Kajian Penggunaan Eprints UTM dalam Kalangan Pelajar Fakulti Pendidikan Universiti Teknologi Malaysia

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Abstrak

Kajian ini dijalankan untuk mengkaji tentang penggunaan Eprints UTM dalam kalangan pelajar Fakulti Pendidikan University Teknologi Malaysia. Seramai 322 orang pelajar yang terdiri daripada pelajar pra sisiwazah dan juga pelajar pasca siswazah Fakulti Pendidikan telah dipilih sebagai responden dalam kajian ini. Instrumen kajian yang digunakan dalam kajian ini ialah soal selidik. Nilai kebolehpercayaan bagi kajian rintis yang telah dijalankan adalah 0.980. Data yang diperoleh telah dianalisi dengan menggunakan perisian Statistical Packages for the Social Science (SPSS) version 20.0 for windows bagi mendapatkan kekerapan, peratusan, dan min. Dapatan kajian menunjukkan min bagi tahap penggunaan adalah 2.46, tujuan penggunaan pula adalah 2.65 manakala keberkesanan dalam mendapatkan maklumat memberikan nilai min 2.67. Secara umumnya, tahap penggunaan Eprints UTM dalam kalangan pelajar Fakulti Pendidikan berada pada tahap sederhana. Beberapa cadangan turut dibincangkan dalam kajian ini untuk tujuan penambahbaikan.

Kata kunci: eprints, Kebolehgunaan, kebolehfungsian, UTM, pelajar pendidikan.

PENGENALAN

Dalam era perkembangan teknologi maklumat yang pesat kini, internet merupakan salah satu daripada penyalur sumber maklumat yang menyatukan semua maklumat daripada rangkaian komputer di seluruh dunia menerusi kemudahan sistem rangkaian. Maklumat mempunyai peranan yang penting dalam kehidupan seharian. Kita memerlukan maklumat untuk melakukan semua perkara. Disebabkan permintaan yang tinggi terhadap maklumat ditambah pula dengan perkembangan teknologi maklumat yang semakin canggih, telah menyebabkan wujudnya repositori institusi.

Menurut Lynch (2003), repositori institusi universiti adalah satu perkhidmatan yang ditawarkan oleh universiti kepada ahli komuniti bagi pengurusan dan penyebaran bahan-bahan digital yang dicipta oleh institusi dan ahli komunitinya. Kebanyakan perpustakaan yang mempunyai repositori institusi yang tersendiri akan mengawal akses kepada koleksi-koleksi mereka yang terdapat dalam repositori institusi tersebut.

Menyedari maklumat memberikan manfaat yang sangat besar kepada pelajar, Universiti Teknologi Malaysia (UTM) telah menyediakan pelbagai sistem pencarian maklumat seperti pengkalan data talian terus (Online Database) dan juga Eprints UTM (Universiti Teknologi Malaysia Institutional Repository) Eprints di bina pada tahun 2000 oleh University of Southampton (Diperolehi daripada http://en.wikipedia.org/wiki/EPrints). Eprints merupakan teks digital bagi artikel penyelidikan yang 'open acess' yang menyediakan jurnal-jurnal saintifik yang diperlukan oleh pengguna.

LATAR BELAKANG MASALAH

Dalam era perkembangan teknologi maklumat yang pesat kini, keperluan kepada maklumat tiada perhujungnya. Maklumat digunakan untuk melakukan semua perkara. Maklumat sangat diperlukan bukan sahaja kepada pelajar universiti tetapi juga kepada sesiapa sahaja yang menyedari kepentingan maklumat dalam kehidupan mereka. Disebabkan permintaan yang tinggi terhadap maklumat, UTM sangup membelanjakan sejumlah wang untuk menubuhkan Eprints UTM.

Berdasarkan kajian Xie (2006) juga, antara masalah yang dihadapi oleh pengguna semasa menggunakan perpustakaan digital ialah kemudahan penggunaan perpustakaan digital dan kemudahan di dalam mendapatkan maklumat yang mereka kehendaki. Pengguna membuat aduan bahawa mereka tidak dapat mencari maklumat yang mereka kehendaki dengan lebih tepat dan khusus. Mereka juga menyatakan bahawa pepustakaan digital tidak membantu mereka dalam membuat pertimbangan mengenai kualiti koleksi-koleksi yang ada dalam perpustakaan tersebut. Pengguna menyatakan bahawa mereka memerlukan maklumat untuk membantu mereka membuat pertimbangan tentang, hak cipta, pihak berkuasa, dan ketepatan koleksi-koleksi tersebut.

PERSOALAN KAJIAN DAN OBJEKTIF KAJIAN

Persoalan kajian berasakan objektif yang menjadi asas penyelidikan ini adalah seperti berikut:

- Apakah tahap penggunaan Eprints UTM dalam kalangan pelajar Fakulti Pendidikan?
- Apakah tujuan penggunaan Eprint UTM dalam kalangan pelajar Fakulti Pendidikan?
- Adakah Eprints UTM berkesan dalam mendapatkan maklumat?

Kajian yang dijalankan ini bertujuan untuk :

- Mengenalpasti tahap penggunaan Eprint UTM dalam kalangan pelajar Fakulti Pendidikan.
- Mengenalpasti tujuan penggunaan Eprint UTM dalam kalangan pelajar Fakulti Pendidikan.
- Mengenalpasti keberkesanan Eprint UTM dalam mendapatkan maklumat.

KEPENTINGAN KAJIAN

Di dalam menjalankan kajian pastinya terdapat masalah atau batasan. Kajian ini juga mempunyai beberapa batasan. Kajian ini hanya mengkaji tentang penggunaan Eprints UTM dalam kalangan pelajar Fakulti Pendidikan UTM sahaja yang mana hasil penemuan penyelidikan ini mungkin tidak mewakili penggunaan dalam kalangan pelajar fakulti-fakulti lain. Selain itu, penyelidikan ini juga dijalankan dengan mengunakan kaedah soal selidik yang mana ia boleh membataskan persepsi responden terhadap soalan dalam soal selidik tersebut. Bagaiamanapun, diharapkan melalui kajian ini sedikit sebanyak dapat membantu pihak yang terbabit menyediakan kemudahan yang sewajarnya kepada pelajar.

REKA BENTUK KAJIAN

Kajian ini menggunakan reka bentuk kajian deskriptif. Reka bentuk kajian deskriptif sesuai digunakan untuk mendapatkan maklumat mengenai penggunaan Eprints UTM. Kajian deskriptif dipilih kerana menurut Mohd Najib (1990), matlamat kajian ini adalah untuk mendapatkan maklumat tentang sesuatu fenomena atau situasi. Menurut Azizi Yahaya (2007), maklumat atau data yang diperoleh dengan menggunakan statistik deskriptif akan dibuat ringkasan dan dihuraikan. Dalam kajian ini, data analisis deskriptif seperti kekerapan, peratusan dan min digunakan.

POPULASI DAN SAMPEL KAJIAN

Populasi yang dipilih oleh penyelidik dalam kajian ini adalah pelajar Fakulti Pendidikan di Universiti Teknologi Malaysia. Populasi bagi kajian ini adalah seramai 2045 orang pelajar. Dalam kajian ini, penyelidik menggunakan kaedah pensampelan rawak mudah. Kaedah ini akan memilih sampel daripada populasi secara rawak. Kaedah ini dipilih kerana menurut Azizi (2007), kaedah pensampelan rawak dapat memastikan setiap ahli populasi mempunyai peluang yang sama untuk dipilih sebagai responden. Ini untuk memastikan tidak terdapat bias dalam pemilihan sampel. Seramai 322 orang pelajar dipilih untuk dijadikan sampel dalam kajian ini. Saiz sampel ini ditentukan dengan merujuk kepada jadual penentuan saiz sampel Krejcie dan Morgan.

Kajian ini dilakukan menggunakan kaedah tinjauan dan alat yang digunakan untuk mengumpul data ialah soal selidik. Soal selidik yang digunakan dalam kajian ini dibina berdasarkan soal selidik Alizan (2002) dan diubah suai berdasarkan objektif kajian memandangkan soal selidik ini kurang menepati kehendak objektif kajian ini. Dalam kajian ini penyelidik menyediakan satu set soal selidik yang mengandungi 2 bahagian iaitu bahagian A dan bahagian B.

Bahagian A mengandungi item-item yang berkaitan dengan demografi responden. Bahagian ini mengandungi 4 soalan yang berkaitan dengan latar belakang responden seperti jantina, semester pengajian, status pengajian dan URL Eprints UTM juga turut ditanya dalam bahagian ini. Manakala bahagian B pula mengandungi item-item yang berkaitan dengan tahap penggunaan, tujuan penggunaan dan keberkesanan Eprints UTM dalam mendapatkan maklumat. Bahagian B mengandungi 28 soalan yang mana setiap soalan dibahagikan kepada beberapa aspek yang dikaji. Item-item yang terdapat dalam bahagian ini menggunakan skala sikap. Skala sikap yang digunakan dalam soal selidik ini ialah skala Likert yang terdiri daripada 5 peringkat seperti dalam Jadual 1 .

Jadual 1 : Jadual peringkat skala Likert

Skala Likert	Singkatan	Skor
Sangat Setuju	SS	5
Setuju	S	4
Sederhana Setuju	SDS	3
Tidak Setuju	TS	2
Sangat Tidak Setuju	STS	1

Bilangan soalan mengikut setiap persoalan kajian dan bahagian pula dapat dilihat dalam Jadual 2.

Jadual 2 : Jadual Pengagihan Item

Bahagian	Aspek	No.Item	Bil item
A	Demografi	1-4	4
B	Tahap penggunaan	1-6	6
	Tujuan penggunaan	7-15	9
	Keberkesanan	16-28	13

KAJIAN RINTIS

Kajian rintis telah dilakukan keatas 16 orang pelajar yang mempunyai ciri-ciri yang sama dengan responden sebenar kajian. Data yang diperolehi daripada kajian rintis akan di analisis yang mana item-item yang bermasalah akan dibaiki. Hasil yang didapati melalui kajian rintis adalah dalam bentuk pekali Alpha Cronbach. Kebolehpercayaan instrument soal selidik menunjukkan nilai Alpha Cronbach 0.980. Pekali Alpha Cronbach yang berada di antara 0.8 – 1.0 menunjukkan item kajian boleh diterima dan tidak perlu diubah (Mohd Majid, 1990). Dalam kajian ini, rujukan dan pengesahan dari pensyarah yang berpengalaman juga didapatkan untuk menilai kandungan item soal selidik.

ANALISIS DAN PERBINCANGAN

Hasil kajian menunjukkan bahawa ramai responden yang pernah mengakses Eprints UTM tetapi hanya menggunakan Eprints UTM kurang daripada 5 jam seminggu. Di samping itu, hasil kajian juga menunjukkan bahawa responden tidak suka menggunakan Eprints UTM dan mereka juga tidak kerap menggunakan EPrints UTM. Kajian juga mendapati bahawa responden kurang menggunakan Eprints UTM berbanding dengan pangkalan data talian terus yang lain apabila ingin mendapatkan maklumat. Ini menunjukkan bahawa responden lebih suka menggunakan pangakalan data talian terus (online database) yang lain berbanding Eprints UTM. Selain itu, daripada kajian yang dilakukan oleh Johan (2001), juga mendapati kemudahan mendapatkan maklumat dan penyediaan bahan yang sesuai merupakan faktor yang menggalakkan pelajar menggunakan pangkalan data talian terus.

Oleh itu, tahap penggunaan EPrints UTM yang sederhana juga mungkin disebabkan oleh kemudahan pencarian maklumat yang kurang baik, penyediaan bahan yang tidak sesuai dan kualiti bahan yang disediakan kurang memuaskan. Jadual mengenai analisis data berkaitan penngunaan eprints ini boleh dilihat dalam Jadual 3.

Hasil kajian juga tujuan utama responden menggunakan Eprints UTM adalah untuk mendapatkan maklumat bagi penyelidikan berdasarkan nilai min yang dicatatkan adalah yang paling tinggi berbanding dengan nilai min yang lain. Hal ini mungkin disebabkan oleh, kebanyakan responden dalam kajian ini terdiri daripada pelajar semester 8 iaitu tahun akhir bagi pelajar Ijazah Sarjana Muda dan mereka terlibat dengan Projek Sarjana Muda (PSM). Hal ini selari dengan kajian yang telah di lakukan oleh Mohd Alizan (2002), yang mengatakan bahawa pelajar mendapatkan maklumat adalah untuk membantu mereka dalam tugasan dan penyelidikan mereka. Jadual lengkap hasil analisis ini boleh dirujuk dalam Jadual 4.

Bagi analisis data berkaitan keberkesanan Eprints UTM dalam mendapatkan maklumat pula, hasil analisis menunjukkan bahawa responden percaya bahawa dengan menggunakan Eprints UTM mereka dapat mencari maklumat yang mereka kehendaki. Responden juga bersetuju bahawa dengan menggunakan Eprints UTM pencarian maklumat mereka menjadi lebih senang. Ini mungkin disebabkan Eprints UTM menawarkan banyak pilihan judul untuk diakses terutamanya dalam bidang Pendidikan. Analisis kajian juga menunjukkan bahawa maklumat yang disediakan dalam Eprints UTM banyak membantu responden untuk menyiapkan tugasan dan penyelidikan. Responden juga bersetuju bahawa segala maklumat diperlukan oleh mereka terdapat dalam Eprints UTM dan maklumat yang terdapat dalam Eprints UTM memberi faedah yang besar kepada mereka. Menurut Owolabi, K. A. (2012), sumber elektronik memberikan banyak kemudahan kepada pengguna untuk mendapatkan pelbagai maklumat yang dapat membantu mereka dalam penyelidikan dan juga pembelajaran mereka. Jadual lengkap hasil analisis ini boleh dirujuk dalam Jadual 5.

KESIMPULAN

Kesimpulan daripada hasil kajian yang telah dijalankan didapati tahap penggunaan Eprints UTM dalam kalangan pelajar Fakuti Pendidikan ialah sederhana dan daripada hasil kajian juga mendapati bahawa kebanyakan pelajar menggunakan Eprints UTM adalah untuk mencari maklumat untuk tujuan penyelidikan. Secara umumnya, Eprints UTM merupakan salah satu daripada saluran maklumat yang memberikan banyak faedah kepada pelajar. Eprints UTM amat penting kepada pelajar bagi tujuan pencarian dan memperolehi maklumat untuk pembelajaran dan juga penyelidikan. Keputusan hasil kajian boleh dilihat dalam Jadual 6.

Bil	Persoalan Kajian	Min	Keputusan
1	Tahap Penggunaan Eprints	2.46	Sederhana
2	Tujuan Penggunaan Eprints	2.65	Sederhana
3	Keberkesanan Eprints dalam Mendapatkan Maklumat	2.67	Sederhana
	Purata Keseluruhan	2.59	Sederhana

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Jadual 3 : Analisis tahap penggunaan eprints UTM

	Pernyataan Item	Kekerapan dan Peratusan										Min
		STS		TS		SDS		S		SS		
		f	%	f	%	f	%	f	%	f	%	
1	Saya pernah mengakses eprints UTM.	86	26.7	57	17.7	42	13.0	98	30.4	39	12.1	2.84
3	Saya suka menggunakan eprints UTM.	77	23.9	74	23.0	84	26.1	69	21.4	18	5.6	2.62
5	Apabila saya ingin mendapatkan maklumat saya akan menggunakan eprints UTM.	90	28.0	71	22.0	68	21.1	78	24.2	15	4.7	2.56
2	Saya kerap mengakses eprints UTM.	94	29.2	79	24.5	74	23.0	64	19.9	11	3.4	2.44
6	Saya selalu mengakses eprints UTM berbanding dengan pangkalan data talian terus yang lain.	99	30.7	90	28.0	91	28.3	35	10.9	7	2.2	2.26
4	Saya menggunakan eprints UTM melebihi 5 jam seminggu.	121	37.6	93	28.9	81	25.2	24	7.5	3	0.9	2.05
	Purata Keseluruhan (%)	29.4		24.0		22.8		19.0		4.8		2.46

Jadual 4 : Analisis tujuan penggunaan eprints UTM

	Pernyataan Item	Kekerapan dan Peratusan										Min
		STS		TS		SDS		S		SS		
		f	%	f	%	f	%	f	%	f	%	
10	Saya menggunakan eprints UTM untuk tujuan penyelidikan.	4	26.1	55	17.1	61	18.9	92	28.6	30	9.3	2.78
8	Saya menggunakan eprints UTM untuk tujuan pembelajaran.	87	27.0	54	16.8	65	20.2	84	26.1	32	9.9	2.75
14	Saya menggunakan eprints utm untuk mencari bahan bacaan ilmiah.	83	25.8	60	18.6	70	21.7	80	24.8	29	9.0	2.73
15	saya menggunakan eprints UTM untuk mendapatkan bahan rujukan yang dapat memenuhi keperluan pembelajaran saya.	85	26.4	62	19.3	59	18.3	90	28.0	26	8.1	2.72
7	Saya menggunakan eprints UTM untuk mendapatkan maklumat.	86	26.7	57	17.7	65	20.2	97	30.1	17	5.3	2.70
9	Saya menggunakan eprints UTM untuk menyiapkan tugasan.	90	28.0	54	16.8	67	20.8	84	26.1	27	8.4	2.70
13	Saya menggunakan eprints UTM untuk meningkatkan pengetahuan dan kemahiran dalam memperoleh maklumat.	87	27.0	63	19.6	67	20.8	80	24.8	25	7.8	2.67
12	Saya menggunakan eprints UTM untuk menambah ilmu pengetahuan	87	27.0	64	19.9	69	21.4	81	25.2	21	6.5	2.64
11	Saya menggunakan eprints UTM atas permintaan pensyarah saya.	105	32.6	108	33.5	67	20.8	32	9.9	10	3.1	2.17
	Purata Keseluruhan (%)	27.4		19.9		20.3		24.9		7.5		2.65

Jadual 5 : Analisis keberkesanan penggunaan eprints UTM

	Pernyataan Item	Skala Likert										Min
		STS		TS		SDS		S		SS		
		f	%	f	%	f	%	f	%	f	%	
16	Eprints UTM menyediakan maklumat dalam bidang pendidikan.	68	21.1	42	13.0	75	23.3	112	34.8	25	7.8	2.95
28	Pencarian maklumat saya menjadi lebih mudah dengan adanya eprints UTM.	72	22.4	52	16.1	92	28.6	80	24.8	26	8.1	2.80
27	Penggunaan eprints UTM merupakan satu kaedah yang sesuai untuk mendapatkan maklumat.	69	21.4	65	20.2	73	22.7	97	30.1	18	5.6	2.78
21	Bahan yang disediakan membantu saya untuk menyiapkan tugasan dan penyelidikan.	73	22.7	48	14.9	101	31.4	78	24.2	22	6.8	2.78
19	Eprint UTM menawarkan banyak pilihan judul untuk diakses.	70	21.7	54	16.8	107	33.2	73	22.7	18	5.6	2.74
17	Maklumat yang diperolehi daripada eprints UTM dapat memenuhi keperluan pembelajaran saya.	73	22.7	54	16.8	98	30.4	84	26.1	13	4.0	2.72
22	Maklumat yang disediakan bersesuaian dengan maklumat yang saya ingin cari.	71	22.0	53	16.5	106	32.9	79	24.5	13	4.0	2.72
18	Saya mendapat banyak maklumat dengan menggunakan eprints UTM.	82	25.5	61	18.9	86	26.7	72	22.4	21	6.5	2.66
26	Eprints UTM hanya menyediakan maklumat dalam bentuk abstrak sahaja.	76	23.6	70	21.7	98	30.4	68	21.1	10	3.1	2.58
23	Segala maklumat yang saya perlukan terdapat dalam eprints UTM.	77	23.9	78	24.2	105	32.6	53	16.5	9	2.8	2.50
25	Saya boleh melihat maklumat dalam eprints UTM dalam bentuk text penuh.	81	25.2	85	26.4	79	24.5	69	21.4	8	2.5	2.50
* 20	Maklumat yang terdapat dalam eprint UTM tidak banyak memberi faedah yang besar kepada saya.	13	4.0	51	15.8	87	27.0	91	28.3	80	24.8	2.46
24	Koleksi-koleksi yang disediakan oleh eprint UTM mencukupi untuk menampung keperluan pembelajaran saya.	74	23.0	102	31.7	80	24.8	56	17.4	10	3.1	2.46
	Purata Keseluruhan (%)	23.1		20.4		28.3		23.3		4.9		2.67

The Investigation of Challenges in Teaching and Learning Mathematics through English at Secondary Schools in Kepulauan Riau, Indonesia

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Abstract

This study investigates about the challenges and constraints in teaching and learning mathematics through English. The study was conducted in two schools who participated in international standard schools program at secondary school level in Kepulauan Riau, Indonesia. The study used qualitative method with case study design, where interviews as main data collection method. The study found that: first, there were several constraints and challenges for the teachers in teaching mathematics through English such as: 1) the teachers had lack skills in teaching mathematics through English; 2) the low of self confident of the teachers in teaching mathematics through English; 3) the teacher worried to the students who didn't understand in English; 4) the improvement of teaching proficiency in English was not effective; second, the constraints were found in this study such as: 1) the students had lack skills in English; 2) the difficulty in understanding and identification concepts of mathematics in English; 3) the difficulty in problem solving questions which used English; 4) the methods of the teachers in teaching of mathematics through English; 5) the unfamiliarity in learning mathematics through English.

Keywords: Indonesian Secondary schools, International standard school, mathematics teaching, teaching mathematics through English, Indonesian Education development

INTRODUCTION

The *New Order* is the designation for the reign of President Suharto in Indonesia since 1966 to 1998. The *New Order* replaces the *Old Order* which refers to the Era of Sukarno, the Indonesia's first president. In that period time, Indonesia's economy developed rapidly although this coincided with the rampant corruption in the country. In 1997, Indonesia was affected by Asian financial crisis. Some economic and financial problems were occurred in Indonesia such as the slumped down of rupiah (Indonesian currency), the investors had stop their investments and inflation increased sharply. These problems bring some of demonstrators who initially led by the university students, demanding the resignation of Suharto. Therefore, *The New Order* in Indonesia ends when Suharto as a second president of Indonesia had replaced by B. J Habibie as the next president of Indonesia on May, 21, 1998.

The Habibie administration bring some alterations such as the changes of *New Order* become *Reform Era*. Reform means an improvement (or an alteration) in the existing form or situation of institutions. Reform Era occurred in Indonesia starting from 1998 with the purpose for alteration and recondition especially to improve the society in the field of politic, law, economic and social.

Society of Indonesia demanded two things that have to be accomplished in reformation on 1998. There are democratization and decentralization. The one of outcomes in reformation Indonesia as form of democratization and decentralization in education field was establishment of the Law of National Education No. 20 of 2003 (or UU Sisdiknas, UU no 20/2003). This Law of Education intended to all of society Indonesia to have the same basic right of Education. National Law of Education No. 20 of 2003 mentioned are basic human rights should be enjoyed by every decent and equitable society. It means the Law of Education performs of democratization to the society of Indonesia. Besides of that, the significance of authority and responsibility in term of management of education in Indonesia are transferred from central to the territorial of government as form of decentralization approach (Raihani & Sumintono , 2010). It is giving chances and efforts to the authority of territorial for development of education extensively. With the cooperation between the central of government and the territorial of government, they have responsibility in funding for implementation and improvement of education Indonesia.

Nowadays, globalization had influence of many aspects in the world such as in education. In term of the improvement of management as following the globalization, the central of government Indonesia initiated to establishment the international standard school program in 2006 (Sumintono, Mislan & Hushin, 2012). It appropriates in National Law of Education No.20 of 2003:

> *"The government and / or provincial government have implementation at least one of unit education at all of level education that will develop to unit of education with international standard" Section 50 (3) (National Law of Education No. 20 of 200)*

The contents of the National Law of Education No. 20 of 2003 as the purposes of the revisions had doing by government of Indonesia such as to improve the management of education in Indonesia and to develop knowledge and technology in order to compete in global. The establishment of International Standard School program is one of the efforts as education reform to perform better of quality education in Indonesia (Kustulasari, 2009). Actually, there are many processes for the schools that have to be performed to reach international standard school status. The schools are selected will be a pilot of international standard school (or *Rintisan Sekolah Bertaraf International*, RSBI in Indonesia term) at the beginning, before they become real international standard school (SBI). Implementation of hundreds RSBI Schools in Indonesia began on 2006 (Sumintono & Mislan, 2011).

Teaching and learning science and mathematics using English were demanded for the class of RSBI School. The government of Indonesia also expects to the students at RSBI School to learn the process of learning science and mathematics using English language to improve their achievements to compete in global world. However, during the implementation found some of constraints to the teachers and the students as the main actors. It is interesting to know what extent the constraints and challenges for the teachers and the students in teaching and learning mathematics through English.

LITERATURE REVIEW

Rintisan Sekolah Bertaraf Internasional (hereafter called RSBI) refers to a national school that was selected to become an International standard school. The official definition was given from the ministry of national education, which states the International Standard School in Indonesia is:

A school which fulfills all the National standards for Education and which is further enriched by taking into consideration the education standards of one member nation of the Organization for Economic Co-operation and Development (OECD) and/or another advanced nation which has particular strengths in education such that it achieves competitive advantage in the international forum (Depdiknas 2007:7).

This definition was given in 2007 by the appearance of government guidelines, which for the first time defined what is meant by 'International Standard School' and which laid down criteria for quality assurance. Based on the definition, the education standards from one member nation of the OECD or another advanced nation are used in implementation of RSBI School in indonesia. By using education standards from one member nation of OECD, the government of indonesia expects to the students in RSBI School have high competences to compete in global world.

Using English as medium of instruction in teaching and learning process in mathematics would be the purpose to improve the student's competences at level of global. The teachers have to prepare and perform their tasks by mastering the subjects and also by reaching competence in medium of instruction by using English (Visconde, 2006). The teacher's preparation should be in terms of knowledge and skills in mathematics and also the attitude toward the instrument that will be used in teaching mathematic. Attitude by using English as a medium of instruction has a significant role to achieve the successes of mathematics program of the schools.

Today, some issues of using English as medium of instruction occurred to the limited English proficiency of teachers and students (Kustulasari, 2009). Using English as medium of instruction became more complicated in implementation of teaching and learning process. Furthermore, teachers and students were faced with the challenges to use English as medium of instruction in teaching mathematics become global phenomenon. There were huge number of researches indicated that the students were having difficulties and problems in learning and also to grasp the content of knowledge when use English as medium of instruction in mathematics (Haryanto, 2012). The studies shown that English as medium of instruction was effected to the students' performance in learning process.

METHODOLOGY

This research used qualitative approach, attempting to gather information to answer all objectives of this study. The aims of qualitative research is to provide information and understanding of complex issues and worthwhile for answering 'why?' and 'how?' questions and it did not because of the preference of researcher (Marshall, 1996). In qualitative research, the researchers focus on investigating, examining, and describing people and their natural setting (Orb, Eisenhauer & Wynaden 2011). The natural setting means the environment did not set up artificial situation, but these were events that happen naturally, then the situation would be interfere the normal course of life such as a change in national or school policy (Woods, 2006). The change of the policy become international standard school or RSBI in Indonesia will be interfered the implementation of teaching and learning mathematics as normal environment then it will be focus in this study.

In this research, two of RSBI Schools were selected as the population of the study. The first school of study was participated RSBI program since begin of the policy of RSBI School in Indonesia was implemented. The second school of study was participated RSBI School since 2009. Two of RSBI Schools are placed in Kepulauan Riau, Indonesia. The targeted respondents of this study were the teachers of mathematics and the students who learn mathematics in RSBI Schools at Kepulauan Riau, Indonesia. The respondents of this study were observed during the process of teaching and learning mathematics. The respondents also were interviewed to obtain more information of

their perspectives about the implementation of teaching and learning mathematics through English at RSBI School. The documentary analyses were required to obtain more information that is not revealed in observation and interview.

FINDINGS AND DISCUSSION
The respondents were interviewed in this research such as the teachers who teach mathematics (six persons, with their initial started with letter T) and the students (fourteen persons, with their initial used letter S) at level of secondary school in Kepulauan Riau. The respondents were selected from two of secondary schools in Kepualauan Riau, Indonesia. Furthermore, the activities of teaching and learning mathematics at the class were observed in this research. All the teachers except one teacher (T-2) were observed during their teaching of mathematics at the class. The observations were done since the beginning of learning till the end for two teaching hours (ninety minutes).
The research findings in this article divided in to two sections such as the constraints and challenges for teachers who teach mathematics through English and also the constraints of the students with learning mathematics in English.

The constraints and challenges for teacher who teach mathematics through English
Actually, teaching mathematics through English would be the characteristic to RSBI Schools as differences from the other public regular schools in Indonesia. The government expected to the teachers of mathematics to teach and communicate fluently in English. Otherwise, the teachers of mathematics experienced some of difficulties and constraints to teach and communicate through English. Although the programs of improvement skills in English were given from the schools, the outcome also was not effective. From this research, some of constraints were found to the teachers in teaching mathematics through English such as:

1. The lacking skill in English
In activities of teaching at RSBI Schools, it encouraged the teachers to use English as medium of instruction effectively. The teachers of mathematics must use English in communication to the students and also to deliver the concepts of mathematics at the class. However, the constraint such as the lacking skills in English obstructed the teachers during the implementation. Based on the responses to the question which asked about the constraints in teaching mathematics through English: *What the constraints in teaching mathematic through English?* Almost all the teachers (except T-5) gave the same answers for that question:
The constraint was the lack of vocabulary. It was difficult to learn language especially in English language (T-1)
Because of that, the vocabulary still was not good enough (T-2).
The constraint was my skill in English, but I tried to learn how to deliver in English (T-3).
I understood mathematics in English, but the pronunciation was not good (T-4).
The first was the vocabulary and then the pronunciation. The vocabulary still was not enough, during the implementation, I mixed the languages. Therefore, I used English in teaching mathematics at the class infrequently (T-6).

The lacking skills in English such as the lack in vocabulary and pronunciation would be the constraints for the teachers of mathematics to teach through English. In communication skills, the vocabulary and the pronunciation were important. The teachers should have the sufficient of vocabulary in English in order to deliver the concepts of mathematics correctly. Besides of the vocabulary, the pronunciation should be clearly and appropriately to prevent the misunderstanding during the communication happened. The skill in English language should be considered for the teachers in teaching mathematics through English. In fact, because the skills in English of the teachers were not sufficient, therefore they used English in teaching mathematics at the class infrequently.

2. The teachers were not confident in teaching mathematics through English
The second constraint which related to the previous constraint was the less of self confidents to teach in English. The lacking skills in English affected to the self confident of teachers in teaching mathematics through English. The teachers of mathematics believed that the lacking skill in English such as the lack in vocabulary and pronunciation can reduced their self confident to teach in English. The teachers (T-2 & T-6) were not confident to teach in English because they were afraid in teaching the wrong concepts of mathematics to the students. They were also afraid to teach mathematics with the lacking in English and the students will laugh to them. The lacking skill in English caused of the teacher's mathematics had less of self confident in teaching mathematics through English at the class. The less of self confident to communicate with English, then it made the teacher to use English infrequently during the process of teaching mathematics to the students.

3. The teacher worried to the students who didn't understand in English

Beside of the less of self confident, the teacher also worried to the student will get confuse when they teach mathematics in English and it needed more times to deliver the subject of mathematics:

> *My English skill was not good. I worried to the students will confused when I teach mathematics in English. I tried to use, but the students were blank. Actually, the material itself was difficult, moreover to learn in English. Therefore, I didn't use English in teaching mathematics (T-4).*
>
> *Because of the students didn't understand when I taught mathematics by using English, it needed more times to teach them (T-5).*

4. The improvement of teaching proficiency in English was not effective

Actually, the schools supported the teaching and learning by using English with implementation some programs such as the training and course for improvement of teaching proficiency in English. The programs were implemented in order to help the teachers for reform their ability in English.

> *Researcher: Were there any programs that implemented from the school to improve teaching proficiency in English?*
>
> *T-1: Yes, there were. There were implemented some of programs in this school. There was a lecturer who came to teach English.*
>
> *T-2: For the early implementation of RSBI program, this school implemented some of programs to the teachers to improve their skills in teaching through English. Therefore, there were some times that carried out courses for the teachers. The school invited some English teachers from outside to teach our teachers in this school.*
>
> *T-3: Yes, there were. Actually, there were some courses for all the teachers.*
>
> *T-6: Yes, there were. The courses were implemented about three times. The tutoring class was implemented after school time. It was implemented two times per a week. So, it was a preparation for improving our skills in teaching mathematic through English.*

Based on the answers from the teachers, the preparation programs for improving the skill in teaching mathematics through English were implemented at their schools. It would help the teachers for increasing their vocabulary and repairing their pronunciation as their constraints in teaching mathematics through English as mentioned before. The teachers should use the chances as well as possible to improve their skill in English. However, some problems were still found to the teachers (T-1, T-2 & T-3) and obstructed them during the implementation such as the compact activities beside of teaching activities, the lacking skill in English and also the factor of old age that made the improvement of skill in English programs were not implemented effectively.

Mostly, the lacking skills in English caused the teachers were not confident to use English in communication and activities of teaching at the class. However, a challenge to teach mathematics through English was faced by some of the teachers. The teachers still had to experience the uncommon things in activities of teaching which was to teach mathematics through English. Usually, they used Indonesian language as national language to communicate during the activities of teaching at the class. The teachers had to change their common custom from using Indonesian language to the English language as medium of instruction and communication suddenly. It was a challenging for the teachers of mathematics to experiences in teaching mathematics through English during the implementation of RSBI Program at their schools.

Based on observation to all the teachers (except T-2), the teachers and the students used English in greeting and closing conversation. The greeting and closing conversation such as "good morning or good afternoon and good bye" were encountered from the observation. All the teachers used Indonesian language as the medium of instruction such as for write anything regarding the subject at whiteboard for example the titles, notes, exercises, all of writing in Indonesian language. It also happened to the students. The students wrote anything such as their notes and exercises in Indonesian language.

Regarding the responses from interview to the teachers, a few of teachers (T-1 & T-3) confessed that they mixed English and Indonesian language or used bilingual language during the activities of teaching mathematics at class. However, during the observation in activities of teaching and learning mathematics at the class, some of the teachers only used the simple words in English such as "*Do you understand, no problem, okay, maybe, next, thank you and don't worry*". During the observation to the activities of teaching and learning mathematics at the class for two teaching hours (ninety minutes), all the conversation between the teacher and the students used Indonesian language commonly. Although the teachers were lack in conversation by using English, at least some of teachers confessed that they gave some of mathematics term in English to the students:

> *One of the efforts, at least I gave some of mathematics term in English such as what straight line, parallel in English term. Although the students were expert in English, they did not know what the mathematics term in English (T-1).*
>
> *At least, the students knew some of mathematics terms in English (T-6).*

Beside of that, the teachers also confessed that they (T-1, T-4, T-5 & T-6) gave other efforts with made the questions for final exam every semester and sometimes for exercises of mathematics questions in English. These statements were not only come from the teachers, some of the students experienced the same things in fact. They (S-2, S-4, S-9, S-11, S-12, S-13 & S-14) experienced the final exam or exercise questions of mathematics in English. Although it just only some of questions in English and the rest questions in Indonesian language, it showed the efforts from the teacher in implementation of teaching mathematics through English at RSBI Schools.

The student's constraints in learning mathematics through English

Activities of teaching and learning mathematics through English did not conduct effectively during the implementation of RSBI Schools as mentioned before. However, the teachers (T-1 & T-2) believed to the students that the students had good skills and abilities in English. Although some of students had the good and sufficient skills in English, the students also experienced the constraints during the implementation. Regarding the interview question *"what the constraint that you faced in activities of teaching and learning through English during the implementation of RSBI program?"* The students as the respondents told their experiences about the constraints in learning mathematics through English at the class:

1. Lacking skill in English

As mentioned before, lacking skill in English would be the one of constraints for the teachers to teach mathematics in English fluently. Actually, it was also happened to the students during the implementation of RSBI program at those schools. The students had problems in learning mathematics through English:

> *The problems of the students at Indonesia in learning of mathematics through English might be because of the lacking in English. Not all the students in my class who had good and sufficient skills in English (S-2).*

Because of the lacking skills in English, one student (S-7) confessed that it obstructed her in activities of learning such as for ask some questions to the teachers. When this problem happened to the students, it would obstruct the fluency of activities in teaching and learning at class. When the students did not understand their learning, then the students did not want to ask the questions because they cannot use English to ask the question, it would be the disadvantages for the students.

In addition, the other students (S-1, S-8, S-10 & S-11) confessed that they had problems such as in mastery of vocabulary in English. Their vocabulary in English was lack and not sufficient to support their learning of mathematics in English:

As the responses from the students, lacking in English would be the constraint for them to learn of mathematics through English. It would happen to the teachers and the students. During the implementation, lacking in English made the process of teaching and learning mathematics by using English was not conduct effectively.

2. The Difficulty in understanding and identification concepts of mathematics in English

The other constraints that happen during the implementation of learning mathematics in English to the students were the difficulty in understanding and identification the concept of mathematics in English. The students experienced those constraints during the activities of learning mathematics through English. The students (S-4, S-6 & S-1) experienced that they had difficulties to learn and understand the concept of mathematics in English. It might happen because the lacking skill in English itself. When the students were lack in vocabulary of mathematics in English, it was difficult to understand the concepts for overall.

In addition, besides the understanding of concepts in mathematics, the other students added the difficulty in understanding of formula in concepts of mathematics.

> *One of the constraints was the difficulty in understanding. As we knew, mathematics consisted of a plenty of formulas which better to understand in Indonesian than English (S-5).*
> *Mathematics consisted of the complicated numbers, formulas, variables then we had difficulty to understand it. We had difficulty to comprehend in English (S-1).*

If the problems happen to the students, it affected to the understanding of concept's mathematics for the students:

> *When we did not understand the concepts from the definition especially, it would effect to the next concepts (S-12).*
> *In mathematics had to understanding the concepts. When we were in misconception or misunderstanding about the concepts, it would affect to the next topics in mathematics (S-11).*

The understanding concepts of mathematics were important to the students. When the students did not understand the main concepts, it will affect to the next concepts which related to the previous concepts. And when it occurred, the students would give up in learning mathematics for overall topic in mathematics.

3. Difficulty in problem solving questions which used English

The difficulty in problem solving questions in English would be the other constraints for the students during the implementation of leaning mathematics through English at class. Some students experienced the difficulty when they had to solve the problem questions in English.

I faced the difficulties in problem solving questions trough English (S-13).
For the problem, in mathematics through English was in problem solving questions which used English questions (S-14).

Actually, when the students faced the questions in English, they did not understand the meaning and what the questions wanted and asked.

In mathematics itself, we could look at the numbers or digits which it had to multiplication or division but we could not translate what the question wanted if the questions were given in English (S-14).

For this problem, the constraints of the students were the difficulties to understand the questions in English. It was easy for them when the questions just consisted of numbers or digits and the operations of mathematics such as in multiplication, division or the simple operations in mathematics. But, when the questions consisted of complicated words such as in the problem solving questions, then the students had to translate what the question wanted, it was the difficulty to the students to understand it.

4. Methods of the teachers in teaching of mathematics through English

In previous sections, the teachers stated that one of the constraints was the teacher worried to the students who did not understand in English. Related to this statement from the teacher, it was interesting when the students confessed that the one of constraints in learning mathematics was the teacher itself who didn't have ability in teaching by using English.

The constraint was come from the factor of the teachers who did not have ability and fluent in English. When the teachers tried to use English, they used the wrong grammar then it was difficult for us to understand. Therefore my constraints in learning mathematic through English occurred because the teachers (S-3).

The both of main actor such as the teachers and the students blamed each other as the problem in the process of teaching and learning through English was not implemented effectively. The teachers did not use English in teaching because they worried to the problems of students in understanding mathematics by using English and the students blamed to the teachers who did not have ability in teaching mathematics through English caused the failure of teaching mathematics in English. The other student also added the problems from the teacher such as the method that the teachers used in teaching:

The problem depended to the teachers and how the method that they used. It accepted or not to the students (S-8).

The methods of teaching were also important to the students. Sometimes, the factor from the teachers would affect to the students learning. The teachers should use the appropriate and interesting method in order to motivate the students learning.

5. Unfamiliarity in learning mathematics through English

As mentioned before, activities of teaching and learning mathematics at those schools was not implemented effectively. The teachers at those schools used English in teaching of mathematics infrequently. It caused of the unfamiliarity for students in learning mathematics through English (S-9).

Actually, in order to improve the skills in English language, the teachers and the students must use the language every day. The familiarity by using English in activities of teaching and learning would help the teachers and the students to improve their skills in English.

CONCLUSION

As referred to the the expression in national law No.78,2009 part 5(3), it stated that the international standard school can use english or foreign language as communication language in certain subject such as sciences, mathematics and core subjects. It would be also the characteristics of RSBI Schools compared to the other regular public schools that appeared in official books (Depdiknas, 2007: v-vii) as the one of areas for quality assurance to that school can be International standard school in Indonesia. Then, by using English also the advantages for the students to compete in global world.

Actually, teaching and learning by using English was demanded to RSBI Schools in Kepulauan Riau. But, during the implementation, it was not effectively conducted. There were several of constraints that obstruct the teachers of mathematics in teaching and communication by using English such as the lacking skill in English, the less of self confident in teaching mathematics through English, the teacher worried to the students who didn't understand in English and also the improvement of teaching proficiency in English was not effective.

This study also found the constraints to the students in learning mathematics through English. The constraints such as the lacking skill in English, the difficulty in understanding and identification concepts of mathematics in English, difficulty in problem solving questions which used English, the methods of the teachers in teaching of mathematics through English and also the unfamiliarity in learning mathematics through English.

Regarding the findings, the program of teaching and learning mathematics through English was good program, but in the implementation have to be demanded distinctly to the teachers and the students. In order to solve the problem of teachers who were lack in English, the enhancement programs such as training and course for improvement the teaching proficiency in English have to implement regularly and the teachers also have to follow the course seriously with high of responsibilities. Because, it still possible for the teachers to learn any new languages or knowledge when the teachers give the best effort to study and learn it.

Actually, for the students who are still young and fresh to accept the new knowledge, it is possible and a bit easy than the teachers to learn mathematics in English as long as the students willing to try. Based on findings, it found about the unfamiliarity of the students in learning mathematics through English. For suggestions, in order to improve the skill of learning mathematics in English, the students have to use English commonly during the activities of teaching and learning mathematics at the class. The teachers must also to help the students in practices.

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