*.
- Robert W.,1989 Impact of Conceptions of Ability on Self-Regulatory Mechanisms and Complex Decision Making, *Journal of Personality and Social Psychology*, Vol. 56, No. 3.407-415
- Rokiah @ Rozita Ahmad, Noriza Majid, Nur Jumaadzan Zaleha Mamat, Azmin ShamRambely, Nora Muda, Saiful Hafizah Hj Jaaman, Nur Riza Mohd Suradi, Wan Rosmanira Ismail, Faridatulazna Ahmad Shahabuddin, Roslinda Mohd Nazar, Humaida Banu Samsudin, Wan Zawiah Wan Zin, Marina Zahari and Najib Mahmood Rafee (2011). Transformation of language in teaching and learning policy, UKM Teaching and Learning Congress 2011, *Procedia - Social and Behavioral Sciences* 59 (2012) 685 – 691.
- Rosnani Hashim, Saheed Ahmad Rufai and Mohd Roslan Mohd Nor (2011). Traditional Islamic Education in Asia and Africa: A Comparative Study of Malaysia's Pondok, Indonesia's Pesantren and Nigeria's Traditional Madrasah.

World Journal of Islamic History and Civilization, 1 (2): 94-107, 2011 ISSN
2225-0883

Rosnani Hashim (2004). *Education dualism in Malaysia: Implication for Theory and Practice*. Oxford University Press

Sander W. and Cohen-Zada D. (2010). "The Economics of Catholic Schools." In B. McGaw, P. Peterson and E. Baker (Eds.), *Economics of Education*, edited by D.J. Brewer and P.J. McEwan. *International Encyclopedia of Education, 8-Volume Set, 3rd Edition, Elsevier*.

Sanjaya, W. 2006. *Pembelajaran dalam Implementasi Kurikulum Berbasis Kompetensi*. Jakarta: Fajar Interpratama Offset.

Schneider D, Krajcik J, Marx R.W, and Soloway, E. (2002). Performance of students in project-based science classrooms on a national measure of science achievement. *Journal of Research in Science Teaching*, 39 (5), 410-422.

Schunk, D. H. (1990). Goal setting and self-efficacy during self-regulated learning. *Educational Psychologist*, 25, 71-86.

Schunk, D. H. (2001). Social cognitive theory and self-regulated learning. In B. J. Zimmerman and D.H. Schunk (Eds.), *Self-regulated learning and academic achievement* (pp. 125–151). (2nd ed.). Mahwah, NJ: Erlbaum.

Sekaran, U. (2003). *Research methods for business* (4th ed.). Hoboken, NJ: John Wiley and Sons.

Severino, S., and Messina, R. (2010). Analysis of similarities and differences between on-line and face-to-face learning group dynamics. *World Journal on Educational Technology*, 2(2) 121-141.

Shulman, L. S. (1986). *Paradigms and research programs in the study of teaching: A contemporary perspective*. In M. C. Wittrock (Ed.), *Handbook of research on teaching* (3rd ed., pp. 3–36). New York: Macmillan.

Stake, R., and Easley, J. (1978). *Case studies in science education*. Urbana, IL: Center for Instructional Research and Evaluation.

Steffen (2006), Economic Association in its journal *Pattern of Returns to Educational Signals*, Southern. *Southern Economic Journal* page 125-135.

Steinberg, L. (1996). *Beyond the classroom: Why school reform has failed and what parents need to do*. New York, New York: Simon and Schuster.

Students, An overview of 15 to 18 Year Olds and the Educational Policy Implications for Dropouts, Exceptional Students, Employed Students and Native Youth. Lewiston: *The Edward Mellon Press*.

Taraban, R., C. Box, et al. (2007). Effects of active-learning experiences on achievement, attitudes, and behaviors in high school biology. *Journal of Research in Science Teaching* 44(7): 960-979.

Tetenbaum, T.J. and T.A. Mulkeen. (1986). Designing teacher education for the twenty-first century. *The Journal of Higher Education* 57 (6): 621-636.

Yayasan Islam Kelantan, Sejarah Penubuhan YIK. Retrieved : 16 June 2013. http://yik.edu.my/v2/latarbelakang/sejarah-penubuhan-yik

Tomlinson, C. (2001). *How to differentiate instruction in mixed ability classrooms* (2nd ed). Alexandria, VA: Association for Supervision and Curriculum Development.

Tuan H.L, Chin C.C and Shieh H.S. (2005) The development of a questionnaire to measure students' motivation towards science learning, *International Journal of Science Education Vol 27, No. 6, 16 May 2005, pp. 639–654*

Tulbure, C. (2010), Psychological and educational predictors of academic achievement, Cluj-Napoca: Presa Universitara Clujeana

Volkan Hasan Kaya (Dilber Bahceci b, Yasemin Godek Altuk c),(2012), The relationship between primary school students' scientific literacy levels and scientific process skills, CY-ICER 2012, *Procedia - Social and Behavioral Sciences, 47 495 – 500*

Vygotsky, L.S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

Wolters (1999). The relation between high school students' motivational regulation and their use of learning strategies, effort, and classroom performance, Learning and Individual Differences. *Journal of Educational Psychology, 11, 281–299*.

Wolters, B. and Benzon, M. (2010). *Understanding and Predicting the Self-regulation of Motivation in College Students*. Paper presented at the Annual Meeting of the American Education Research Association, Denver, CO.

- Wolters, C. (2011). Regulation of motivation: Contextual and social aspects. *Teacher's College Record*, 113 (2).
- Wolters, C. A. (2003). Understanding procrastination from a self-regulated learning perspective. *Journal of Educational Psychology*, 95, 179–187.
- Yager, R. E. (1996). History of Science/Technology/Society as reform in the United States. In R. E. Yager (Ed.), *Science/Technology/Society as areform in science education* (pp. 3–15). New York: State University of New York.
- Yayasan Pelajaran Islam Negeri Kelantan (YPINK),(1979) Bil (5) dim. JASA T/143, *Strategi Pelajaran Agama YPINK*, 18 Oktober, 1979, him .1.
- Yayasan Islam Kelantan. (2010), *Pelan Strategik YIK 2010-2015*. Yayasan Islam Kelantan: Kelantan
- Yuenyong, C. (2006). *Teaching and learning about energy: Using STS approach*. Unpublished PhD thesis, Kasetsart University in Yuenyong, C. and Narjaikaew,P. (2009) Scientific Literacy and Thailand Science Education. *International Journal of Environmental and Science Education*. *International Journal of Environmental and Science Education* Vol. 4, No. 3, July 2009, 335-349
- Yuenyong, C. and Narjaikaew,P. (2009) Scientific Literacy and Thailand Science Education. *International Journal of Environmental and Science Education*. *International Journal of Environmental and Science Education* Vol. 4, No. 3, July 2009, 335-349
- Zahara Aziz, and Nik Azleena Nik Ismail, (2007) *Kajian tinjauan kesediaan guru-guru sejarah menerapkan kemahiran pemikiran sejarah kepada para pelajar*. *Jurnal Pendidikan Malaysia*, 32 . pp. 119-137. ISSN 0126-6020 / 2180-0782

- Zhang, L. F. (2007), From career personality types to preferences for teachers' teaching styles: A new perspective on style match, *Personality and Individual Differences*, 43, 1863-1874.
- Zikmund, W.G. (2003). *Business Research Methods*, (7th edn), Thompson South-Western: Ohio
- Zimmerman, B. J. (2008). Investigating self-regulation and motivation: Historical, background, methodological developments, and future prospects. *American Educational Research Journal*, 45, 166–183
- Zimmerman, B. J., and Bandura, A. (1994). Impact of self-regulatory influences on writing course attainment. *American Educational Research Journal*, 31, 845–862.
- Zimmerman, B. J., and Martinez-Pons, M. (1990). Student differences in self-regulated learning: Relating grade, sex, and giftedness to self-efficacy and strategy use. *Journal of Educational Psychology*, 82, 51–59 (EJD 2/2/09).
- Zimmerman, B. J., and Paulsen, A. S. (1995). Self monitoring during collegiate studying: An invaluable tool for academic self-regulation. In P. R. Pintrich (Ed.), *Understanding self-regulated learning* (pp. 13-27). San Francisco, CA: Jossey-Bass.
- Zimmerman, B. J.(1989). A social cognitive view of self-regulated academic learning. *Journal of Educational Psychology*, 81(3), 329-339.
- Zurida Ahmad et al., (2006). *Kaedah Mengajar Sains*. Kuala Lumpur: PTS Professional Publishing Sdn. Bhd.
- Zurida, I., Mohd Ali, S., and Ahmad Nurulazam, M. (2005). Kesan pengajaran kontekstual ke atas pencapaian pelajar dalam Fizik. *Jurnal Pendidik dan Pendidikan* , 20, 43-51.