## ACTIVE INVOLVEMENT OF STUDENTS IN CO-CURRICULUM (SPORTS) VERSUS GENERIC SKILLS

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**ABSTRACT:** The active involvement of students in sports activities is viewed from different levels of achievement beginning with the national representation of the residential colleges, faculties, and universities in prestigious sporting events at international levels. The skills that are developed through extra-curricular activities are generic skills. The involvement of students in co-curricular activities can help to shape their generic skills, thus leading to self-promotion in the workplace. Therefore, the purpose of this research was to examine the enhancement of generic skills among engineering and technical students of UTHM who are actively involved in co-curricular activities (sports). This study will focus on identifying the factors of involvement, the level of application among students, and the perceptions of the students through their active involvement in extra-curricular activities (sports). A survey was conducted using a quantitative approach. A general questionnaire, which was designed to fulfil the objectives and to answer the research questions for this study, was distributed to 213 engineering and technical student athletes of UTHM who are actively involved in co-curricular activities (sports). It was found that the engineering and technical student athletes of UTHM agreed that their active involvement in extra-curricular activities (sports) was due to interpersonal, intrapersonal and structural factors. The results showed that out of seven generic skills, three constructs of generic skills, namely communication, teamwork and management, demonstrate a high level of application through active involvement in extra-curricular activities (sports). These findings may also help the university to focus on the development of generic skills in engineering and technical students through co-curricular activities (sports) in addition to producing athletes who are able to create a name for the university at national or international levels

Keywords: Co-curricular (sports), Factors involved, Generic Skill

### 1. INTRODUCTION

The education program in Malaysia is basically divided into two major parts known as the curriculum and cocurriculum. According book, "Description of Integrated Secondary School Curriculum" [1], co-curricular fun can be defined as a learning channel that is based on work that is planned and systematic. Extracurricular activities are those activities involving sports, societies or clubs which provide an approach to a subject and culture, and the uniform bodies. Sports activities tend to be like football, rugby, swimming, volleyball, archery, tenpin bowling, golf, etc. [1]. In addition, the support of the Ministry of Higher Education was also very encouraging with the implementation of the IPT Sports Development Policy (DSIPT) in order to produce student athletes known as "Thinking Athletes" [26].

### 2. PROBLEM BACKGROUND

Based on the Tenth Malaysia Plan (RMK-10), the Ministry of Education stated in 2009, that 27 per cent of graduates from local universities were still unemployed six months after completing their studies while 33 per cent were successful in getting jobs earning less than RM 1,500 a month [11]. According to a report issued by Malaysia Today titled, "Malaysia Has 60,000 Unemployed Graduates", a study conducted by the government revealed that the main reasons why 60,000 Malaysian graduates are unemployed are their lack of skills in communication, their poor command of the English language and their lack of working experience. [20] Stated that Malaysian graduates lacked positive work ethics, communication skills, teamwork and leadership.

According to the [6], the skills that are expressed in extracurricular activities are generic skills. Among some the **2. RESEARCH QUESTION** 

skills that are emphasized in co-curricular activities are teamwork, problem-solving, decision-making and communication. This shows that the focus of higher education is not only on the development of the students' academic skills but also on the development of cocurricular activities aimed at helping students to more competitive in the working world. However, the development of co-curricular activities in universities is hampered by problems such as the negative attitude of students, lack of commitment, lateness, and poor interaction between members of a team. This results in graduates in the work place who lack the generic skills that could have been developed if they had been actively involved in extra-curricular activities. According to [11], various sports, such as football, which depend on how well the team members cooperate with each other, can help to foster teamwork skills. According to [34] only a small number of students are active in extra-curricular activities. Their significant involvement has resulted in a group of students who are confident, bold, daring in decisionmaking, and who are able to solve problems. This suggests that the involvement of students in co-curricular activities can help to shape their generic skills to help them promote themselves in the workplace. According to [35] and [21] the generic skills required by knowledge-based workers are skills such as problem-solving, critical thinking, communication or interaction, teamwork, technology applications, and understanding the culture. Therefore, this study was aimed at examining the enhancement of generic skills among engineering and technical students at UTHM who are actively involved in co-curricular activities (sports).

To ensure that the above objectives would be achieved the following research questions were identified:

(a)What are the factors that encourage active student participation in co-curricular activities (sports)?

(b)To what extent is the application of generic skills received by students through active involvement in extra-curricular activities (sports)?

(c)What are the perceptions of students who are actively involved in co-curricular activities (sports) with regard to generic skill?

### 3. CONCEPTUAL FRAMEWORK

The theoretical framework, which was adapted from a study conducted by [18] is outlined in Figure 1 below:

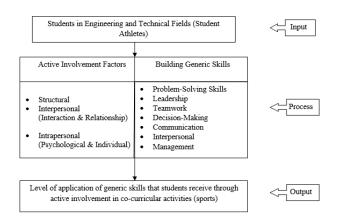


Fig [1] Conceptual Research Framework

### 4. LITERATURE REVIEW

Co-curricular activities are learning-based activities that are structured and organized, with most of the activities such as games, camping and so on, being conducted outside the classroom. According to [22] co-curricular activities not only include formal programs of study in the classroom or lectures, but also include informal activities that are generally regarded as extra-curricular. Co-curricular activities can provide opportunities for students to add to, consolidate and apply the knowledge, skills and values that they have learned in the classroom [6].

### 5.1 PARTICIPITATION FACTORS

According to Crawford and Godbey [7] three factors are involved in the hierarchical model of leisure constraints. These factors are:

- a) Structural factors
- b) Interpersonal factors
- c) Intrapersonal factors

These factors were agreed upon by researchers in According to [23] the main factors are the intrapersonal factors, followed by the interpersonal factors, and finally the structural factors. The conceptual model shown in Figure 2 explains which factors encourage the active involvement of students in extracurricular activities (sports).

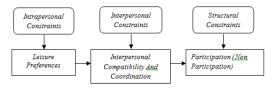


Figure [2] Hierarchical Model of Leisure Constraints (Crawford and Godbey) [8].

# 5.2 REQUIREMENT AND IMPLEMENTATION OF CO-CURRICULAR ACTIVITIES (SPORTS)

Co-curricular activities (sports), which are part of the education system in Malaysia at the moment, are being conducted among university students. Co-curricular activities are considered as a key benchmark in fulfilling the national education policy of unity among students of diverse ethnic groups. A Cabinet Committee Report in 1979 stated that all students should be encouraged to participate more actively in co-curricular activities. Every student must participate in the uniform bodies, sports clubs or associations at the university. Students who participate in co-curricular programs like sports tend to have a better grade point average, good attendance records, and no discipline problems compared to students who do not participate in extra-curricular activities [28]. Students who participate in extra-curricular activities not only perform better academically than students who do not, but in fact, have better personalities in aspects such as selfconfidence, social cooperation, and leadership skills. Students involved in extra-curricular activities are able to enhance and enrich their academic skills and other existing skills through games and actual simulations [12]. Co-curricular activities foster success in the future because the participation of students in institutions of higher learning is often the starting point for their career development in the workplace and in the society [27]. Co-curricular activities have helped to promote personal achievement, and the development of individual and

interpersonal skills [31]. In offering employment, industries are on the look-out for graduates who possess positive aspects of attendance, a high academic average in their course, and who have been involved in extra-curricular activities. Other aspects that are also considered are working skills, being able to handle responsibilities and to receive instructions, an ideal stance, and high personal ambitions. All these kinds of skills are cultivated through participation in co-curricular activities [29].

Interesting co-curricular activities are held in the university to provide students with experiences that will help them to achieve a perfect life [1]. According [9], the co-curriculum complements the requirements and needs of the curriculum to provide students with the opportunity to add to and to practice the skills, knowledge and values that they have learned in the classroom.

# 5.3 GENERIC SKILLS IN HIGHER EDUCATION INSTITUTIONS (HE)

The importance of generic skills has caught the attention of HE either within or outside the country. According to [13], nowadays graduates do not have problems in terms of technical skills but face problems due to a lack in generic skills. Educational institutions can provide a basis for the development and enhancement of generic skills such as writing skills, teamwork skills, and decision-making skills. The respondents agreed that seven of the nine generic skills listed were learned by them during their studies at the university.

The seven skills acquired while at the university included information skills, writing skills, time management skills, teamwork skills, reading skills, quantitative skills, and oral presentation skills. Therefore, it is clear that educational institutions are undoubtedly the appropriate place for the development of generic skills, in addition to technical skills. Some universities, have listed several generic skills that should be learned by university students [30]. Among these skills are communication skills, skills in using information technology, learning skills, problem-solving skills, teamwork skills, and social responsibility skills.

### 5. **RESEARCH METHODOLOGY**

For this study, a survey was conducted using quantitative methods. The data were collected through the use of questionnaires and were then processed using SPSS (Statistical Package for Social Science) software, version 19.0. Table 1 shows the contents of each section in the questionnaire.

Section	Items	Item No.	
Section A	Demography Respondent	6	
Section B	Factor of participation actively:		
	1. Structure.		
	2. Interpersonal.	30	
	3. Intrapersonal.		
	Seven construct of generic skills :		
	1. Problem- solving skills		
Section C	2. Leadership skills		
	3. Teamwork skills	70	
	4. Communication skills	70	
	5. Interpersonal skills		
	6. Decision – making skills		
	7. Management skills		
Section D	Student Perception	10	
6. DA'	FA ANALYSIS		

Table [1] Ouestionnaire Content

From the results of the analysis that was conducted, it was found that intrapersonal factors showed the highest mean score of 4.22 with a standard deviation of 0.40, followed by interpersonal factors with a mean score of 4.14 and a standard deviation of 0.49, and finally by structural factors with a mean score of 3.92 and a standard deviation of 0.48. Table 2 shows the data analysis for student participation in extra-curricular activities (sports).

 Table [2] Data analysis on active participation of students

 in extra-curricular activities (sports)

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Factor of	Mean	Standard	Mean
participation actively	Score	Deviation	Interpre-
in extra-curricular			tation
activities (sports)			
Structure	3.9254	0.48449	Agree
Interpersonal	4.1418	0.49152	Agree
Intrapersonal	4.2254	0.40202	Agree

The analysis of the data obtained from Section C of the questionnaire indicated the level of application of the respondent's generic skills through active participation in extra-curricular activities (sports). High scores were obtained for all the seven skills that were analyzed. Problem-solving skills had a mean score of 4.05 with a standard deviation of 0.474; leadership skills had a mean score of 3.94 with a standard deviation of 0.502; teamwork skills had a mean score of 4.20 with a standard deviation of 0.435; communication skills had a mean score of 4.21 with a standard deviation of 0.433; interpersonal skills had a mean score of 4.18 with a standard deviation of 0.421; decisionmaking skills had a mean score of 4.14 with a standard deviation of 0.445; and management skills recorded a mean score of 4.20 with a standard deviation of 0.456. This shows that the seven generic skills are applied well by engineering and technical students of UTHM through their active involvement in extra-curricular activities (sports). Table 3 shows the results of the data analysis with regard to the level of application of the respondents' generic skills through active participation in extra-curricular activities (sports).

Table [3] Data analysis on the level of application of generic skills among students through active participation in extra-curricular activities (sports)

Level of Application Student Generic Skill Through Active Participation in Extra- Curricular Activities (Sport)	Mean Score	Standard Deviation	Mean Interpret ation
Problem Solving Skill	4.0502	0.47411	High
Leadership Skill	3.9488	0.50288	High
Teamwork Skill	4.2019	0.43502	High
Communication Skill	4.2150	0.43346	High
Interpersonal Skill	4.1892	0.42195	High
Decision- Making Skill	4.1300	0.44503	High
Management Skill	4.2016	0.45693	High

A mean score of 4.47 and a standard deviation of 0.537 were obtained on analyzing the results to determine the perception of students who are actively involved in co-curricular activities (sports) with regard to the generic skills curriculum. The respondents felt that these activities (exercises) helped them to develop their mental, spiritual, physical, and emotional skills, in addition to enhancing their selfmanagement skills, where a mean value of 4.41 was recorded with a standard deviation of 0.581.

### 7. DISCUSSION

Based on the questionnaires that were distributed and analyzed, the respondents, who are athletes from the engineering and technical fields in UTHM, were asked to consider the factors that encourage their active participation in co-curricular activities (sports), and they agreed that all three factors, namely structural, interpersonal and intrapersonal factors, play a role in their active involvement in extra-curricular activities (sports). Thus, this supports the findings of a study conducted by the North American researchers [8], which agreed that these three factors are responsible for the involvement of individuals in community activities. These results support the concept of a hierarchical model of leisure constraints by Crawford and Godbey [8] concerning the involvement of individuals in activities during their leisure.

In addition, the findings in respect to [7] constructs of generic skills which were given to the respondents, who are athletes from the engineering and technical fields in UTHM, recorded a mean score of 4.13 with a standard deviation of 0.336. Overall, this means that the findings of this study conflict with the findings of a study by [24] that the level of awareness of generic skills was low among final year students of mechanical, electrical and civil engineering in Universiti Tun Hussein Onn (KUiTTHO). The management of these findings may have been affected by changes in the factors. His study was conducted prior to the upgrading of KUITTHO to an international class university as UTHM in 2007. UTHM is concerned about generic skills among students, where every program must comply with the soft skills conditions set by the university (UTHM, 2008). Environmental changes also play a role in increasing the level of generic skills acquired through the students' own initiative. Students realize that the mastery of generic skills will enable them to compete with other graduates in the job market later. According to [2] supports this statement by stating that how a person thinks, feels, and acts helps him/her to interact in a complex world with an uncertain future. On examining the level of generic skills possessed by engineering and technical students who are actively involved in co-curricular activities (sports), it was discovered that out of the seven constructs of generic skills that were studied, three of them, namely communication skills, teamwork skills and management skills, were at a high level. Since no such studies have been conducted in Malaysia, these findings cannot be verified.

These findings are also consistent with the findings of [19] in their study of final year students at Kolej Yayasan Sabah which revealed that aspects of teamwork skills, communication skills and leadership skills are being applied by students. This study examined the constructs of teamwork skills, communication skills and leadership skills. The respondents in this study put leadership skills as the last skill at the level of application through their active involvement in extra-curricular activities. This indirectly reflects the spirit of teamwork applied by the students.

The findings are also in line with the results of a survey among final year students of UTHM, which indicated that they develop a high level of teamwork skills through their participation in co-curricular activities [21]. Hence, it can be concluded that the level of application of the students' generic skills is good due to their active involvement in co-curricular activities (sports). Therefore, it is suggested that the range of generic skills among engineering and technical students of UTHM who are actively involved in co-curricular activities (sports) should be expanded to ensure their marketability in the job market later. In offering employment, industries are looking at graduates who possess positive aspects of attendance, a high academic average in their course, and who have been involved in extra-curricular activities. Other aspects that are also considered are working skills, the ability to accept responsibility and to follow instructions, the ideal attitude, and high personal ambitions. Some of these skills are cultivated through participation in co-curricular activities [29]. This is in line with the recommendations by [10] to extend the range of skills of graduates, as well as to develop a good personality in order to achieve excellence and glory for the country.

Based on the analysis of the perceptions of students who participate actively in co-curricular activities (sports) with regard to generic skills, it was found that the respondents believed that extra-curricular activities (sports) helped them to develop mentally, spiritually, physically, and emotionally to be more competent. This result is consistent with the finding by [6] that the role of co-curricular activities is to complement the curriculum. This is because it is difficult to create an educational institution that is balanced in terms of the physical, emotional, spiritual and intellectual development of the individual based on (FPN) the curriculum alone. [9] also argued that co-curricular activities complement the requirements and needs of the curriculum to provide students with an opportunity to add to, measure and practice the skills, knowledge and values that they have learned in the classroom.

In addition, the students who were actively involved in extracurricular activities were of the opinion that their involvement helped to improve their self-management skills and trained them to be more disciplined and to be always motivated when faced with a problem. The results of this study are consistent with the findings of [33], who argued that co-curricular activities can efficiently produce graduates who are warm, courageous, self-disciplined, responsible, and able to compromise, dedicated, innovative and motivated. According to [9], sports activities involve motivation, training, self-satisfaction, personal relationships and achievement, leading to the formation of a positive selfimage in the individual, thus producing intelligent individuals with a goal to be achieved.

### 10. CONCLUSION

From the results of the discussion, it can be concluded that the research questions were answered and the objectives of the study were achieved, thus proving that the active involvement of engineering and technical students of UTHM in extra-curricular activities (sports) does make a difference. From the responses of the respondents, it can be stated that structural, interpersonal and intrapersonal factors play a role in their active involvement in extra-curricular activities (sports).

In addition, the findings of the study answered the research question pertaining to the extent of the application of students' generic skills through active participation in extracurricular activities (sports) in UTHM, thus fulfilling the next objective of the study. From the results, it was found that three out of seven constructs of generic skills, namely communication skills, teamwork skills and management skills, demonstrate a high level of application through active involvement in extra-curricular activities (sports).

These findings may also help the university to focus on the development of generic skills in technical and engineering students through co-curricular activities (sports), in addition to producing athletes who are able to create a name for the university, at either national or international levels. This is because generic skills are an important aspect of every individual as a whole, and especially when graduates step into the working world in the future [3]. There are demands for a quality workforce due to globalization and advances in technology. Workers today not only need technical skills but also need to master generic skills to fulfil the requirements of the industry. Therefore, the failure of institutions to equip students with generic skills or employability skills will put them at a disadvantage in obtaining a job. This deficiency is the cause of unemployment among university graduates [32]. It is obvious that generic skills are required by graduates in the working world. In addition to having technical skills, generic skills will help students to place themselves in a real work environment.

#### 11. **REFERANCE**

- [1] [1] Bahari, M. J., Faktor-Faktor Yang Menghalang Penglibatan pelajar Dalam Kegiatan Kokurikulum Sukan Di Kalangan Pelajar Sekolah Menengah Kebangsaan Daerah Seremban. Jabatan Pendidikan Jasmani dan Kesihatan. Maktab Perguruan Islam. (2007).
- [2] Barnett, R. (2000). Supercomplexity and the curriculum. *Studies in Higher Education*, 25(3), 255-265
- [3] Commonwealth Department of Education Science & Training (2002). "Employability Skills for the Future."
- [4] Creswell, John W. "Educational research: planning, conducting and evaluating quantitative and qualitative research" *Merrill Publications* (2005)
- [5] De Le Harpe, "Quality and Generic (Profesional) Skills." *Curtin University of Technology* (1999)
- [6] Esa, A., Penerapan Kemahiran Generik Menerusi Kokurikulum Di Politeknik Bagi Memenuhi Keperluan Industri di Malaysia. KUiTTHO: *Tesis KUiTTHO* (2007)
- [7] Esa, A., Membangun Kemahiran Generik Menerusi Persatuan dan Kelab di Politeknik Malaysia (2005)
- [8] Erwei Dong & Garry Chick., Culture constraintson leisure through cross cultural research. *Pennsylvania State University* (2005)
- [9] Fauzee, M.S.O., Yusof, Aminuddin. Yusof, B., Che Pah, C.A., Muzahar, I.M., Kepentingan dan Keperluan Aktiviti Kokurikulum. Utusan Publications & Distributiors Sdn. Bhd, Kuala Lumpur (2002)
- [10] Hanum Hassan, Razli Ahmad & Azuddin Bahari. Kemahiran Insianiah Dan Kepentingan Penerapannya Dalam Program Baktisiswa Perdana Unimap. Kajian Ilmiah Tidak Diterbitkan. Universiti Malaysia Perlis (2008)

[11] Hamid, R. A.. Penerapan Kemahiran Kerja Berpasukan

Menerusi Kokurikulum Sukan Bola Sepak dalam Kalangan Pelajar UTHM (2012)

- [12] Haensly, P. A.; A. E. Lupkowsky; and E. P. Edlind. The role of extracurricular activities in education, (1986) *The High School Journal* 69 (2): 110–119.
- [13] Haron, Z. & Idris, A.A (2010). Persepsi Pelajar Terhadap Penerapan Kemahiran Generik Dalam Aktiviti Kokurikulum Di Kalangan Pelajar Tahun Dua Fakulti Pendidikan, Universiti Teknologi Malaysia.
- [14] Hendry, R.A.D., Factors That Constraints the Technical and Vocational Education Students From Participate In the Uniform Co-Curriculum (Palapes and Kor Suksis). *Tesis Sarjana Universiti Tun Hussein Onn Malaysia* (UTHM) (2010)
- [15] Kementerian Pengajian Tinggi Malaysia., Modul Pembangunan Kemahiran Insaniah (Softskills) Untuk Institusi Pengajian Tinggi Malaysia. Penerbit Universiti Putra Malaysia (2006)
- [16] Krejcie, R.V and Morgan, D. W. "Determining Sample Size for Research: Educational and Psychological Measurement." (1970) Educational and Psychological Measurement.30.607-610.
- [17] Malaysia, K. P, Buku Penerangan Kurikulum Bersepadu Sekolah Menengah. Kuala Lumpur: Dewan Bahasa dan Pustaka (1982)
- [18] Mohamed, A.A., Pembangunan Kemahiran Menyelesaikan Masalah Menerusi Kokurikulum Keusahawanan dalam Kalangan Pelajar UTHM. *Tesis* Sarjana, Universiti Tun Hussein Onn Malaysia. (2012)
- [19] Mohd Noor N. & Sahimin S. (2013). Penerapan kemahiran generik dalam proses Pengajaran dan Pembelajaran di Kolej Yayasan Sabah.
- [20] Mohd Safarin Nordin dan Kamaruddin Md. Tahir (2004). Kemahiran generik: kepentingan dalam memenuhi keperluan majikan masa kini.
- [21] Mohamad Zaid M., Ali S., Badaruddin I., Sufian M., Kahirol M. S., Ahmad Rizal M. dan Nor Lisa S.
   (2011). Penguasaan kemahiran berpasukan menerusi penyertaan di dalam Kokurikulum: satu tinjauan di Universiti Tun Hussein Onn Malaysia. Persidangan Pembangunan Pelajar Peringkat Kebangsaan, Universiti Teknologi Malaysia (2008).
- [22] Puteh, S., Pengurusan Kokurikulum. Universiti Tun Hussein Onn Malaysia (UTHM) (2004)
- [23] Pennington-Gray, L., & Kerstetter, D. (2002). Testing a constraints model within the context of nature-based tourism. *Journal of Travel Research* 40 (4), 416-423
- [24] Sharma, T., Meeting the market demand of generic skills: an analysis of generic skills acquisition among final year engineering students of KUiTHHO.
   Kolej Universiti Tun Hussein Onn Malaysia: Tesis Sarjana Pendidikan (Teknikal) (2001)
- [25] Siti Rahayah, A., Zolkepeli, H., Rodiah, I., Nur'Ashiqin, N., Shahrir, S., Basri H., Nor Azaheen A.H., Tahap Penguasaan Kemahiran Pemikiran Kritikal Dan Penyelesaian Masalah Pelajar-Pelajar Sains Dan Hubungannya Dengan Pencapaian Pelajar. (2009)
- [26] Sinar Harian, Dasar Sukan IPT Lahir 'Thinking Athletes' (2009)
- [27] Syed Hussain S. H., Meeting the Needs of Employers.

Seminar Kebangsaan Pembangunan Teknologi dan Pendidikan Teknikal-Vokasional dan Latihan dalam Era Globalisasi. Kuala Lumpur (2005)

- [28] The National Federation of State High School Associations (NFHS). The case for high school activities (1999) *Indianapolis, Ind.: NFHS.*
- [29] USA Today., Good grades on resume may not guarantee job (1993)
- [30] University James Cook, Australia. "Teaching and Learning Development Generic Skills." (2004)
- [31] Wagner, C., Improving the prospects for poor children. (1999) *The Futurist* 33 (4).
- [32] Wan Mohamed W, A. & Jaafar M, A., (2010). Cooperative learning and generic skills among University students: A comparison between Diploma and Bachelor Degree students, (2010) 3rd Regional Conference on Education & Research in Higher Education.

- [33] Wan Abd. Aziz Wan Mohd Akib et al. "Ko-Kurikulum: Mendokong Ke Arah Penerapan Globalisasi Pendidikan." *Dalam Prosiding Konvensyen Pendidikan* UTM. Skudai: Universiti Teknologi Malaysia (1999).
- [34] Wong, H. L. Tahap Penglibatan Pelajar di Sekolah Menengah dalam Aktiviti Kokurikulum dan Hubunganya dengan Pembentukan Daya Kepimpinan (2007).
- [35] Zainudin Hassan, Mohd Anuar Abdul Rahman, Mohd. Najib Abdul Ghafar dan Kamariah Zakaria "Penerapan Kemahiran Generik Dalam Pengajaran Kejuruteraan Di Sekolah Menengah Teknik Di Terengganu." Seminar Maktab Perguruan Batu Lintang, Kuching Sarawak (2005).

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