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Abstract — Traditional or conventional learning process is found insignificant for the new generation of students nowadays. The learning process has become very challenging as students are more exposed to technological devices. A conventional teaching method is no longer suitable for them since they have different styles of learning in different circumstances. It is hypothesized that students are inclined to be visual learners due to the significant enhancement in technology and gaming. Therefore, the objective of the study was to identify the learning style indicators among students in Universiti Teknologi MARA, Seremban, Malaysia. A survey on students’ perception about game-based learning was also conducted. The results show that 47.3 percent of the students were visual learners compared to kinaesthetic (30 percent) and audio (22.7 percent) learners. Pearson Chi-square shows there was no significant difference in learning style preference between male and female students. Students also agreed that game-based learning was an effective learning approach that helped them understanding their lesson better. Hence, it is suggested that the learning process should be in interactive manner to motivate student and helps them to score in the subject.

Keywords — Game-based learning, learning style, visual, kinaesthetic and audio

I. INTRODUCTION

Conventional teaching method focuses on the teacher as a key role and based on oral recitation. Students usually listen to the statement recited by the teacher or friends in learning. It is known as passive learning approach where students study and memorize the fact. This method is inefficient and gives problems to them especially those with visual and kinaesthetic dominance. Every student has a different learning style whether he or she prefers visual, audio or kinaesthetic learning style. It is common to have mix learning styles in class. However, there is only one most dominant learning style that they are comfortable with. The different approaches among students include the aspect of individual thoughts, reactions, interests, preferences, achievements and understanding.

Recognising student’s learning approach is important because it is a key factor in the formation of an individual (Nur Fadhlna Zainal Abedin et al, 2012). Uninteresting learning process will easily get students bored in class and face difficulties to focus. They tend not to being engaged and are not enthusiastic in class. As a result, it will definitely decrease their academic achievement.

There are several methods to make a learning process interesting. The best practice is by adding tools and equipment that are close to their real world, for example, the use of
technology. Nowadays, students are more exposed to computers, smart phones, the Internet and also video games. The exposure of too many devices at homes makes them bored in the passive learning environment because they are not seeing all these technological devices while learning. In order to keep students engaged, they need to be interested. If the technology changes every aspect of students’ life and can make them doing something enjoyable, convenient and time saving, it can also change the way how they communicate and learn.

Learning process can become lively and enjoyable with the help of various tools and equipment in the classroom, especially game based learning. Past studies showed that the shift from passive to active learning or from a teacher-centred to a student-centred approach is probably the most positive consequence of technology (Struyven, Dochy, Janssens, & Gielen, 2006; Wilson & Fowler, 2005; Brown & Kathy, 2003).

Therefore, this paper is interested in determining the learning style indicator among students of Universiti Teknologi MARA Negeri Sembilan in Seremban Campus. The survey was also conducted to investigate students’ perspective about game-based learning.

II. LITERATURE REVIEW

A. Learning Styles

Learning style has been defined by Keefe (1979) as a characteristic of the cognitive, affective and physiological behaviours perceived by the learners that serves as relatively stable indicators. Understanding students’ individual learning styles can play a very important role in the learning process. Over the past decade, more than 60 universities have been conducting research on students’ learning styles. From these research investigations, some useful results regarding the effects of environmental, physiological and cognitive development on the students’ achievement have been discovered.

There are numerous learning style models. McAdams and Pals (2006) offer five principal models of person including dispositional traits, characteristics adaptations, culture contexts and others. According to Thomas and Amit (2007), a use of a variety of teaching and learning approaches has the potential to enhance performance of adult students. The advocates of learning style models (Claxton & Murrell, 1987; Coffield, 2004) mention that students have different learning styles. By taking that as a basic premise, the higher education should not assume all adult students learn in the same way. According to Fleming (2001), a widely-used model of learning style is the Visual Auditory Kinesthetic (VAK) model. Most people possess a dominant or preferred learning style; however some people have a mixed and evenly balanced blend of the three styles.

Zapalska and Dabb (2002) note that the teaching strategies best suited to students’ learning improve the way students learn as their learning style is being recognized. According to Dunn (1982, 1986), individual learning style uniqueness could be thought of as a fingerprint. She further explains that as a result of maturation, over the time an individual’s learning style changes.

According to Dunn, Beaudry and Klavas (1989), students’ achievement increases when the methods of teaching match their learning styles. Reich (1991) adds that, the diversity of students learning style should be taught sufficiently by the faculty to promote innovation in their fields.

B. Game-based Learning

Games have been recognized as being a good tool to promote learners to actively participate in learning activities (Baid & Lambert, 2010; Huizenga et al, 2009). Game-based learning broadly refers to the use of video games to support teaching and learning. Current scenario shows that digital technologies and various digital tools such as games and social media have impacted in how students learn, play and socialise. Since the introduction of mobile devices, digital games as a form of entertainment are becoming popular as a tool for people to spend their time. Educators and teachers are therefore increasingly interested in focusing more on using digital games as a tool to facilitate learning. If these new digital technologies are ignored, the opportunities to maximize students’ potentials and addressing digital literacy of today’s youth is hard being achieved (Judson, 2010).

Researchers also have indicated that game-based learning could be the best way to trigger students’ learning motivation (Papastergiou, 2009a; Dickey, 2010; Tüzün et al, 2009). According to Lepper et al (2005), game based-learning is often considered to be necessary or become the priority for learning. When motivated, students are likely to consume more time and effort in learning, eagerly complete challenging work, and take pleasure in their achievement (Malone, 1981).

In addition, it has been reported that a game-based learning approach might provide a good chance to stimulate student’s abstract thinking during the process of cognitive development, and further foster their higher order thinking ability (Carbonaro et al, 2010). Terrell and Rendulic (1996) state that internal motivation and learning achievements of elementary school students can be increased through computer games f. Therefore, if educators or teachers are able to apply computer games during the teaching process, students will learn happily, become more alert, creative and have better learning achievements.

III. METHODOLOGY

A set of questionnaire was distributed randomly to 300 diploma students in Universiti Teknologi MARA, Seremban, Negeri Sembilan. The respondents were from various programmes and semesters. However, there were only 273 valid samples collected due to poor quality and unreturned questionnaires. It made the response rate of 91 percent.

The questionnaire consisted of three parts. Part A contained students’ demographic background. Part B consisted of 20 statements that reflected the learning styles among students. The learning style statements were adopted from VAK
Learning Styles Self-Assessment Questionnaire. Meanwhile Part C comprised five statements about student’s perception on game-based learning. The statement follows the rule of Likert scale from 1 (strongly disagree) to 5 (strongly agree) in the scoring procedure.

A set of data were analysed using SPSS software. The Reliability test was conducted to determine the internal consistency of the questionnaire. The reliability test was used to measure how accurate and precise the measurement made on a certain variable by the research instrument. The overall Cronbach’s alpha reliability coefficient of the questionnaire was 0.882 which is high and acceptable. Thus the questionnaire can be used to collect data in the actual study. In determining the learning style between genders, nonparametric chi-square (Pearson) was tested. There were two important concept involved; observed and expected frequency. Observed frequency is the count of observations in the group and expected frequency is the count of frequencies in the comparison group. The comparison between these two frequencies is called chi-square analysis. Lastly, Part C was analysed by using frequency distribution and percentage value.

IV. RESULTS

The results show that there were significant difference $[X^2(2, N=273) = 26, \ p<.05]$ in visual and kinaesthetic learning style. The residual value for visual learning style was 38, and kinaesthetic was -9. It means that the most preferred learning style was visual learning style that show almost half of respondents (47.3 percent) were visual learners followed by kinaesthetic learners (30 percent). Only 22.7 percent of the respondents were audio learners.

<table>
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<th>TABLE I</th>
<th>LEARNING STYLES PREFERENCES</th>
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<tr>
<td>Observed N</td>
<td>Percentage</td>
</tr>
<tr>
<td>Visual</td>
<td>129</td>
</tr>
<tr>
<td>Audio</td>
<td>62</td>
</tr>
<tr>
<td>Kinaesthetic</td>
<td>82</td>
</tr>
</tbody>
</table>

Meanwhile, Pearson Chi-square $[X^2(2, N=273) =2.699, \ p>.05]$ shows there was no significant difference in learning style preference between male and female students. The values of standardized residuals are small which show the difference between observed and expected frequency is also small.

Frequency analysis was conducted on items in Part C: Learning Process through Game. For the first item, 50.5 percent of the respondents agreed that game-based learning was an effective learning approach. It was in line with the result obtained in Part B where almost half of the respondents were visual learners. Games normally involve figures and graphics that attract students in the learning process. However, 41 percent were unsure whether game-based learning could help them to score in their final grade whereas 49.5 percent students agreed that game-based learning helped them in better understanding their lesson. Lastly, they also agreed that game tools motivated and attracted them to study.

| TABLE II | CROSS TABULATION BETWEEN LEARNING STYLES & GENDER |
|-------------------|-------------------|-------------------|-------------------|
| Learning Style | Count | Expected Count | Residual |
| Visual | 33 | 96 | 129 |
| Audio | 23 | 39 | 62 |
| Kinaesthetic | 25 | 57 | 82 |

| TABLE III | STUDENT’S PERCEPTION ON GAME-BASED LEARNING |
|-------------------|-------------------|-------------------|-------------------|
| Statement | Mostly disagree | Disagree | Not sure | Agree | Mostly Agree |
| Game-based learning is an effective learning approach | Total 3 | 14 | 58 | 138 | 60 |
| I am motivate to study using game | Total 5 | 21 | 89 | 106 | 52 |
| I believe game-based learning helps to score in my final grade | Total 1 | 15 | 112 | 107 | 38 |
| Game-based learning helps in better understanding | Total 1 | 12 | 72 | 135 | 53 |
| Game and visualization attract me to learn more | Total 4 | 9 | 49 | 123 | 88 |

V. CONCLUSION

Almost half of the respondents were visual learners, followed by kinaesthetic and audio learners. The study also shows no difference between learning styles and genders. According to the frequency distribution test, the students gave positive feedback on game-based learning. Thus, it is suggested that the learning process should be in an interactive ways to engage students’ interest in class. Future research may consider effective game tools for students. If it is applied in the classroom, the learning process will become lively and interesting.
ACKNOWLEDGMENT

We would like to thank students of Universiti Teknologi MARA Negeri Sembilan for filling in the questionnaires and also to the lecturers who involved in the data collection process.

REFERENCES

The Synthesis of Blended Instruction Procedures for Enhanced Problem Solving Skills

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Abstract—Globalization has currently caused rapid changing in technology and innovations. New graduates risk the lack of practical skills to perform in actual work. The solution called ‘Heuristic Problem Solving’ comes in play. This education model suggests “problem solving skills” as a target. Students must study task-problems. Once each task problem is eliminated, students shall create a formula or solution process. The created principles or rules can then be used as comparable references to solve problems in the same or similar circumstances. The objectives of this research are: 1) analysis and synthesis of blended instruction procedures to enhance problem solving skills 2) evaluation of the proposed instruction procedures by experts. This study was a documentation research. It was carried out by means of: Literature Studies: From books and web sites, theories and researches related to blended instruction procedures to enhance problem solving skills were collected; and, various design principles for course-work instruction were studied and integrated. Study of Current Situation and Needs: Current situations, needs and functional expectations had been studied. The collected data were analyzed and synthesized, to construct this blended instruction procedures. Assessment: The proposed instruction procedures were examined and assessed by experts. The overall result was highly satisfactory. It indicated that this blended instruction procedures can be implemented further.

Keywords—Blended instruction procedures, Blended instruction, Blended learning, Problem solving skill

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I. INTRODUCTION

Currently, globalization has great impact on the rapid turnovers of technology and innovations. Some graduates may lack essential knowledge and skills to adapt and perform at actual workplaces. Particularly in fields of Science and Technology, the students are challenged with keeping themselves updated with these speedy changes. As a result, enterprises are confronted with constant shortage of capable workforce to perform the jobs. In some cases, the job training before operations may take too long in a process, and become incompatible with the newer technology or innovations.

‘Problem Solving’ is the learning method through exposure to experiences in finding solutions to the problems. The solutions are usually associated with the selection and combination of various principles or rules. In addition, problem solving is in concern with the application of recommended principles in a specific task called “Heuristic Problem Solving”. Yet, this is not a fixed solution. The study should start from the problem solving objectives. When each task problem has been eliminated, students construct or impose a formula or problem-solving process. The principles or rules for this solved situation then used as a guide for solving the same or similar situation [1] [2]. Bruner, Vygotsky, and Piaget referred to the philosophy of human learning process as being done through the interaction between them. Students who pass through online lessons often feel isolated. Lack of social interaction, direction, and technical skills can
eventually resulted in students’ declining motivation. Working in a collaborative integrated learning ambience as a group work in real life will increase achievement and skill of students. Blended courses have the average achievement higher than teaching in the classroom only or online learning alone [3].

The purposes of this study were:-
1) To develop a blended instruction procedures enhancing students’ problem solving skills
2) To have this blended instruction procedures evaluated by experts.

II. LITERATURE REVIEW
Application of information and communications technology to support teaching and learning is to increase learning achievement at different levels through the use of information technology to support teaching and learning in the classroom. Blended Learning facilitates classroom instruction with online learning activities. The researches of [4], [5] assigned the proportion of teaching and learning in the classroom together with online learning by 50:50 ratio, while [6] assigned to 45:55.

By observing the self-regulation learning method applied to high school students, [5] recognized that the students had insufficient responsibility for their assignments. Hence, teachers still needed to direct and give them advices. In relevant to the study of [7], the researches demonstrated that learners with external self-regulation (SERL) performed an average of higher learning achievement than those with self-regulation (SRL); and that learners applying self-regulation along with external-regulation (ERL) performed significant learning achievement by the difference of .05.

It suggested that online learning could provide backup and fulfill the learning contents in the classroom. Voluntary activities proved to provide additional learning resources to deliver a positive impact on learning achievement which is a critical success factor of the learners. The design of learning environments should involve communication in two ways:-
1) Interpersonal communication. This means designing a learning environment which facilitates the communication and interaction between learners, between learners and teachers, and between learners and others than those mentioned.
2) Communication between learners and the knowledge. That means learning environment which encourages learners to interact with the essence of knowledge and contents. In addition to achieving skills in various fields, exposure to practical experiences and enhancement of problem-solving ability, the cognitive load is reduced. Meanwhile, new knowledge, transfer and dissemination of knowledge are created. The successful knowledge transfer should be in two-way communication.

III. RESEARCH METHODOLOGY
This study is a documentation research. The purposes of the study were to analyze and synthesize the blended instruction procedures to enhance problem solving skills. The research was conducted as follows.

At the initial step, studies from previous literatures were carried out - - as of from text books, information theories and researches related to blended instruction procedures to enhance the problems solving skills, and instruction design principles. Then, a survey of the current situation and needs was executed. All collected data were analyzed and synthesized. And finally, construction of a blended instruction procedures to enhance problem solving skills was conducted.

IV. PROCESS OF INSTRUCTION PROCEDURES OF BLENDED LEARNING FOR ENHANCE PROBLEM-SOLVING SKILLS

The blended instruction procedures to enhance problem solving skills has shown in fig. 1. The results of the study are as follows.

A. Inputs
From an analysis of the proposed instruction procedures, the input of the learning process can be divided into four components as the followings:-
1) The learning objectives
To achieve the learning objectives of the individual learner and the study groups, learners learn from case studies and practical work, thus parallel-master knowledge acquisition from the rules and principles. Learners will be engaged in knowledge pulling, analysis, synthesis, class discussion to consider the most appropriate application of the rules and principles for each problem solving task. When each problem is successfully solved, the knowledge from such problem solving task is captured and generalized. For more effective result, learners are assigned to identify the strategies, teaching techniques, and learning activities in order to develop their skills.

2) Learner
Learner is an important element of the inputs. Learners are prepared to adapt to the instruction process and to collaborate with groups. In order to develop problem solving skills of the learners via instruction with a blended learning, the teacher must have knowledge, skills and experiences required to link with existing knowledge of the learners group - - which are not significantly different from one another, such as the students in the same level of field of study, with an average of the same learning achievement.

3) Teacher
Teacher is the facilitator or a recommender rather than a lecturer. Teachers have to learn and understand the existing students’ basic knowledge and skills. Their role is to ignite the creation of activities to achieve the learning objectives. Subsequently, the strategy for
searching information and conscience should always be involved to bring about extended knowledge and knowledge transfer from the existing knowledge and skills. Also, teachers coach their students how to reach the learning resources to support each learning unit.

4) Contents

Contents are an import input. The teacher will be involved to take it into the process of teaching and learning - - from analysis of learning objectives, and course outline, to bring into the knowledge processes. The content has to be relevantly associated with the basic knowledge and skills of the learners, and must be meaningful and appropriate to the learners.

Fig. 1 Blended instruction procedures for enhance problem solving skills

B. Teaching and Learning Processes

Teaching and learning processes are as follows.

1) Clearly identify the learning objectives, teaching and learning activities, scope, and assignments. Promote interest and motivation. Then, do pretest before starting the class.

2) Assess the existing knowledge and skills of the learners. Next, conduct reviewing prior knowledge.

3) Analyze the learners, the contents and the learning materials. Identify concern of different situations or contexts. Select appropriate learning materials or resources by various formats.

4) Design and develop learning contents and activities for teaching and learning equally for classroom instruction and for online, in compliance with learners’ existing knowledge and skills, and by order of increasing degree of difficulty. Challenge self-learning and collaborative learning using ‘think aloud’ techniques to build their knowledge associated with the practical work. While learners are engaged in solving the problems, teacher assists as a coach.

5) Present learning contents and activities for classroom instruction and online, by individual and collaborative learning via social media.

6) Assign tasks and tracking of work progress, using self-regulation and external regulation. Practice of problem-solving for novice will lead to an expertise further.

7) Do post-test, summary and review to construct problem schema, and store the knowledge for later reference.

8) Execute an assessment of problem solving skills by evaluating learning achievement of the learners. And lastly, process feedback of teaching and learning process [1].

C. Assessment

Conduct the learning assessment as follows.

1) Learning Achievement. The average scores of the posttest must be higher than the pretest. In addition, an average test score must be of at least 75 percent.

2) Problem Solving Skills. The psychomotor domain, students can work on their own without guidance, and try to find the correct operation, then develop their own procedures.

V. EVALUATION OF BLENDED INSTRUCTION PROCEDURES

The questionnaires were distributed to 5 experts for evaluation, 3 out of 5 questionnaires were returned. Results of the evaluation of blended instruction procedures to enhance problem solving skills by experts are shown in table I.

<table>
<thead>
<tr>
<th>Description</th>
<th>Mean</th>
<th>Standard Deviation</th>
<th>Level of satisfaction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inputs</td>
<td>4.50</td>
<td>0.75</td>
<td>high</td>
</tr>
<tr>
<td>Learning Processes</td>
<td>4.38</td>
<td>0.49</td>
<td>high</td>
</tr>
<tr>
<td>Assessment</td>
<td>3.89</td>
<td>1.05</td>
<td>high</td>
</tr>
<tr>
<td>Overall</td>
<td>4.25</td>
<td>0.72</td>
<td>high</td>
</tr>
</tbody>
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TABLE I

RESULTS OF THE EVALUATION OF INSTRUCTION PROCEDURES
Evaluation of inputs, learning processes, and processing are at a high level. Finally, overall evaluation of blended instruction procedures is highly satisfactory. It is indicated that, the proposed blended instruction procedures are appropriate and can be implemented further.

VI. CONCLUSIONS AND RECOMMENDATIONS

The blended instruction procedures to enhance problem solving skills consists of three main parts: the inputs, the learning processes, and the assessment. Results of the evaluation of the proposed instruction procedures are proved appropriate and can be implemented further.

For further development of the blended instruction procedures, it can be deployed to develop instruction procedures for more specific skills such as data communication and network management skills, skills in management information systems. In addition, the appropriate proportion of blended learning and instruction procedures with learner self-regulation and external self-regulation, in different contexts.

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I wish to express my deep sense of gratitude to Rajamangala University of Technology Suvarnabhumi for the financial support, and would like to express my heartfelt thanks to all my friends and colleagues for their suggestions, and for assisting me to complete this research work in time. Finally, yet importantly, I would like to thank my beloved parents for their blessings and spiritual support.

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A Proposed Perspective for Effective Classroom Management Based on Glasser Model

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Abstract—This research aims at providing a proposed perspective based on Glasser Model for achieving an effective classroom management through identifying the concept of classroom management, the importance of effective classroom management, Glasser Model and its principles and strategies. Finally, this research aims at providing a proposed perspective to use Glasser Model in attaining effective classroom management emerging from clear theoretical grounds and the results of previous studies. A library research method was used here. Sources and references related to classroom management and Glasser Model and some relative previous studies were reviewed. Some recommended strategies and mechanisms for implementing this proposed perspective were offered, including training teachers in using Glasser Model strategies, providing moral, organizational and materialistic support, arranging the classroom in a way to allow students to interact and move freely and easily for employing the recommended strategies, and finally developing curricula to be appropriate to the students' real life.

Keywords—Classroom Management , Glasser Model , Proposed Perspective

Introduction

The teaching and learning process is considered the longest foundation for development, progress and aissance in all societies. A school is one of the most important educational institutions that care about the individuals and contribute in providing them with knowledge, skills, values and attitudes that appear in the development and progress of the nations.

The school success in performing its important mission is related to the competency of a number of elements including school administration, curricula, learning environment etc. However, a teacher plays the greatest role in this process. Therefore, a teacher needs a variety of competencies like cognitive, vocational, social competences to succeed in his/her human task.

Classroom management skill is one of the most important competences. Although a teacher has a lot of information, knowledge, and experiences, he or she finds difficulty in providing them to students when lacking classroom management skill. Successful classroom management leads to high efficient outputs that serve the society effectively [1]. In this respect, Sasson (2007) [2] notes that a good lesson preparation represents 90% of classroom management whereas new teaching experiences represent 10%.

Effective classroom management is not only preventing noise and disorder inside the classroom, but also good room organization to prevent classroom problems, creating motivation in learners, developing positive attitudes in students towards the learning and teaching process, and using proper teaching methods to supply students with different skills and experiences to give high efficient outputs.

There are several models interested in supplying teachers with effective classroom strategies. Glasser Model is one of the most important models; it is based on respecting learners and the humanistic perspective to learners, and meeting all their needs. Research about this model (e.g Lee 2007[3]).

Al-Yamani 2008 [4]) has shown this model's effectiveness in achieving good classroom management.

Research Problem

After reviewing literature about the problems facing teachers in the field of teaching, it can be said that classroom
management is one of the most important problem. Based on the researcher's experiences in the field of education, it is noticed that teachers complain a lot about the problems of classroom management. Preventing problems is the best technique to maintain classroom discipline and to avoid problems. Accordingly, this proposed perspective is aimed to developing teachers' abilities for effective classroom management as strategies emerging from Glasser model proved their abilities to achieve effective classroom management. This research attempts to answer this question: What is the role of this proposed Glasser-based model perspective in maintaining effective classroom management? The following research questions are investigated:

1. What is the educational perspective about the concept of classroom management?
2. What is Glasser model?
3. What is the proposed perspective based on Glasser Model for achieving an effective classroom management?

Research Objectives

This research aims at

1. Providing an educational perspective about the concept of classroom management and its importance.
2. Identifying Glasser model as one of the effective model in classroom management.
3. Providing a proposed perspective based on Glasser Model for achieving an effective classroom management.

Significance of Research

This research is very important for several reasons

1. It deals with classroom management as one of the most important variables in the learning-teaching process.
2. It uses Glasser model which gives several strategies that proved effective in giving high efficient outputs.
3. The aim of this proposed perspective is to use the strategies in Glasser model in developing and improving the educational environment and developing training programs for educating and qualifying teachers.

Terminology

Classroom Management

Classroom management is a variety of techniques and skills that allow teachers to control students effectively to create a positive learning environment for all learners; it is a process for providing all suitable conditions for learning[5].

Glasser Model for Classroom Management

It is a variety of principles and strategies that depend on meeting students' basic needs and aim to maintain an effective classroom management.

Method

Library research method was used in this research. All data sources and references related to the fields of classroom management and Glasser model were reviewed as well as some relative previous studies, and finally a proposed perspective was provided.

Research Limits

This research was limited to objective limits, represented in classroom management and Glasser Model, through identifying the concept of classroom management and its dimensions, Glasser Model and its principles, realizing the importance of its strategies in achieving an effective classroom management, and finally providing a proposed perspective to use and employ these strategies in classrooms.

Importance of Effective Classroom Management

1. A classroom with a high effective classroom management leads to a high degree of engagement in classroom work and a low rate of bias and deviation from a learning-teaching situation.
2. A high effective classroom management helps teachers control the classroom and keep order through developing systems and rules, and applying them inside classroom.
3. A high effective classroom management contributes in decreasing students' reliance on teachers for developing appropriate procedures to use instructional materials and available place and time.
4. A high effective classroom management leads to understanding teachers' procedures, orientation, guidance and counseling.
5. A high effective classroom management allows teachers to carry knowledge and to foster various values and skills in learners.
6. A high effective classroom management enhances the patterns of positive social interactions and communications among teachers and students, and among students themselves.
7. A high effective classroom management allows teachers to control their work environment in a better and more effective way. Accordingly, this shows the importance of effective classroom management which leads to effective teaching.

Glasser Model

Glasser [6] offered his model for classroom management based on meeting human basic needs, and it is a requirement for attaining effective classroom management to integrate students with teaching experiences provided and avoid undesired behaviours, these basic needs include:

1. A need for survival represented in eating, drinking, security, air etc.
2. A need for belonging and love represented in a need for others and cooperating with them, and societal love and belonging.
3. A need for power represented in self-respect and a sense of its importance, appreciating competitive challenges. This gets its power from self-respect and others' appreciation to learners.
4. A need for fun and joy represented in play, entertainment, pleasure and doing hobbies.
5. A need for freedom represented in making choices and expressing thoughts and ideas.
Previous studies related to Glasser Model Strategies

Al-Shaikh (2000) [7] investigated the impact of Maths content and daily life on the achievement of the third intermediate students and on their attitudes towards Math. Results showed that there were statistically significant differences in students’ attitudes towards Maths in favour of the group which studied the life content.

Al-Barghothi (2001) [8] examined the reasons for the tenth graders’ disorder in classroom. The sample was 260 students. Findings indicated that tediousness is the most important reason for classroom disorder. Moreover, the results showed that democracy in classroom and self-attention help achieve an effective classroom management.

Crosone, Johnson & Elder (2004) [9] explored whether a positive relationship (emotional warmth and acceptance) between teachers and students was related to academic achievement and control problems. Participants were 10,991 seventh through twelfth graders. The results indicated that there was a positive correlational relationship between positive relations and academic achievement. Furthermore, findings showed that a positive relationship between students and teachers predicted a decrease in discipline problems.

Lee (2007) [3] investigated the student-teacher trust and its relationship with school adaptation, internal and external motivation, and students' scores in end of year exams. The sample consisted of 318 students from both sexes. It was concluded that there was a significant positive relationship between trust and the four variables.

Al-Yamani (2008) [4] research aimed to identify the relationship between students' perceptions of their classroom environment, academic achievement and their attitudes towards learning Math and English. The sample included 3624 students. Results showed a direct gradual increase in students' attitudes towards learning Math and English and their academic achievement in both subjects as long as there was an increasing positive perception of their classroom environment.

Monica(2011) [10] used the methodology of case study to examine the effect of classroom management of cooperative learning on student engagement. The sample was 5 students. The result showed that cooperative learning is a useful strategy when implemented effectively and in a fun way.

Al-Zoghbi (2012)[11] examined the relationship between learners' engagement in learning English and their relationship with English teachers. The scale of Care, Trust, Respect, Involvement, Freedom and Justice and Behavioural Burnout Scale were administered to 303 students. The results indicated that a direct positive relationship between behavioural burnout and student-teacher relationship existed. Moreover, the dimension of Care and Trust interpreted 18% of variance.

Herrmann (2013) [12] investigated the effect of cooperative learning on students' burnout in the learning process. Cooperative learning strategy was employed with 140 students. The findings showed that there were differences between pretest and posttest scores in favour of the posttest.

Stevens(2015) [13] examined the impact of role play on students' engagement. The study surveyed 144 students after 5. Developing curricula in a suitable way to learners' real life. the role- play activity in a history course. The result found that a large majority found the activity beneficial.

Perspective Theoretical Rationale

1. Classroom management is considered one of the most important skills a teacher needs. Therefore, effective classroom management competence should be developed and increased in teachers in order to provide effective and fruitful education.

2. The role of classroom management in achieving the objectives of the learning-teaching process.

3. The results of several studies confirm the role of Glasser model strategies in achieving an effective classroom management.

4. The importance of teachers' education, training and qualification to be able to manage the classroom effectively.

Aims of the Perspective

This perspective is aimed to enabling and empowering learners to be directed to the learning process, making the best and most use of their existence in school for acquiring knowledge, attitudes and values, and avoiding falling in undesired behaviours through using Glasser Model to achieve an effective classroom management; thus providing effective instruction by:

1. Students' sense of the importance of experiences provided to them.
2. Students' sense of their importance, value, worth and respect.
3. Creating a safe psychological atmosphere filled with joy and happiness.
4. Learners' sense of the freedom of expressing their opinions and ideas.

Strategies for achieving the perspective aims

1. Effective contact and listening.
2. Students' involvement and participation in setting classroom rules.
3. Relating lessons to students' daily life.
4. Forming classroom groups and teams.
5. Cooperative learning strategy which includes creative thinking, critical thinking, and brainstorming.
6. Role play and allowing learners to move inside classroom and to express their points of view.
7. Allowing students to participate in the choice of assignments.
8. Sympathy with learners and no threat.

Mechanisms to activate and implement the perspective

1. Teachers' training to using Glasser Model strategies.
2. Providing moral, materialistic and organizational support.
3. Organizing the classroom in a way to allow interactions and easy mobility to implement the strategies.
4. The number of students should be appropriate to the classroom area.
Recommendations
1. Making college of education students and teachers aware of classroom management and its importance.
2. Adopting the proposed perspective for using and employing Glasser Model strategies to achieve an effective classroom management.
3. Training College of education students to using Glasser Model strategies to maintain an effective classroom management.
4. Teachers' training and qualification for using and employing Glasser Model strategies for achieving an effective classroom management.
5. Conducting more research about the effectiveness of Glasser Model in maintaining an effective classroom management.

Acknowledgement
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References
Effective School-Based Financial Management: A Study on the Practices of Cluster Schools in Malaysia

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Abstract—This study presents findings on the practices of effective school-based financial management by Cluster schools in Malaysia. The challenges over recent years are not only on the management quality of the school financial operation, but to achieve the aspired educational excellent and academic achievement through effective school-based financial management. This study employed the quantitative research method through distribution of questionnaires to all leaders of Cluster schools in Malaysia. The results show that 119 cluster schools managed to obtain high level of practices for 11 elements under the profile of effective school-based financial management. There are also no significant differences between the group of Sekolah Berasrama Penuh (SBP) or boarding schools and Sekolah Menengah Kebangsaan Agama (SMKA) or Islamic national secondary schools on all practices of effective-school based financial management. Overall, it indicates good performance, which satisfied the government purpose of granting guided financial autonomy to the school level.

Keywords—decentralization, effective, financial management, school-based management

I. INTRODUCTION

The concept of school-based management in Malaysia was largely aspired by the global phenomenon of management decentralization affecting the government sectors in many countries in the world. In Malaysia, it began in public schools through the establishment of PTj (Pusat Tanggungjawab) schools or Responsibility Center and followed with the formation of Cluster school as proposed in the Education Development Master Plan or Pelan Induk Pembangunan Pendidikan (PIPP) 2006-2010. Cluster school is a form of school brand awarded to schools that are excellent in their cluster in the aspect of school management and production of students with multi capability in academics, spiritual and co-curriculum. The implementation of Cluster school is based on the concept of school-based management which involves the school decentralization through a guided autonomy in specific areas of school management. The autonomy given are in the implementation of overall school management, human resource management, financial and physical resources, curriculum, including the co-curriculum management and implementation. Furthermore, the education stakeholders are expected to increase their participations in the school management process in various forms of contribution such as ideas, financial fund and many others.

The autonomy granted to the Cluster school covers a wider area of autonomy as compared to schools of PTj level that are human and physical resources management, financial management, staff professionalism development and also curriculum and co-curriculum development programs. It was also being called as a guided autonomy where the school is given the authority bounded with the regulations enforced in the Education Act 1996, National Education System, Financial Regulation Act 1957, Treasury Circulars and the Malaysia Education Quality Standard or Standard Kualiti Pendidikan Malaysia (SKPM). Another significant characteristic of the Cluster school is the increase of roles by the educations stakeholders. In addition to principal and teachers, the participation will come from the community such as the Parent-Teacher Association, Governing Board, school alumni and also the non-government organizations (NGO). Their responsibility will cover the areas such as the student scholarship, school financial resources, academic and co-curriculum excellence programs and also the career development program.
The challenges over recent years are not only on the management quality of the school financial operation, but to achieve the aspired educational excellent and academic achievement through effective school based-financial management. This is supported by Maliza Abd Malek (2007) who stressed on the urgency of schools to have a strategic financial planning in order to achieve the desired outcomes and to avoid unnecessary wastage and mismanagement of the public money. With regards to this problem, principals and teachers have to be equipped with special knowledge related to school-based financial management so that they will collaborate effectively in planning for the school budget and the daily financial operation (Zu Che Soh, 2008).

Furthermore, there are issues regarding less participation in decision-making by teachers and parents to ensure effective school-based financial management in Malaysia. It was recommended that school financial resources to be collectively monitored by Parent-Teacher Association (PIBG) or school board of director if exist and further receive assistance by school’s alumni or the community surrounding (Goinsamy, 2007; Mariani Md Don, 2008 & Mohd Noor Said, 2004). There are also necessity to disseminate the school’s vision, mission and objectives among the school members and stakeholders to ensure the mutual understanding and commitment from them to plan for the school’s strategic planning. Research did find that the critical success factor in managing school finance by Cluster school in Malaysia is the integrity and transparency by principals to share the relevant information to other teachers, parents and the members of school alumni (Muhammad Faizal A. Ghani et al., 2011 & Wan Shamsiah Wan Yusoff, 2008). Based on all these issues, the purpose of this study is to study the level of practices of effective school-based financial management by Cluster schools in Malaysia. Specifically, the objectives of this research are:

1) To measure the level of practices of effective school-based financial management by Cluster schools in Malaysia
2) To find any significant differences between practices of effective school-based financial management between the group of Sekolah Berasrama Penuh (SBP) or boarding schools and Sekolah Menengah Kebangsaan Agama (SMKA) or Islamic national secondary schools under the Cluster schools in Malaysia.

II. LITERATURE REVIEW

The framework of this study is based on two theories that are the Institutional Theory and Education Production Function. The institutional theory best described the nature of the school-based management reform that occurred around the world and the motive behind organizational change that occurred in school management from the traditional style of bureaucracy. Institutional theory is the theory which focuses on the environmental factors experienced by organizations such as school, firm or any other institutions. It holds the concept of conformity towards external or societal norms, rules and requirements in order for organizations to reach legitimacy. The rise of institutional theory was initiated from the writing of Meyer and Rowan (1977) which brought a new paradigm to the previous view of open system theory by Katz and Kahn (1966). Instead of understanding an organization as a component of a system that interacts and adapts to its respective environment, institutional theory has re-conceptualized this understanding by recognizing the limitation that become the constraint for an organization to change.

This then was identified as organizational field which actually constituted a recognized area of institutional life for example the key suppliers, consumers and even the other institutions operating in the same manner (DiMaggio & Powell, 1991). Institutional theory was identified with its basic principal of conformity. Conformity will measure the level of commitment of an organization to reach for the legitimacy in which the incorporation of social norms and rules was viewed as the organization’s rational action. As supported by Tooley and Guthrie (2003), legitimacy will be achieved if one organization operated within the bounds and norms of its respective institutional environment. Therefore, organizations were expected to commit for the practices of best management approaches as a rational action which becomes the symbols of organizations’ commitment to their respective environments.

The theoretical framework of this study is also based on the Education Production Function. Education production function rooted from the production functions in Economics context which measure the relationships between school and students input and the school outcomes (Bowles, 1970). As among the pioneer of education production function, Hanushek (2010) described it as a function that relates various inputs to education such as families, teacher quality and school resources to the maximum level of outcome such as the student achievement. The concept underlying the education production function began in 1966 through the released of the ‘Coleman Report’, the United States government’s monumental study on educational opportunity (Coleman et al., 1966) in (Hanushek, 2010). The output of educational process which is commonly measured as achievement of individual students is directly resulted from input that are directly controlled and not so controlled by policy makers. The example of directly controlled input were teachers, curriculum, characteristics of school and any related sources whereas the not so directly controlled were described as families, friends and the students’ own capabilities.

III. METHODOLOGY

This research applied the quantitative research method through survey using questionnaire to all Cluster schools in Malaysia. The selection of participants in this survey was based on non-random purposeful sampling due to the certain needs of this study. This is in line with Creswell (2008) as selection requires the participants who already understood and experienced the phenomenon being studied for the purpose of achieving the targeted goal. Questionnaire was distributed to all leaders of Cluster schools in Malaysia through mail in order to have findings from the population of Cluster schools
in Malaysia (Peninsular Malaysia, Sabah and Sarawak). The term ‘school leaders’ in this study referred to principals or head teachers and could be replaced by any of his/her assistant as the acting principals/head teachers. There were the ones who ranked as the top school managers and supposed to have vast knowledge in the area of school financial management.

The questionnaire items of this survey were basically derived from the instrument of Profile of Effective School-Based Financial Management in Malaysia developed through the application of Delphi method (Norfariza, 2014). It consists of two parts that were the demographic information and the characteristics of the profile with the total of 134 items. The questionnaire was developed with five-point Likert scale with the measurement of 1 = ‘Never’, 2 = ‘Seldom’, 3 = ‘Sometimes’, 4 = ‘Often’ and 5 = ‘Very Often’. In order to confirm the reliability of the questionnaire, pilot study was initially conducted. The questionnaire was analyzed quantitatively using SPSS version 19. The process involved descriptive statistical analysis of data, which include frequency, percentage, mean and standard deviation and inferential statistical analysis of Mann Whitey U.

The pilot study was conducted with 28 school leaders (either principal/head teacher or any assistant principals) from the schools with guided financial autonomy and has similar characteristics as the Cluster schools. For validity of the survey, the questionnaire items actually have been validated by experts through the Delphi method applied in the development of the profile. The reliability was measured through internal consistency methods, which require only a single administration of an instrument. Alpha coefficient or also known as Cronbach alpha was measured with the acceptable value of Cronbach alpha between 0.65 and 0.95 as supported by Chua (2006). From the analysis done, the value of Cronbach alpha for all the 13 elements in the questionnaire was within the range of 0.671 till 0.949.

The initial analysis was done for demographic profile of the survey’s respondents, which was presented in the form of frequency and percentage. In order to find the level of practices (LOP) of effective school-based financial management by Cluster schools in Malaysia, data was analyzed in the form of mean and standard deviation. The mean of their practices then been interpreted according to three level as shown in the Table 1, which has been adapted from Zulkifli Awang (2012).

### Table 1

<table>
<thead>
<tr>
<th>Level of practices (LOP)</th>
<th>Mean value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>1.00 till 2.49</td>
<td>Less satisfied</td>
</tr>
<tr>
<td>Moderate</td>
<td>2.50 till 3.89</td>
<td>Moderate satisfied</td>
</tr>
<tr>
<td>Satisfied</td>
<td>3.90 till 5.00</td>
<td>Satisfied</td>
</tr>
</tbody>
</table>

### IV. FINDINGS

1) The level of practices of effective school-based financial management by Cluster schools in Malaysia.

Findings on the level of practices by 119 Cluster schools were presented for every element included in the school-based financial management functions. Table 2 shows the results for all elements followed by some explanations and brief discussion on the results of the analysis. The table was presented according to the school-based financial management functions as follows:

<table>
<thead>
<tr>
<th>Constructs</th>
<th>Elements</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>LOP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part II (A):</td>
<td>Financial control procedures</td>
<td>4.64</td>
<td>0.576</td>
<td>High</td>
</tr>
<tr>
<td>Function of planning</td>
<td>School vision and mission establishment</td>
<td>4.49</td>
<td>0.637</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Financial purposes</td>
<td>4.58</td>
<td>0.586</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>School finance organizational structure</td>
<td>4.55</td>
<td>0.704</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Role of financial planner</td>
<td>4.50</td>
<td>0.639</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Budget management procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part II (B):</td>
<td>Financial acceptance</td>
<td>3.87</td>
<td>0.917</td>
<td>Mod.</td>
</tr>
<tr>
<td>Function of financial acceptance</td>
<td>Financial acceptance procedures</td>
<td>4.65</td>
<td>0.713</td>
<td>High</td>
</tr>
<tr>
<td>Part II (C):</td>
<td>Acquisition and disbursement authority</td>
<td>4.80</td>
<td>0.470</td>
<td>High</td>
</tr>
<tr>
<td>Function of acquisition and</td>
<td>Acquisition and disbursement procedures</td>
<td>4.83</td>
<td>0.428</td>
<td>High</td>
</tr>
<tr>
<td>disbursement</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Part II (D):</td>
<td>Financial control procedures</td>
<td>4.70</td>
<td>0.525</td>
<td>High</td>
</tr>
<tr>
<td>Function of control and evaluation</td>
<td>School financial references</td>
<td>4.65</td>
<td>0.576</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Financial control authority</td>
<td>3.64</td>
<td>0.566</td>
<td>Mod.</td>
</tr>
<tr>
<td></td>
<td>Financial control procedures</td>
<td>4.45</td>
<td>0.690</td>
<td>High</td>
</tr>
<tr>
<td></td>
<td>Financial management effectiveness measures</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

From the analysis, the result shows that Cluster schools managed to obtain high level of practices for 11 elements under the profile of effective school-based financial management. Only 2 elements found to be practiced at moderate levels which are categorized to be at moderate satisfied practices. The elements are:

- Element of school financial sources
- Element of financial control procedures

Therefore, we can deduce that Cluster schools have satisfied level of practices for most elements under the profile of effective school-based financial management in Malaysia.
2) Different on the practices of school-based financial management between SBP and SMKA.

Table 3 presents findings on the different of practices of effective school-based financial management between the group of Sekolah Berasrama Penuh (SBP) or boarding schools and Sekolah Menengah Kebangsaan Agama (SMKA) or Islamic national secondary schools under the Cluster school in Malaysia. The data were analysed using the analysis of Mann-Whitney U at p<0.05 significant level (2-tailed).

<table>
<thead>
<tr>
<th>Element</th>
<th>Type of cluster school</th>
<th>Mean rank</th>
<th>Mann-Whitney U</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>School vision and mission</td>
<td>SBP</td>
<td>14.29</td>
<td>81.50</td>
<td>0.099</td>
</tr>
<tr>
<td>establishment</td>
<td>SMKA</td>
<td>19.73</td>
<td>80.00</td>
<td>0.125</td>
</tr>
<tr>
<td>Financial purposes</td>
<td>SBP</td>
<td>14.79</td>
<td>91.00</td>
<td>0.208</td>
</tr>
<tr>
<td></td>
<td>SMKA</td>
<td>19.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School finance organizational</td>
<td>SBP</td>
<td>16.37</td>
<td>121.00</td>
<td>0.922</td>
</tr>
<tr>
<td>structure</td>
<td>SMKA</td>
<td>16.69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role of financial planner</td>
<td>SBP</td>
<td>13.94</td>
<td>80.00</td>
<td>0.125</td>
</tr>
<tr>
<td></td>
<td>SMKA</td>
<td>18.85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Budget management procedures</td>
<td>SBP</td>
<td>15.29</td>
<td>100.50</td>
<td>0.372</td>
</tr>
<tr>
<td></td>
<td>SMKA</td>
<td>18.27</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School financial sources</td>
<td>SBP</td>
<td>16.47</td>
<td>123.00</td>
<td>0.985</td>
</tr>
<tr>
<td></td>
<td>SMKA</td>
<td>16.54</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School financial acceptance</td>
<td>SBP</td>
<td>16.66</td>
<td>82.50</td>
<td>0.330</td>
</tr>
<tr>
<td>procedures</td>
<td>SMKA</td>
<td>13.50</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisition and disbursement</td>
<td>SBP</td>
<td>15.69</td>
<td>111.50</td>
<td>0.817</td>
</tr>
<tr>
<td>authorities</td>
<td>SMKA</td>
<td>16.42</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acquisition and disbursement</td>
<td>SBP</td>
<td>16.97</td>
<td>114.50</td>
<td>0.702</td>
</tr>
<tr>
<td>procedures</td>
<td>SMKA</td>
<td>15.81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>School financial references</td>
<td>SBP</td>
<td>17.47</td>
<td>105.00</td>
<td>0.470</td>
</tr>
<tr>
<td></td>
<td>SMKA</td>
<td>15.08</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial control authorities</td>
<td>SBP</td>
<td>17.24</td>
<td>90.50</td>
<td>0.333</td>
</tr>
<tr>
<td>procedures</td>
<td>SMKA</td>
<td>14.04</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial control procedures</td>
<td>SBP</td>
<td>17.97</td>
<td>63.50</td>
<td>0.059</td>
</tr>
<tr>
<td></td>
<td>SMKA</td>
<td>11.79</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financial management</td>
<td>SBP</td>
<td>17.84</td>
<td>98.00</td>
<td>0.325</td>
</tr>
<tr>
<td>effect effectiveness measures</td>
<td>SMKA</td>
<td>14.54</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *Significant at confident level p < 0.05(2-tailed)

a) Element of school vision and mission establishment
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of school vision and mission establishment [U (n₁ = 19, n₂ = 13) = 81.5, p < 0.05].

b) Element of financial purposes
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of financial purposes [U (n₁ = 19, n₂ = 13) = 91, p < 0.05].

c) Element of school finance organizational structure
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of school finance organizational structure [U (n₁ = 19, n₂ = 13) = 121, p < 0.05].

d) Element of role of financial planner
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of role of financial planner [U (n₁ = 19, n₂ = 13) = 80, p < 0.05].

e) Element of budget management procedures
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of budget management procedures [U (n₁ = 19, n₂ = 13) = 100.5, p < 0.05].

f) Element of school financial sources
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of school financial sources [U (n₁ = 19, n₂ = 13) = 123, p < 0.05].

g) Element of school financial acceptance procedures
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of school financial acceptance procedures [U (n₁ = 19, n₂ = 13) = 82.5, p < 0.05].

h) Element of acquisition and disbursement authorities
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of acquisition and disbursement authorities [U (n₁ = 19, n₂ = 13) = 111.5, p < 0.05].

i) Element of acquisition and disbursement procedures
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of acquisition and disbursement procedures [U (n₁ = 19, n₂ = 13) = 114.5, p < 0.05].

j) Element of school financial references
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of school financial references [U (n₁ = 19, n₂ = 13) = 105, p < 0.05].

k) Element of financial control authorities
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of financial control authorities [U (n₁ = 19, n₂ = 13) = 90.5, p < 0.05].

l) Element of financial control procedures
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of financial control procedures [U (n₁ = 19, n₂ = 13) = 63.5, p < 0.05].

m) Element of financial management effectiveness measures
The results show that there are no significant differences between SBP and SMKA on the level of practices for the element of financial management effectiveness measures [U (n₁ = 19, n₂ = 13) = 98, p < 0.05].

From the overall results of the analysis, we can conclude that there are no significant differences between the group of Sekolah Berasrama Penuh (SBP) or boarding schools and Sekolah Menengah Kebangsaan Agama (SMKA) or Islamic national secondary schools on all practices of effective-school based financial management. The results of mean rank for all elements also show more or less similar
performance between the practices of SBP and SMKA. SBP has higher level of practices for six elements that are the element of financial acceptance procedures, acquisition and disbursement procedures and all elements under the function of control and evaluation. Whereas SMKA has higher level of practices for seven elements that are all elements under the function of planning, element of financial sources and element of acquisition and disbursement authorities.

The success of Cluster schools to practice 11 elements in the profile at high level indicates the overall satisfactory level of performance by Cluster schools in practicing effective school-based financial management. This result is contrasted to a local case study done by Wan Shamsiah Wan Yusoff (2008) on the financial performance of a Cluster school in Selangor and the results of Rahmad Sukor Ab Samad and Choo (2005) on the practices of school-based management concept by school of PTj level in the district of Petaling, Selangor. This research managed to prove that SMKA or Islamic secondary schools under the group of Cluster school are also capable to be excellent in school financial management contrasted to their poor performance report stated in the Auditor-General’s Report or Laporan Ketua Audit Negara in 2002 (Jabatan Audit Negara Malaysia, 2002).

There are some possible reasons for the other two elements being practiced at moderate level. The entrepreneurship culture under the element of school financial sources is still a new concept for most public schools in Malaysia. This new paradigm has recently received attention as a result of government initiatives under the Economic Transformation Programme (ETP) in 2010, which induced the public sector to be more aggressive in increasing wealth. This culture also could only be strengthened with a certain degree of financial autonomy granted by the higher authority to the school community to increase their pool of funds. The other element is school financial control procedures in conjunction with the requirement of Internal Audit Division, Ministry of Education, Malaysia. Schools have to do the self-online auditing through Excellent Financial Management System (SKPK) annually to ensure that they are working within the regulated school financial management framework. Most schools probably give less attention to the requirement of the Internal Audit Division as compared to School Audit Division due to its smaller scope of audit investigation.

V. CONCLUSION

As a conclusion, Cluster schools in Malaysia were satisfactorily practicing the effective school-based financial management as a result of the decentralization reform occurred in the government sector. By implication, the management tasks previously handled by the central authority have been properly executed by the Cluster schools within the concept of financial decentralization. This condition has empowered the school community particularly the administrative members and further increase the role of all school stakeholders to contribute to the success of the school management. From the practical aspect, the guided financial autonomy has encourages the school leaders to have better financial planning. It reduces any unnecessary flow of money and channeled it to the most appropriate use and need, which could facilitate the school’s overall achievement in future.

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Formant Analysis of the English Alphabet Read by Japanese Female Students and Native Speakers

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Abstract—In order to understand and characterize the sounds of the letters of the alphabet as well as to figure out whether the students show some sort of affinity with spoken English of a particular region/country, the utterances of three groups (26 Japanese female students, 10 British and 20 American women) were recorded, analyzed, and statistically compared. It turned out that only a few letters had both F2 and F1 statistically similar to those of the native speakers; and preference to a specific English sound pattern was not statistically established.

Keywords—Phonetics, applied Linguistics, analysis of formants, characteristics of English utterances by Japanese female students.

I. INTRODUCTION

LINGUISTICS issues concerned with the difficulties that Japanese students face when learning English language have been reported (see for example [1]-[3]) and many theoretical as well as practical approaches have been taken into account to deal with this problem [4]-[5]. Nevertheless representative frameworks as the contrastive analysis have shed light on the differences between the sounds made by the native speakers and Japanese learners, teachers have struggled to find out an efficient methodology to teach the Japanese students pronunciation [6]-[7].

Motivated by this scientific background, this work has attempted to contribute to the field by handling this matter from the phonetic analysis standpoint. In fact, taking for granted some previous pilot investigations [8], it delved into the analysis of the formants composing the sounds of the English alphabet made by the Japanese students and the native speakers. More specifically, the aims of this study are two-folded: to characterize the formants of the sounds accordingly to the category of the letters, and to find out which kind of spoken English, whether Received Pronunciation or Standard American English, is easier for Japanese students to utter.

II. EXPERIMENTAL PROCEDURE

A. Subjects and Data Recording

Twenty six young Japanese female college students, aged 19 to 20 years old, were randomly recruited to participate in this experiment. The subjects were asked to recite (not the phonics) the English alphabet. The utterances were recorded with the freeware “sound engine” running on a personal computer equipped with “Windows 8”. In addition, sounds of ten female speakers of Received Pronunciation (RP) and twenty female individuals of Standard American English (SAE) were acquired by means of street interviewing sessions. However, 3 out of 10 for RP, and 6 out of 20 for SAE were carefully scrutinized and their sounds downloaded through the Internet. All the native speakers were in age range between late 20s and 30s and reportedly college graduated healthy native speakers of English.

B. Data Processing

The digital sounds were pre-processed for noise filtering and analyzed with freeware “Praat”, which also generated the text format files with numerical values of the voice signals. These text files were imported into the software “Microsoft Excel” in order to carry out the statistical data processing.

III. RESULTS

In what follows, a graph depicting the values of formants F1 and F2 and two other graphs of vertical bars representing the
statistical testing of the formants are presented for each group of letters. It is worth noting that, hereafter, this paper is concerned only with the tests on the pairs JP and US, and JP and UK.

Fig. 1 shows that the group of Japanese students had relatively higher F2 frequencies for nearly all the letters in the category [i:/i]. In fact, F2 frequencies had values greater than 2400 Hz whereas the US frequencies were roughly in-between the range from 2200 through 2500 Hz, and UK in the range from 2000 to 2200 Hz. As for the F1 frequencies, contrary to the cluster gathering seen in the US, which located in the interval from 450 to 650 Hz, and UK, in the range from 650 to 800 Hz, the group of students scattered widely from 500 to 800 Hz. Looking closely to each letter and statistically comparing them across the groups, the results turned out to be as shown in figs. 2 and 3. Fig. 2 indicates that the students had mean values of F2s - mean and standard deviation of letter b: 2985 ± 125 Hz, c: 2133 ± 60 Hz, d: 2100 ± 120 Hz, e: 2177 ± 144 Hz, g: 2125 ± 105 Hz, p: 2127 ± 102 Hz, t: 2116 ± 125 Hz, and v: 2060 ± 75 Hz - statistically different from those of the group of RP speakers (b: 2467 ±184 Hz, c: 2492 ± 158 Hz, d: 2504 ± 210 Hz, e: 2610 ± 174 Hz, g: 2512 ± 207 Hz, p: 2540 ± 182 Hz, t: 2511 ± 163 Hz, and v: 2411 ± 231 Hz). On the other hand, comparing with US (b: 2271 ±260 Hz, c: 2251 ± 223 Hz, d: 2267 ± 372 Hz, e: 2275 ± 336 Hz, g: 2465 ± 186 Hz, p: 2322 ± 341 Hz, t: 2351 ± 302 Hz, and v: 2220 ± 332 Hz), statistical similarity was verified for letters ‘c’, ‘d’, ‘e’, ‘p’ and ‘v’. For the F1s in Fig. 3, JP (b: 678 ± 82 Hz, c: 789 ± 59 Hz, d: 696 ± 79 Hz, e: 659 ± 77 Hz, g: 709 ± 56 Hz, p: 693 ± 60 Hz, t: 719 ± 78 Hz, v: 714 ± 78 Hz) was different from UK (b: 501 ± 116 Hz, c: 781 ± 198 Hz, d: 556 ± 163 Hz, e: 562 ± 192 Hz, g: 668 ± 284 Hz, p: 653 ± 186 Hz, t: 623 ± 196 Hz, v: 582 ± 205 Hz) only for ‘b’, and different from US (b: 484 ± 84 Hz, c: 663 ± 93 Hz, d: 510 ± 72 Hz, e: 487 ± 84 Hz, g: 652 ± 93 Hz, p: 589 ± 125 Hz, t: 605 ± 77 Hz, v: 502 ± 124 Hz) for all letters, but ‘p’.

Category [e] had letters with F2 and F1 distributed as plotted in Fig. 4, in which JP had F2 from 1900 to 2100 Hz, and F1 from 750 to 1000 Hz whereas US varied from 1550 to 2100 Hz for F2 and from 600 to 1000 Hz for F1; and UK from 1600 to 2250 Hz for F2 and from 700 to 1250 Hz for F1. In fact, as for F2, the means and standard deviations read: f: 2033 ± 56 Hz, l: 1944 ± 133 Hz, m: 1992 ± 99 Hz, n: 1996 ± 82 Hz, s: 2042 ± 64 Hz, and x: 2032 ± 51 Hz for JP; f: 2171 ± 179 Hz, l: 1626 ± 127 Hz, m: 1880 ± 152 Hz, n: 1988 ± 197 Hz, s: 2219 ± 201 Hz, x: 2208 ± 222 Hz for UK; and f: 1957 ± 98 Hz, l: 1568 ± 107 Hz, m: 1779 ± 115 Hz, n: 1853 ± 170 Hz, s: 2006 ± 177 Hz, x: 2054 ± 96 Hz for US. Fig. 5 says that JP and UK were statistically related for ‘f’, ‘n’, ‘s’ and ‘x’, and JP and US were not different for ‘s’, and ‘x’. As shown in Fig. 6, the same result was obtained for F1 when JP (f: 974 ± 112 Hz, l: 804 ± 51 Hz, m: 820 ± 98 Hz, n: 789 ± 81 Hz, s: 958 ± 89 Hz, and x: 981 ± 68 Hz) and UK (f: 1157 ± 220 Hz, l: 795 ± 87 Hz, m: 681 ± 96 Hz, n: 749 ± 131 Hz, s: 1174 ±
245 Hz, x: 1206 ± 249 Hz) were compared with each other. Slightly differently though, JP and US (f: 934 ± 98 Hz, l: 741 ± 65 Hz, m: 648 ± 97 Hz, n: 623 ± 101 Hz, s: 921 ± 133 Hz, and x: 955 ± 99 Hz) were similar for ‘f’, ‘s’, and ‘x’.

Fig. 4 Graph of the formants for category [e] (letters f, l, m, n, s and x.) ●: Japanese students. □: native speakers of American English. ◆: native speakers of RP.

Fig. 5 Statistical testing of the formants F2s for category [e] (letters f, l, m, n, s and x.) Left bar: Japanese students. Middle bar: native speakers of American English. Right bar: native speakers of RP. *: p<0.05, two tails. N.S.: not significant.

Fig. 6 Statistical testing of the formants F1s for category [e] (letters f, l, m, n and s.) Left bar: Japanese students. Middle bar: native speakers of American English. Right bar: native speakers of RP. *: p<0.05, two tails. N.S.: not significant.

Fig. 7 Graph of the formants for category [ei] (letters a, h, j and k.) ●: Japanese students. □: native speakers of American English. ◆: native speakers of RP.

Fig. 8 Statistical testing of the formants F2s for category [ei] (letters a, h, j and k.) Left bar: Japanese students. Middle bar: native speakers of American English. Right bar: native speakers of RP. *: p<0.05, two tails. N.S.: not significant.
The letters in the category [u:] are displayed in Fig. 10. The sounds of ‘q’s were in the scope defined along the F2 axis running from 1950 to 2100 Hz with US having the smallest values and UK the largest. Yet, this order was also verified for F1s which varied from 600 to 800 Hz. For ‘u’, unlike the “US, UK, and JP” frequency increasing order seen on the F2 axis which ranged from 1850 to 2000 Hz, the order along the F1 axis, which was within the interval from 400 to 650 Hz, was “UK, US, and JP”, from smallest to largest. Actually, apart from the frequency values, the same patterns were measured for ‘w’. Fig. 11 illustrates the results of the statistical testing for F2. JP (q: 1999 ± 82 Hz, u: 1985 ± 83 Hz, and w: 1923 ± 74 Hz) and UK (q: 2076 ± 202 Hz, u: 1968 ± 183 Hz, and w: 1844 ± 203 Hz) were positively correlated to each other for all the tests whereas JP and US (q: 1967 ± 154 Hz, u: 1887 ± 167 Hz, and w: 1734 ± 139 Hz) were similar for ‘q’ and ‘u’, but not for ‘w’. As far as F1 is concerned, Fig. 12 unveils that JP (q: 731 ± 59 Hz, u: 640 ± 56 Hz, and w: 684 ± 66 Hz) and UK (q: 785 ± 176 Hz, u: 433 ± 74 Hz, and w: 526 ± 121 Hz) were statistically similar for ‘q’. Actually, this was also true for JP and US (q: 648 ± 148 Hz, u: 500 ± 110 Hz, and w: 562 ± 64 Hz.)
o: 633 ± 104 Hz, r: 787 ± 99 Hz) were for only the letter ‘i’.

![Fig. 13 Graph of the formants for categories [ai], [o] and [r] (letters i, y, o and r.). ●: Japanese students. □: native speakers of American English. ◆: native speakers of RP.](image1)

![Fig. 14 Statistical testing of the formants F1s for categories [ai], [o] and [r] (letters i, y, o and r.) Left bar: Japanese students. Middle bar: native speakers of American English. Right bar: native speakers of RP. *: p<0.05, two tails. N.S.: not significant.](image2)

![Fig. 15 Statistical testing of the formants F1s for categories [ai], [o] and [r] (letters i, y, o and r.) Left bar: Japanese students. Middle bar: native speakers of American English. Right bar: native speakers of RP. *: p<0.05, two tails. N.S.: not significant.](image3)

IV. DISCUSSION AND CONCLUSION

The results lead to the following table which shows how the sounds made by Japanese students tested for the formants and to which English pronunciation they were more likely related.

<table>
<thead>
<tr>
<th></th>
<th>Both F2 and F1</th>
<th>Only F2</th>
<th>Only F1</th>
<th>neither F2 nor F1</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK-like</td>
<td>f, n, s, q, i</td>
<td>x, u, w, o</td>
<td>c, d, e, g, p, t, v, j, k, r</td>
<td>b, t, l, m, y</td>
</tr>
<tr>
<td>US-like</td>
<td>s, x, q, i</td>
<td>c, d, e, g, p, v, a, u</td>
<td>f, h, j</td>
<td></td>
</tr>
</tbody>
</table>

It suggests that ‘f’, ‘n’, ‘s’, ‘q’ and ‘i’ are positively related to UK for both F2 and F1 whereas ‘s’, ‘x’, ‘q’ and ‘i’ are similar to US. Moreover, the sounds of ‘s’, ‘q’ and ‘i’ correlates with both UK and US. The majority of the letters in the category [i:/i] fitted in US-<Only F2> and UK-<Only F1>; and since F2 is related to the <forward/backward> positioning of the tongue whereas F1 to the openness of the mouth, it is likely that these utterances were made with US-like tongue positioning while the openness tended to be UK-like. Interestingly, contrary to the view among the Japanese students that ‘r’ has a very peculiar sound in the sense that it is difficult to pronounce it, the formants were not in the classification <neither F2 nor F1>, which had ‘b’, ‘t’, ‘l’, ‘m’ and ‘y’ in it. Thus, considering that the Japanese educational system includes a program which assigns native speakers of English language as “assistant language teachers (ALTs)” to all junior and high schools throughout the country, and that the great majority of the ALTs are from the USA, these results call on further investigations to understand the absence of a dominant “English” in the speaking of Japanese female students.

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A Study of the English Sounds Made by Japanese Female Students Based on the Percentile Analysis

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Abstract—The goal of this work was to examine the temporal variation of the Formants measured out of the English sounds made by Japanese female students behave when compared to those of native speakers as well as to interpret these results in the light of “front/back” positioning of the tongue and “close/open” movements of the lips. To accomplish this purpose, the sounds of all letters of the alphabet were measured and statistically processed. The results suggest that the students tended to show a linear correlation for the movements of their tongues and lips were linearly correlated for most of the letter categories.

Keywords—Phonetics, applied Linguistics, percentile analysis, characteristics of English utterances by Japanese female students.

I. INTRODUCTION

Formants are the physical attributes of the vocal tracts expressed by their resonance frequencies as the sounds are produced in the mouth. In particular, the formant F2 is related to the “front/back” positioning of the tongue whereas F1 to the detaching (rounding) of the lips [1]. These properties have been explored in the analysis of Japanese speech sounds at the vowels level [2], and even a database of formants has been built to help understand the Japanese sounds [3]. In a broader context and aimed at contributing to the teaching and education fields, this quantitative method has also been used in cross-language comparative investigations [4]. For example, a comparative study between the Japanese and American English vowels was carried out on the grounds of the frequencies space F2 and F1 in order to shed some light on the similarities and differences between these languages [5].

Taking these into account, this work focused on the sounds of the whole English alphabet whose formants F2 and F1 were plotted on the same graph for different temporal locations in order to make out how the formants varied along the time line. The results allowed to characterize the students relatively to the native speakers in terms of the articulation of the mouth for different group of letters.

II. METHOD

A. Subjects and Data Recording

The sounds (not phonics) of the letters of the alphabet were digitally acquired from 26 young Japanese female college students (hereafter referred as JP group – aged 18 to 20), 20 female speakers of the Standard American English (group US - in their 20s and 30s) and 10 female speakers of Received Pronunciation (group UK – 20s to 30s.) Further details of the experimental protocol can be found in the companion paper [6].

B. Data Processing

The computer software “Praat” was used to process and analyze the digital sounds to then transform them into text format files, which were imported into the software “Microsoft Excel” for further statistical processing. The percentiles at 0%, 10%, 25%, 50%, 75%, 90%, and 100% of the data sets for each letter and each group were computed. Statistical comparison across the groups for corresponding values of percentage were also carried out. The graphs were drawn for the bunch of letters composing the same letter category.
III. RESULTS

In this section, the Temporal series graphs of the formants F2 and F1 are presented with the former being the horizontal axis and the latter the vertical axis. Nevertheless not a rule, the percentiles of F2 are drawn from right to left along the horizontal axis whereas those of F1 varies top down. In order to understand the sound production processes from the phonetics standpoint, a small drawing with vertical and horizontal doubly arrowed lines representing respectively the “openness” of the mouth, which is closely related to the formant F1, and “back/forward tongue positioning”, which is connected to the formant F2, is placed in the lower right corner of the graphs.

Fig.1 shows the percentiles of the Japanese female students for the category [i:/i] which consisted of the letters b, c, d, e, g, p, t, and v. The values of F2 and F1, hereafter written as “(F2 lower bound value-F2 upper bound value, F1 lower bound value-F1 upper bound value)”, had ranges varying widely; i.e., 0%: (1350 – 1500 Hz, 200-350 Hz), 10%: (1700-1850 Hz, 350-450 Hz), 25%: (1800-1950 Hz, 350-500 Hz), 50%: (1950-2100 Hz, 450-700 Hz), 75%: (2200-2350 Hz, 850-1100 Hz), 90%: (2400-2550 Hz, 1100-1350 Hz), and 100%: (2750-3000 Hz, 1550-1900 Hz). The points relative to the percentages varied as clusters and the trajectory they drew on the F2 x F1 graph was a decreasing-type straight line, which means that the subjects, as group, produced the sounds opening gradually the mouth while positioning the tongue forwardly in such a way the ratio of these movements kept constant along the sound production process.

In contrast, the group UK in Fig.2 gave 0%: (1150 – 1600 Hz, 100-300 Hz), 10%: (1750-2250 Hz, 200-350 Hz), 25%: (2150-2550 Hz, 250-400 Hz), 50%: (2150-2450 Hz, 300-450 Hz), 75%: (2650-2900 Hz, 500-1300 Hz), 90%: (2900-3300 Hz, 800-1550 Hz), and 100%: (2950-3300 Hz, 1800-2350 Hz) and the group US in Fig.3 yielded 0%: (900 – 1300 Hz, 100-300 Hz), 10%: (1550-1850 Hz, 200-350 Hz), 25%: (1800-2100 Hz, 300-400 Hz), 50%: (2100-2500 Hz, 300-550 Hz), 75%: (2500-2850 Hz, 500-1000 Hz), 90%: (2700-3000 Hz, 800-1500 Hz), and 100%: (2950-3300 Hz, 1350-2300 Hz) , which suggested that, in the first half of the utterance, the native speakers positioned the tongue in a forward position while keeping invariable the aperture of the mouth. This phase corresponds to the plateau shape seen in the graphs. Then, the lips were modified to become widely apart from each other in the last half of the sound production.

The clusters of points relative to the category [e], which has the letters f, l, m, n, s and x as its composing elements, are depicted in Figs. 4, 5 and 6. As far as the general variation patterns of the cluster are concerned with, the group of students marked 0%: (1200-1400 Hz, 200-450 Hz), 10%: (1600-1800 Hz, 400-650 Hz), 25%: (1750-1950 Hz, 550-750 Hz), 50%: (1750-1950 Hz, 500-1000 Hz), 75%: (2050-2200 Hz, 900-1300 Hz), 90%: (2200-2400 Hz, 1050-1500 Hz), and 100%: (2700-2900 Hz, 1500-1900 Hz) whereas UK did 0%: (950-1600 Hz, 150-600 Hz), 10%: (1000-1950 Hz, 200-800 Hz), 25%: (1200-2050 Hz, 250-900 Hz), 50%: (1450-2150 Hz, 600-1300 Hz), 75%: (1950-2400 Hz, 900-1500 Hz), 90%: (2150-2600 Hz, 1000-1650 Hz), and 100%: (2700-3150 Hz, 1500-2000 Hz) and US 0%: (800-1200 Hz, 150-400 Hz), 10%: (1100-1700 Hz, 350-700 Hz), 25%: (1200-1900 Hz, 300-500 Hz), 50%: (1600-2050 Hz, 600-1100 Hz), 75%: (2050-2550 Hz, 1000-1400 Hz), 100%: (2700-2900 Hz, 1500-1900 Hz)
300-800 Hz), 50%: (1450-2000 Hz, 600-950 Hz), 75%: (1850-2250 Hz, 750-1100 Hz), 90%: (2050-2500 Hz, 900-1500 Hz), and 100%: (2600-2900 Hz, 1400-1850 Hz). All the groups varied similarly to each other as the percentage increased; i.e., along a trajectory described by straight lines. However, comparing the groups at particular percentages, the positioning of the tongue and the movement of the lips are different for some letters as ‘l’ and ‘m’. It is worth pointing out that, though not presented in this paper, statistical testing across the groups for each value of percentage supports this claim. Moreover, these graphs indicate that the group of students started opening their lips some little time after the sound had been emitted out whereas the native speakers gradually moved the lips in a synchronized manner with the sound production.

The percentile clusters suggest that that the students moved their tongues forward as the lips detached from each other. In contrast, UK (Fig. 8), which scored 0%: (900-1600 Hz, 100-300 Hz), 10%: (1850-2100 Hz, 250-450 Hz), 25%: (1900-2000 Hz, 500-600 Hz), 50%: (2100-2400 Hz, 500-1150 Hz), 75%: (2500-2900 Hz, 700-1800 Hz), 90%: (2900-3100 Hz, 900-2100 Hz), and 100%: (2900-3400 Hz, 1800-2400 Hz) moved the lips in the latter part of the sound as depicted in Fig. 9. Note that the ranges of F2 and F1 for the native speakers are larger than those measured for the students, which imply that the students ended the utterances with the tongues slightly in a back position and the lips not as open as the natives.

Likewise, US with 0%: (850-1150 Hz, 200-300 Hz), 10%: (1550-1800 Hz, 250-450 Hz), 25%: (1900-2000 Hz, 550-650 Hz), 50%: (2050-2300 Hz, 600-800 Hz), 75%: (2500-2750 Hz, 700-1300 Hz), 90%: (2650-3000 Hz, 800-1800 Hz), and 100%: (2900-3400 Hz, 1350-2300 Hz) moved the lips in the latter part of the sound as depicted in Fig. 9. Note that the ranges of F2 and F1 for the native speakers are larger than those measured for the students, which imply that the students ended the utterances with the tongues slightly in a back position and the lips not as open as the natives.

Fig. 10 presents the percentiles of the group of students for the category [e], which has the letters q, u and w. In fact, the
group of students had ranges as 0%: (1300-1500 Hz, 200-300 Hz), 10%: (1550-1700 Hz, 300-450 Hz), 25%: (1700-1850 Hz, 400-500 Hz), 50%: (1800-1950 Hz, 450-650 Hz), 75%: (2050-2200 Hz, 750-1000 Hz), 90%: (2250-2450 Hz, 1050-1300 Hz), and 100%: (2700-2850 Hz, 1650-1750 Hz).

It suggests that the students moved forward the tongue proportionally to the opening of the lips. A somewhat different pattern was read in Fig.11 which displays the group UK with the measurements as 0%: (950-1350 Hz, 150-300 Hz), 10%: (1200-1500 Hz, 200-350 Hz), 25%: (1200-1500 Hz, 250-400 Hz), 50%: (1550-1850 Hz, 300-4500 Hz), 75%: (2100-2450 Hz, 300-1200 Hz), 90%: (2450-2800 Hz, 700-1800 Hz), and 100%: (3000-3300 Hz, 1900-2400 Hz) and US 0%: (750-850 Hz, 100-300 Hz), 10%: (1100-1200 Hz, 250-400 Hz), 25%: (1300-1500 Hz, 300-450 Hz), 50%: (1600-2000 Hz, 400-550 Hz), 75%: (2050-2500 Hz, 500-900 Hz), 90%: (2400-2650 Hz, 800-1200 Hz), and 100%: (2800-3100 Hz, 1400-1700 Hz) as seen in Fig. 12. The native speakers did forwarded their tongues while rounding the lips; however, these movements were not as linear as in the students.

Finally, the letters ‘i’, ‘y’, ‘o’ and ‘r’ belonging to the categories [ai], [o] and [r] are provided in Figs. 13-15. Fig.13 is the plot of the data measured out of the Japanese students: 0%: (900-1400 Hz, 300-450 Hz), 10%: (1000-1550 Hz, 500-650 Hz), 25%: (1100-1650 Hz, 600-800 Hz), 50%: (1350-1850 Hz, 700-950 Hz), 75%: (1850-2150 Hz, 850-1000 Hz), 90%: (2100-2350 Hz, 1000-1200 Hz), and 100%: (2650-2800 Hz, 1500-1650 Hz).
Fig. 13 Temporal series graph of the formants for categories [ai], [o] and [r] (letters i, y, o and r.) Japanese Students. Percentage values increasing from left to right

Fig. 14 Temporal series graph of the formants for categories [ai], [o] and [r] (letters i, y, o and r.) Received Pronunciation. Percentage values increasing from left to right.

Fig. 15 Temporal series graph of the formants for categories [ai], [o] and [r] (letters i, y, o and r.) Standard American English. Percentage values increasing from left to right.

Analogously, Fig. 14 is concerned with the group UK and gives 0%: (1000-1250 Hz, 200-500 Hz), 10%: (900-1350 Hz, 300-650 Hz), 25%: (1150-1500 Hz, 400-750 Hz), 50%: (1250-1650 Hz, 500-900 Hz), 75%: (1450-2450 Hz, 700-1050 Hz), 90%: (1850-2650 Hz, 950-1100 Hz), and 100%: (2800-3200 Hz, 1550-2200 Hz) whereas Fig. 15 yields US with 0%: (600-1050 Hz, 200-350 Hz), 10%: (850-1350 Hz, 350-600 Hz), 25%: (1000-1500 Hz, 500-700 Hz), 50%: (1150-1700 Hz, 550-950 Hz), 75%: (1500-2250 Hz, 700-1050 Hz), 90%: (1900-2500 Hz, 900-1150 Hz), and 100%: (2550-2850 Hz, 1300-1550 Hz). Nevertheless all the groups had overall trajectory closely resembling one another, a curve fitting data processing to find out the best curve that expresses the points showed that the group JP is best represented by a linear approximation whereas UK and US by non-linear curves. Yet, statistical testing showed that the letter ‘y’ had the utterance, as a whole, different from the native counterparts. This happened due to the values of the Formant in the first half of the utterance that affected the overall performance of the sound.

IV. DISCUSSION AND CONCLUSION

Taking into account the results so far, they suggested that the group of Japanese female students attempted to modulate the frequencies F2 and F1 along the utterance production processes. This is prominently seen in the letters of category [iː]/[i] as presented in Figs.1-3 where although not as the same as those of the native speakers, the trajectory of the clusters of percentiles had a plateau in the first half of the utterances to then turn into a ramp-shaped curve. Phonetically speaking, the individuals positioned their tongues forwardly at the beginning of the sound spelling and then detached their lips towards the end. A striking difference between the students and the native speakers relies on the “openness” of the lips. In fact, the native speakers articulated them more widely and sharply than the students.

The production of the sounds belonging to the other categories hinted at the existence of a kind of utterance production strategy in which the positioning of the tongue is synchronized to the opening movement that the lips perform, which led to a linear correlation between the formants F2 and F1. Further investigations are needed not only to make it clear the mechanism behind this strategy, but also to verify whether this is also detected in male Japanese.

Finally, these findings contribute to the field related to the teaching of English language to Japanese female students by calling one’s attention for the need of working out diverse types of tongue positioning and lips movements.

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Deixis in Quran Narrations’ Dialogues and Its Impacts on Recipients: A Pragmatic Study

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Abstract— This research deals with deixis which is one of the pragmatic elements in the Quran dialogues and its impacts on specific recipients. This research has taken a two-pronged study; descriptive analytical study, and the applied one. The descriptive analytical study aims to extract characteristics of the Quran dialogue, as well as its pragmatic features, focusing on deixis and its consequences in interpretations. The applied study on the other hand aims to investigate the pragmatic impacts of deixis in Quran Narrations’ Dialogues on the recipients. Data was analyzed by using SPSS version 20.0, and Pearson’s Correlation Coefficient was used in measuring the strength of association between parametric data. Besides, Spearman’s Correlation Coefficient was also employed for non-parametric data. The study aims to reach into a concrete evident that deixis is one of the important pragmatic elements in understanding the Quran narrations’ dialogues; therefore there is a need to practice pragmatic thinking in order to upgrade the recipients interaction with the Quran.

Keywords— Deixis, Quran Dialogue, Narration, Pragmatic Analysis, Pragmatic Impacts

I. INTRODUCTION

The holy Quran is the central religious text in Islam, which is believed that it is the verbatim word of God, revealed to His last messenger, Muhammad p.b.u.h. through the angel Gabriel gradually over a period of approximately 23 years of his prophecy. The Quran contains guidance which is represented in various ways such as direct speech, narration, exemplification and illustration.

Dialogue can be defined as a significant verbal exchange that takes place between two or more parties in a given situation. The stipulation of "significant verbal exchange" excludes exchanges that are all too brief or are only of incidental importance in a given context, while the stipulation, "in a given situation," excludes exchanges whose continuity is broken by a lapse of time or shift of venue, with the break indicated in the text explicitly or implicitly [1]. Dialogue is one of the powerful means that the Qur’an spreads its teachings. In many surahs in the Qur’an, Allah ta’ala displays the dialogues between people: Allah ta’ala and the Angels, Ibrahim and his father, Moses and Khidr, the two men of the garden, Mosac and Pharaoh and so forth. The beauty of these dialogues is that Allah ta’ala could have delivered His messages directly, but rather He chose to convey to recipients in the form of dialogue. Muslims believe that these dialogues are based on reality and were selected by Allah ta’ala to be revealed in Quran as a source of faith because they contained valuable lessons to human kinds.

Furthermore, Quran narrations are different as compared to other types of story-telling belong to mankind literature. It is because characters in the literary works are influenced by the personality of the authors, where it reflects their visions and ideas as well as their backgrounds and knowledge of the authors. This is one of the most significant differences between narration created in mankind literature and Quran narration.

From that angle of view, the researcher believes that these dialogues are suit for a pragmatic study which deals with language in its reality use. This work has taken a two-pronged study; descriptive analytical study, and the applied one. The descriptive analytical study aims to extract characteristics of the Quran dialogue, as well as its pragmatic features, focusing on deixis and its consequences in interpretations whilst the applied study aims to investigate the pragmatic impacts of deixis in Quran Narrations’ Dialogues on the recipients.

Pragmatic is one of the newest branches of linguistics appeared in the-mid twentieth century by its former
philosopher J.L. Austin (1911-1960), who believes that our speech consists of forces to produce effects like other human actions [2]. This approach deals with language as a tool for communication as well as those who involve in this process; concerning speaker’s intentions, analyzing recipient’s capability in understanding the intentions and observing the effects brought by those speeches [3].

Deixis is one of the elements used in pragmatic analysis of speeches, which deals with the relationship between words and the specific meanings that the words refer to, in the users’ contexts [4], [5]. In all languages, words and expressions are totally dependent on the context where they are used and produced. People are not able to deliberate or interpret the speeches isolated from its contexts. Y. Bur-hillel in his study highlighted the important of this element by stating that more than ninety percent of words and expressions used in our daily communication contain deixical indicative [6].

Although Quran has been studied in various fields of studies, the device of Quran dialogue has not been discussed seriously by scholars, neither from Muslim scholars nor from the western scholars. Richard Bell wrote about Quran dialogue in comparing with that which had been used in Bible, mentioning that Quran narration was delivered through direct speech and dialogue. Although he notes the frequent use of direct speech in the Qur’an, he apparently does not think that this use of direct speech has any deeper significance. Indeed, his view that direct speech in the Qur’an has an “interjectory” - and hence possibly irruptive or intrusive-character suggests dialogue to be somewhat peculiar rather than a positively significant feature of Quran style and is hardly meant to encourage a sustained study of that feature [7].

Neither did Muslim scholars offer a more satisfactory treatment of Quran dialogue. For example, Sayyid Qutb studied the Quran narrative art in his well-known Al-Tasweeru l-Fanni fi l-Qur’an, but the book, which otherwise contains some excellent insights, shows little appreciation of Quran dialogue as a literary technique [8]. Another Egyptian writer, ‘Abd al-Karim al-Khatib, in his Al-Qasas al-Qurani devotes almost all of chapter three to dialogue in the Quran, but he confines himself largely to writing brief glosses on certain individual Quran dialogues [9]. However, there are a few applied studies on Quran dialogue from linguistics approaches, such as stylistics done by Abd al-Murdhî Zakarya (1998) and Najeeb Ali Abdulllah as-Study (2004), and lately focusing on pragmatics by Kaheena Zammush (2011) which focuses on argumentations tactics in Prophet Moses story [10]–[12].

Dialogue in the Quran has thus received little scholarly attention. In this paper the researcher shall argue that, as a literary feature of the Quran, it is both interesting and important and, as such, calls for systematic study.

II. Methodology

This study deals with a hypothesis which claims that the Quran dialogue consists of pragmatics elements especially deixis. Consequently, the understanding of deictical words and expressions influences the recipients’ understanding of Quran. Therefore, to investigate the hypothesis whether it is evitable or not, this work will go through a two-pronged study; descriptive analytical study, and the applied one. The descriptive analytical study aims to extract characteristics of the Quran dialogue, as well as its pragmatic features, focusing on deixis and its consequences in interpretations whilst, the applied study aims to study the pragmatical impacts of deixis in Quran narrations’ dialogues on the recipients. The respondents are a total of 132 final year degree students of Quran studies from 3 governmental high education institutions. A set of questionnaire has been used to measure respondents’ knowledge of deixis and their practice as well as to collect their bibliographical data. Data was analyzed by using SPSS version 20.0, and Pearson’s Correlation Coefficient was used in measuring the strength of association between parametric data. Besides, Spearman’s Correlation Coefficient was also employed for non-parametric data. The study aims to reach into an evident that deixis is one of the important pragmatic elements in understanding the Quran narrations’ dialogues; therefore there is a need to practice pragmatic thinking in order to upgrade the recipients interaction with the Quran.

III. FINDINGS

The descriptive analytical study led us into concrete findings as follows:

a. Although Quran dialogue has a lot of similarities with dialogue equipped in literatures, it has special features and a characteristic such as sacredness, realistic (non-fantasy), has multiple parties and ankles, open-minded and applying high-Arabic level.

b. Quran dialogue consists of big amount of deictical words, phrases and expressions.

c. These deictical element can be categorized into 5: personal deictics, temporals, spatial, discourses and socials.

d. These deictical element influences Quran interpretation; any difference in referring the deictic leads into difference in interpreting and understanding verse as whole.

While the applied study on a total of 132 respondents from final year degree Quran students leads into results as follows:

a. 122 respondents (92.4%) acknowledge the existence the pragmatic elements in Quran dialogue generally, and 107 respondents (81.8%) acknowledge the existence of deixis.

b. Deixis influences their understanding of the related sentences and verses with the mean of 71.02 and the standard deviation of 8.40.

c. There is a relation between respondents’ Arabic language proficiency level and their knowledge of the pragmatic elements in Quran, as well as their understanding of deictical terms used in Quran dialogues.

d. The analysis also shows that there is a relation between knowledge and the practice related to the deixis in Quran dialogue.
IV. DISCUSSION

It is essential to go through the holy Quran and apply a descriptive analysis on the dialogues bore in it, generally to understand the nature of Quran narrations and its typology, as well as its importance and roles in delivering God messages. The content of Quran dialogues is no different than the content of the Qur'an as a whole [8]. The principal themes and subjects are: the fundamentals of the teachings of the prophets, including the doctrines of monotheism and recompense; the attitudes and arguments of the nations addressed by the prophets; the character-traits of the believers and the unbelievers; general moral precepts; and, of course, divine power and wisdom.

Using the criteria of speaker and content, the Quran dialogues may be divided into several types as follows [1]:

1) Probably the most common type is the dialogue between a prophet and the nation to which he is sent. A prophet presents his message but is met with defiance and rejection, or he criticizes his nation but his criticism falls on deaf ears. For example, surah 11 contains a number of such dialogues: 11: 25-35 (Noah), 50-58 (the ancient Arabian prophet Hud).

2) A number of dialogues take place between God and prophets. In these, a prophet is charged with a mission and encouraged to carry it out with resolution; a certain demand made by a prophet receives a response from God; or a prophet is given insight into divine acts. Examples are Q. 2: 260 (Abraham); 7: 143, 20: 11-48, and 28: 29-35 (Moses); Noah (11: 45-47).

3) A number of dialogues usually involving ordinary human beings, have moral edification as their main aim: certain virtues are praised and certain vices are condemned, Q: 7: 13-26, 20: 70-73, and 26: 41-51 (Pharaoh and his magicians) shows the transforming power of faith, 5: 27-29 (Cain and Abel) shows blind jealousy.

4) In some dialogues, the speakers are shown in consultation with one another: a matter has come up which needs deliberation. Two examples are Q. 12: 8-10 (Joseph's brothers) and 27: 29-35 (the Queen of Sheba and her courtiers).

5) Several dialogues are situated in the hereafter: Q. 74: 40-47 (people of heaven and people of hell); 7: 38-39 (mutual cursing of the people of hell); and 34: 31-33 (the arrogant and wicked leaders and the acquiescing followers [see also 40: 47-48]).

6) Two other types may be noted briefly:
   a) The Qur'an has a few examples of what is called one-sided dialogue: 2: 34-39 (God addressing first Satan and then Adam and Eve); and 31: 12-19 (Luqman giving advice to his son).
   b) 40: 23-44 belongs in a category by itself: there are several speakers, but hardly any listeners. The speakers include Moses, the Egyptians (taken as a group), Pharaoh, and a certain “believing person” who has kept his conversion to Moses' religion a secret but now breaks his silence and declares his support for Moses’ cause. But no one, it seems, is paying any attention to what the others are saying. The impression one gets is that there are so many voices in the wilderness. It is true that the passage apparently depicts more than one situation, but it has the structure of a dialogue, and the dialogue represents a state of utter lack, or breakdown, of communication. It in fact shows the futility of dialogue in certain situations. It is, in a sense, an anti-dialogue.

Narrations and dialogues are equivalent to one third of Quran, which could be translated as a significant indicator for its importance in delivering the God messages to mankind. Dialogue is a very powerful approach to deliver religious teachings and plant them deeply into the souls indirectly, so that the recipients would not feel the pressure of Gods' commands and prohibitions. In a brief, dialogue has impacts on recipients in pursuing, persuading, explaining, enlightening, as well as arguing them with logic in indirect ways [13]. Sayyid Qutb had highlighted the important roles of Quran dialogues in illustrating the scenes, making the plots move and grow clearly, as well as providing artificial signals and revealing nice features for the characters [8]. For example, through Moses’ dialogues we can extract his characteristics as he was a man with determination and enthusiasm in delivering God messages, but on the other hand, from his dialogue with Aaron after he found out that his followers had turned away from the pure religious teachings in his absent, we noticed that he was ruthless and could not control his anger, but it should not be seen as a negative manner because he was angry not because of his sake, but the anger had risen because the sake of God.

While dealing with these dialogues, researchers must put in their consideration some special features and characteristics of Quran dialogues, so that they could avoid from discussing any sensitive issues concerning fundamentals of Islam. The most significant features of Quran dialogues are sacredness, which means that these dialogues are considered to be holy and to be regarded with great respect, because it connected with God. Therefore, Muslims believe that these dialogues are perfect in all angles. In according of that, Muslims believe that these dialogues are presented to mankind in perfect Arabic literature, far away from any defect or ambiguity.

Furthermore, these dialogues are believed to be realistic and far away from fantasy or imagination. In other word, these dialogues are selected by God from mankind reality: starting from the history of the creation to the life in hereafter and all the characters takes part in the Quran narrations are real as well as the dialogues spoke by them [14]. By looking to the dialogues from this particular view give researchers opportunities to study the characters and their characteristics through their speeches and dialogues.

To narrow down the descriptive analysis scope of study, the researcher will treat dialogues from the story of Moses; Moses with his followers (Bani Isra’il) in one hand and Moses with Pharaoh and his followers (aristocrats and magicians) in
the another. Moses story has been chosen in this pragmatic analytical study because it is the most narrated one in Qur’an, and has many angles, as well as it has been one of the most well known stories revealed by Quran. These conditions help recipients to understand dialogues in these scenes easily by relaying them to their general knowledge of Moses story. The study highlighted these dialogues and attempted to analysis them pragmatically by focusing on the deixis and its impacts on recipients.

The analysis showed that there a lot of versus containing deixical element, and most of them had clear references; therefore the recipients should not face any problem or difficulty in understanding the exact meaning of the verses. In spite of that, there are some verses seemed to be problematic because the deixical elements bore on it had more than reference. So, this sort of verses have more than one suggestion of meaning, therefore the recipients must think properly within their capacity of knowledge before choosing one of these probabilities to complement their understanding to the verses and to the story as whole. Below are two related verses which the deixical elements bore in its seemed to be problematic to the recipients as examples:

E1: The word (الرسول) from Samiri speech:

 tamil

Translation: He replied: "I saw what they saw not; so I took a handful (of dust) from the footprint of the Messenger, and threw it (into the calf): thus did my soul suggest to me." (Q. 20:96).

E2: The word (مصر) from Moses speech towards his followers:

 miałn

Translation: “… Go ye down to any town, and ye shall find what ye want!” (Q. 2: 61).

In E1, the word (الرسول) that means “the Messenger” has two suggestions of reference; either Moses or the Angel (Gabriel) which had been meant by Samiri, where as in E2, the word (مصر) contains two suggestions of reference; either the country of Egyptians or any other country which had been addressed by Moses to be settled down by his followers in order to fulfill their request [15]. By analyzing the dialogues through pragmatic view, the recipients should be able to choose the best answers from the suggestions listed. As for E1, the Angel (Gabriel) is the best reference for the word (الرسول) because it belongs to Samiri’s explanation to Moses for what he had done, as he tried to tell Moses that he was trying to follow the truth, and by mentioning this particular word which refer to the angel (the Gabriel) as a messenger for the revelation was a strong excuse for him. In addition, it was quit odd if we refer the word to Moses himself, as Moses was the another side in this conversation, and was not the third party.

In E2, the best reference for the word (مصر) is any other town or country, not the country of Egyptians, Pharaoh’s kingdom. This is because, if we look in the dialogues which took part between Moses and his followers through pragmatic views, we will discover that it would be a ridiculous for Moses to ask his followers to go back to “Misr” Pharaoh kingdom in order to find the food that they used to eat before, as they were already escaped from starvation and survived from the atrocious Pharaoh’s tyranny. Although Moses had consumed the word “Misr” (مصر) in his command, he did not mean to refer the word to the Pharaoh’s kingdom, but it was a good way to remind his followers about what they had faced there. Therefore, instead of blaming and muttering about the difficulties, they should be thankful to the God who had saved them from the starvation and dishonorable live before.

This sort of verses was yet to be arranged in a set of quantitative questionnaire to investigate the recipients’ understanding of Quran dialogues. The questionnaire was evaluated by three experts in contents and statistics researches to ensure that the questions are valid and will meet the research objectives. After that, a pilot test had been conducted onto a total of 30 respondents of final year degree students of Quran studies and the data had been analyzed. The results seemed to support the hypothesis through its figures and parametric data; therefore it gave a green light to proceed into the field study.

The study was conducted from 1st of May 2014 and to 24th of Jun 2014. Respondents for this applied study were 132 respondents in total, from a selected category of final year degree students specialized in Quran studies. The researcher assumed that the respondents from this particular background are close to Quran and they represented the highest level of interaction with Quran in Malaysian society. By investigating their level of understanding in dealing with Quran dialogue we can estimate the society’s level of understanding which is should be placed below their average result.

The questionnaire focuses on two main elements; their knowledge about the existence of pragmatic elements in general and the deixis especially in Quran dialogue and their practice or understanding of the verses based on their pragmatically thinking. The result showed that the respondents have a very high level of knowledge regarding to the existence of pragmatic elements where 122 out of 132 respondents (92.4%) were totally aware of the existence of these elements in Quran dialogue. In spite of that, the percentage decreased slightly while dealing with the deixis separately, where 108 (81.8%) were aware about the existence of the deixical element in Quran dialogue. From the significant percentages we can say that the respondents have a very high level of related knowledge.

After measuring the knowledge level, this study investigated further exploration on the practice of the knowledge that reflects the respondents’ understanding level. The results show that the respondents’ practice of pragmatic analysis thinking in general was very high with mean result of 89.1% and standard deviation of 6.50. On the other hand, the respondents’ understanding of deixis in Quran dialogue decreased significantly with the mean and standard deviation of 71.02 and 8.40 respectively. This result shows that respondents faced some difficulties while dealing with
deixical words which consist of multiple suggestions references, especially in choosing the right meaning of the deixis through an explicit pragmatic thinking.

Subsequently, this study analyzed the relationship between the knowledge and the practice by using Pearson Correlation. In this study, the results proved that there were positive correlation between respondents’ general knowledge and their practice with the value (r=0.064, p=0.46). Although these figures show a very weak correlation between these two variables, but they still implied an indicator that the respondents’ knowledge influence their practice and understanding of Quran dialogue in a positive trend; the increasing of knowledge level leads into increasing of practice quality.

Furthermore, the Pearson Correlation was applied to another pair of variables; respondents’ knowledge of deixis and the related practice. The results also proved that there was a positive relationship between these two variables with the value of Spearman’s rho correlation (r=0.224, p=0.01) which could be translated that the increasing of deixical knowledge leads into the increasing of practice and understanding among recipients.

On top of that, this research also found the correlation between respondents’ levels of Arabic proficiency and their understanding of Quran dialogues especially those verses which consist of deixical elements with the value of correlation (r=0.293, p=0.0). Although the variance between these two variables are not strong as $r^2=0.086$ or 8.6% (as shown in Fig. 1), but it still provides us with evidence about the existence of positive correlation between these two variables, yet could be established to support the importance of Arabic language proficiency in order to upgrade the recipients’ knowledge of pragmatic elements and simultaneously strengthen their exercise of logical and pragmatical thinking while dealing with Quran dialogue.

Fig. 1 Mapping of positive correlation between Arabic proficiency and the understanding of deixical elements in Quran dialogues

V. CONCLUSION

Quran dialogue is built up with pragmatic elements which to be interpreted and understood through a systematic and analytical pragmatic thinking. Any failure in practicing or considering the right approach in dealing with those pragmatic texts will surely lead to misunderstanding or inaccurate interpretation. Thus, there are needs to upgrade recipients’ level of pragmatic thinking in order to improve their understanding of Quran, especially because dialogues are sort of contextual and language in use. Therefore, it is necessary to apply pragmatic approaches when dealing with dialogues.

Deixis is one of the important pragmatic elements that has significant impacts on the recipients. By practicing pragmatic analytical thinking with its holistic view, recipients will be aware of the multiple probability references and attempt to erase the ambiguities, to come out with clear and solid understanding of the texts.

Consequently, it is suggested that an advanced study should be conducted through a comparative method in order to investigate a hypothesis that posits there are significant differences between the previous group and the group of Malaysian specialists in Arabic language proficiency regarding their pragmatical impacts of Quran dialogue.

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$^1$ r = range of the correlation, p = the correlation value.


Analysis of Students’ Errors and Misconceptions in pre-University Mathematics Courses

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Abstract—Students’ errors and misconceptions are intelligent generalizations of their experiences and incomplete knowledge acquired. In order to help students unlearn the misconceptions and relearn the correct conceptions, it is important that teachers are aware of these errors and misconceptions, and their formation. The purpose of this paper is to bring awareness of some of the errors students make and the misconceptions they have with regard to mathematical concepts, and suggest how the formation of these errors and misconceptions can be prevented and remedied. This paper reports the findings based on analysis of 2,411 examination papers of students enrolled in pre-University mathematics courses between January 2012 and April 2015. The literature discussed in this paper makes a case for K-12 school teachers to have an in-depth and more flexible understanding of the mathematics they teach, so they can recognize how the structure of mathematical concepts should be presented while teaching mathematics.

Keywords—mathematics, students’ errors, students’ misconceptions.

I. INTRODUCTION

Errors students make and misconceptions they have are not just careless mistakes but are intelligent generalizations that result from their previous learning [1]-[4]. Mistakes are made unconsciously whereas misconceptions are committed because students think they are correct. Mistakes are made by a few students and rarely, whereas misconceptions are committed by many students and often. Errors and misconceptions once entrenched in students’ memories are hard to erase [5], [6]. Hence, in order to build a solid foundation and to prevent and correct misconceptions, it is important that the teachers know these common errors and misconceptions. These errors and misconceptions can be used to inform instructional decisions and hence design instruction [1]-[4]. Mathematics educators agree that it is important for teachers to be aware of their students’ ways of thinking when it comes to mathematical concepts [7]. It is essential that teachers are aware of both the correct and incorrect notions students have with regard to mathematical concepts, and possible errors and misconceptions [4], [7]. This could not only help teachers to prevent the formation of such errors and misconceptions, but also to remedy those errors and misconceptions [4], [7].

Students come to class with preconceptions of beliefs, ideas, and mathematical concepts that they have built through their classroom, and life experiences which play a key role in what and how they learn [4], [8]. Research indicates that teachers who take into account their students’ prior knowledge in planning lessons and in preparing classroom activities for them promote conceptual understanding [1], [2]. This is crucial as students who lack conceptual understanding tend to forget how to apply concepts which in turn makes it challenging for them to attain new knowledge [1], [2]. Therefore, to ensure student success in learning mathematics, it is vital that errors and misconceptions be unlearned and that teachers help students relearn correct conceptions.

This paper aims to identify students’ common errors and misconceptions through analysis of their answer scripts, and
make evidence based suggestions on how teachers could modify their mathematics instruction to prevent and remedy these errors and formation of misconceptions.

II. METHOD

A. Purpose of the Study

The main purpose of this study is to identify the common errors and misconceptions of students enrolled in pre-University (Foundation Level) mathematics courses through analysis of their examination papers. This paper also aims to identify the basis for the students’ errors and misconceptions, make evidence based suggestions on how teachers could design their instruction to remedy these errors and misconceptions once identified, and prevent the formation of these common errors and misconceptions in future.

B. Setting and Sample

Sample for this study included all the students enrolled in all pre-University mathematics courses offered at a higher education institution in the Maldives from January 2012 through April 2015. Ages of students were between 18 and 43 years old. All students were Maldivians who completed their lower secondary education from various schools across the country.

A total of 2,411 examination papers, which included class examinations, midterm examinations, and final examinations, were analyzed for common errors and misconceptions. Total marks scored for each paper was between 9 and 98 marks out of 100.

C. Method and Analysis

All 2,411 examination papers were analyzed for errors and misconceptions. To investigate the errors and misconceptions only students’ incorrect answers and partially correct answers were considered. Questions left unattempted were not included in the analysis as errors or misconceptions cannot be identified from such a response.

Errors and misconceptions that appeared in at least 20% of the examination papers are discussed in this paper. Errors and misconceptions identified were categorized into themes such as misconceptions with number sense, misconceptions with order of operations, misconceptions with fractions, misconceptions with indices, errors due to lack of technical vocabulary, and misconceptions with algebra.

III. FINDINGS AND RECOMMENDATIONS

A. Misconceptions with Number Sense

Analysis of answer scripts revealed that students do not have a strong understanding of numbers such as prime numbers, rational, and irrational numbers. It is noteworthy that the student who scored a 98 was unable to identify two prime numbers and an irrational number from the given list. Most common errors observed include that 1 was incorrectly identified as a prime number by some students, while \( \frac{5}{7} \) was incorrectly identified as a prime number by other students. Some students had incorrectly identified \( \sqrt{4} \) and \( \frac{11\pi}{13\pi} \) as irrational numbers.

These clearly indicate that students do not understand the conditions that need to be met in order for a number to be a prime number or an irrational number. This could also be the result of students being offered incomplete or a distorted definition when the types of numbers were first introduced to them [9]. For example, researcher has observed time and again students being told “if it is in a square root” or “if there is \( \pi \)” the number is an irrational number.

An instructional suggestion would be to make sure these concepts are explained by presenting not only the complete definition and examples of what it is, but also by showing examples of what it is not, following by why it is so or why it is not so. These types of errors can be corrected and prevented by carefully selecting and presenting examples that would challenge assumptions of students [4].

B. Misconceptions with Order of Operations

Typical incorrect answers observed with order of operations are shown below in Fig. 1 and Fig. 2.

![Fig. 1 Misconceptions with bracket usage](image1)

![Fig. 2 Misconceptions with order of operations](image2)

The instructions for the question shown in Fig. 2 read “without using a calculator and clearly showing all the steps in your workings...” hence, students showed all the steps in their workings. Incorrect answers obtained for the question shown in Fig. 2 included 0, 5, 6, 8, 10, 14, and - 0.5. In fact 85% of the students gave incorrect answers for that question.

This misconception could be due to the fact that the rules are explicitly stated during instruction at primary level and lower secondary level followed by over dependence on use of calculators [10]. Welder (2012) claimed that use of mnemonics such as BODMAS or PEMDAS to make students remember the order of operations may lead to these misconceptions if the rules are applied without the conceptual understanding [4]. Welder (2012) stated “following the order outlined in PEMDAS, without conceptual understanding, students may believe that addition must precede subtraction, regardless of its left-to-right position in a number sentence” as an example of what students are likely to do [4].

Welder (2012) argued that notational use of brackets should be encouraged as early as at primary level [4]. Moreover, it was recommended that teachers start with an equation that has
a single number on one side such as \(4 \times 5 = 20\), and replace 5 with 3+2 to give \(4 \times 2 + 3 = 20\) which no longer was true as “children do not see the need for bracketing until they construct an arithmetic identity which when evaluated from left to right conflicts with their mental construct” [4], [11].

Another misconception identified relating to operations is students taking plus sign is a signal to conjoin two terms together like \(1 + \frac{1}{5} = \frac{1}{5}\). However, in algebra \(x + \frac{1}{5} \neq \frac{1}{5}x\). These misconceptions can be prevented by exposing the underlying structure of algebra to students while working with arithmetic prior to learning formal algebra [4]. In addition, it was observed that students made what Banerjee and Subramaniam (2012) referred to as ‘detachment errors’ due to lack of understanding of mathematical structures [1].

Examples of detachment error, often which is detachment of negative sign, include \(25 - 7 + 2 = 16\); and \(x^2 - 5x - 5x + 25 = x^2 - 25\). Banerjee and Subramaniam (2012) offered an instructional suggestion to prevent and remedy this misconception which was to “use order of operations to develop an understanding of transformations that can keep the value of an expression equal” [1], [11].

C. Misconceptions with Fractions

Errors made due to misconceptions with fractions included incorrect cancellation of digits to reduce fractions, cancellation over addition, incorrect representation of mixed numbers as vulgar fractions, using the ‘multiplication rule’ in addition questions and ‘addition / subtraction rule’ in division of fractions. Analysis of the answer scripts revealed that more than 75% of the students did not possess knowledge required to perform basic operations on fractions without the use of a calculator. Some of the common errors observed in the students’ examination papers are shown below.

Fig. 3 An example of a detachment error observed

![Fig. 3 An example of a detachment error observed](image)

Fig. 4 Misconceptions with incorrect cancellation to reduce fractions

![Fig. 4 Misconceptions with incorrect cancellation to reduce fractions](image)

Fig. 5 Incorrect generalization of ‘multiplication rule’ to addition and ‘addition / subtraction rule’ to division

![Fig. 5 Incorrect generalization of ‘multiplication rule’ to addition and ‘addition / subtraction rule’ to division](image)

Often students are instructed to cancel the “last zero if it is in both numerator and denominator of a fraction” without offering an explanation as to why that is done. This is a common explanation given to students in primary grades. At lower secondary level, often students are instructed “take your calculator, write the fraction, press equal sign, and you will get the reduced fraction” instead of explaining the underlying procedure. This explanation could lead students to incorrectly generalize the above mentioned “instruction” to ‘cancel if the last digits are the same in both numerator and the denominator of a fraction’. Therefore, it is recommended that instead of explaining “short cut” ways to arrive at the correct answer, or relying completely on calculators, teachers explain the concept with the reasoning behind these operations.

![Fig. 6 An example of incorrect cancellation observed in many answer scripts](image)

C. Misconceptions with Fractions

Most of the misconceptions relating to fractions were observed in algebraic fractions rather than numerical fractions. However, it is worth mentioning that these misconceptions observed with algebraic fractions were rooted in misconceptions of numerical fractions. Durkin and Rittle-Johnson (2015) suggested that the best way to diagnose these misconceptions is to get the students to explain their thinking or ask them to “think aloud” and then use intervention to correct those misconceptions whereas Narayan (2009) suggested that traditional teaching techniques such as rote learning be used as it is believed rote learning plays an important role in “building a solid foundation in correct concept formation” [12], [13]. Alternatively DeWolf and Vosniadou (2015) suggested that misconceptions with fractions can be prevented if students have a thorough understanding of the properties of whole numbers before they are exposed to concept of fractions [14]. Moreover, use of number lines to represent magnitude of fractions help students grasp the concept. Misconceptions with fractions are believed to be rooted in students’ belief that the properties of whole numbers can be applied to fractions [14].

D. Misconceptions with Indices

Various misconceptions were observed with indices, some of which could be due to over reliance on calculators at lower
secondary level while others were due to misuse of brackets. For example, some students incorrectly obtained \((-4)^2 = -16\) while others incorrectly obtained \(-4^2 = 16\). It was also observed that majority of the students wrote \(\frac{1}{2x} = 2x^{-1}\).

**Fig. 7** An example of some misconceptions observed with indices

\[
\begin{align*}
&= \left( \frac{2}{3} \right)^3 \\
&= \frac{8}{27}
\end{align*}
\]

**Fig. 8** Incorrect application of rules of indices

An instructional suggestion to prevent and remedy the misconceptions with indices is to provide students with explanations of rules of indices with examples rather than just giving the students a list of rules that need to be memorized. If the rules are explained with examples and counter examples, that would help students develop a deep understanding of the concept. It is recommended that teachers carefully chose examples that would not lead students to develop misconceptions. For example, if a teacher uses an ambiguous example such as \(2^2 = 4\) while explaining indices, students could misinterpret the rule because \(2 + 2 = 4\), and also \(2 \times 2 = 4\). Students could think that the base and the power are added or they could even think that the base and the power are multiplied as either of these works in the above example. This would lead to type of misconceptions shown in Fig. 8.

**E. Errors due to lack of Technical Vocabulary**

Analysis of answer scripts revealed that many students lack technical vocabulary. For example, students were unable to differentiate between “expand”, “factorize”, “solve”, and “complete the square”. Some students had factorized when they were asked to complete the square for the expression \(x^2 - 8x\).

**Fig. 9** An example in which student did not understand the terms “expand” and “factorize”

It was also observed that when students were asked to factorize the expression \(x^2 - 5x + 6\) they gave solutions to the equation \(x^2 - 5x + 6 = 0\). Teachers could directly explain what these terms mean and use these technical terms as often as possible as Narayan (2009) suggested [12].

**F. Misconceptions with Algebra**

Analysis of answer scripts revealed that the majority of the incorrect answers were for algebra questions. Therefore, the observed misconceptions with algebra were further subdivided into three categories, namely, misconceptions with letter usage or variables, misconceptions with equality, and misconceptions with inequalities [1], [4], [11], [15].

**Fig. 10** Student was unable to distinguish between “factorize” and “solve”

The main reason for misconceptions with letter usage is due to the use of misleading teaching materials. One way of addressing this issue is by carefully distinguishing variables and abbreviations [4]. According to Welder (2012) variables should be introduced once students learn how to recognize and record pattern and write pattern rules in words [4]. Welder (2012) stressed the importance of exposing primary students to recognize and write growing patterns as a way of preparing them for algebra [4].

**Fig. 11** Misconceptions with variables or letter usage

Misconceptions related to equal sign indicated that students were trying to recall and apply some “rules” without understanding. To overcome this issue, it is suggested that from the very beginning students are taught to see equal sign as a balance rather than a procedural marking that tells them “to do something” [4], [11]. It is recommended that students are introduced to the use of equal sign while working with
arithmetic equalities prior to introduction of algebra [4], [11].

Misconceptions observed with inequality questions were very similar to that of misconceptions observed with equations. It was clear that students were trying to apply some “rules” without having the fundamental understanding of how or why the rule works. Often students are told “when you move a number to the other side of equation the sign changes to opposite” which leads to incorrect answers such as the one shown in Fig. 12. Consequently, if a student tries to extend the rule to inequalities it would result in incorrect answers as shown in Fig. 13. It is clear from the Fig. 13 that the student was trying to apply the rule without proper understanding.

Here the student must be trying to combine the aforementioned rule (when you move a number to the other side of equation the sign changes to opposite) and the rule “when you divide an inequality by a negative number, the sign changes to opposite” without knowing what the word “sign” in each of the rules referred to. To begin with, teachers could offer complete explanations such as “when you divide an inequality by a negative number, the inequality sign changes to opposite” with examples demonstrating why that happens.

Fig. 13 Misconceptions due to incorrect generalization of rules without conceptual understanding

The results of this study gave rise to two very critical questions: “are the primary and lower secondary mathematics teachers aware of these errors and misconceptions students have?” and more importantly, “are these teachers equipped with the knowledge and skills required to teach mathematics for understanding?”

Primary and lower secondary school mathematics teachers are responsible for laying a solid foundation to ensure their students’ later success in mathematics. Identification of common errors and misconceptions, how they are caused, and how they can be prevented and remedied need to be included in the initial teacher training curriculum to ensure teachers are aware of these.

This could contribute positively towards reducing the occurrences of these errors and misconceptions as Schneppe and McCoy (2013) reported when these errors and misconceptions are diagnosed the new learning took place quickly and students were able to retain the knowledge acquired for a longer period of time [9].

IV. CONCLUSION

The results of this study revealed that some of the errors and misconceptions were due to lack of conceptual understanding whereas others were due to lack of procedural fluency. Therefore, it is essential that teachers place equal importance on both conceptual understanding and procedural fluency as leaders in mathematics education advocate for both conceptual understanding and procedural fluency [15].

REFERENCES


The Undergraduate’s Perspective of the Engagement Catalyst in Action: Exploring Experiential Learning Methods

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Abstract—The research carried out was a continuation of the initial focus to relate to students better in a classroom setting through the Engagement Catalyst, a recommended method categorized into three basic approaches, namely to consider practicality, personalization and pursuit. These approaches aim to complement each other through different techniques and emphasis alongside subject content. The highlight is also when these three methods are synergized to support the learning outcomes as an added value delivery approach to cultivate a positive classroom atmosphere. This paper draws upon the use of specific in-class experiential learning activities under each of the approaches of the Engagement Catalyst and serves to gain students perspective to measure the effectiveness of these approaches to their learning.

Keywords—Engagement Catalyst, Experiential Learning, Personal Approach, Practical Approach, Pursuit Approach, In-Class Activities.

II. LITERATURE REVIEW

A. Experiential Learning: The Concept and It’s Worth


Reference [9] states that, “Experiential learning exists when a personally responsible participant cognitively, affectively, and behaviorally processes knowledge, skills, and/or attitudes in a learning situation characterized by a high level of active involvement.”

Experiential Learning is the connection between theory and practice is accomplished when the learner goes through a cycle of experience, concept, reflection and action [10]. It is said to be learning from experience or learning by doing where it first immerses learners in an experience and then encourages reflection about the experience [11]. It has seeped into the education industry of all levels gaining popularity across disciplines.

The significance of applying experiential learning in classes and courses is magnified by its benefits known to many researchers. References [12] documented the benefits of
experiential learning for student career decision-making and for development. Students tend to continue their education into graduate schools at a significantly increased rate, after participating in experiential learning as part of an undergraduate program. Equipping students to gain graduate outcomes requires a combination of knowledge development from a discipline perspective and from the opportunity to learn through application of such knowledge and experience [13]. Experience learning is akin to the outcomes of empowering education where direct experience is concrete and applicable [14].

Classroom-based experiential learning takes multitude of forms including role-playing, games, case studies, simulations, presentations, and various types of group work. It is often a common feature in educational programs thanks to the past efforts of researchers and reformers of education [11]. Reference [15] distinguishes experiential learning from conventional learning in which the student manages their own learning and the knowledge they need and acquire it themselves reflecting on their learning throughout. The exploration of these teaching methods relate to student in engagement in class.

B. Student Engagement and Experiential Learning

The concept of engagement is increasingly being related to the quality of education [16]. Numerous researches mentioned its significant connection to academic motivation, student’s interest in the module content and persistence to complete the degree [17] [18] [19]. The connection between experiential learning and student’s engagement can be established as one being the means for another. The more learning is experiential, the more students become engaged. Reference [20] further supported the notion where engagement is more than involvement or participation, as it requires feelings and sense making. Reference [14] highly recommended experiential learning as an ideal approach to achieve what he termed as empowering education; where concrete and applicable direct experience leads to engagement and motivation. The context of the activities here are referred to within the classroom, in order to emphasize on the level of control the instructor will have to carry out whatever activities necessary.

C. The Engagement Catalyst

This conceptual approach was first introduced in a review paper entitled ‘Tuning Into Gen Y; The Engagement Catalyst’ and provided a recommended teaching method that encompasses the Personal and Practical approach to a Pursuit [5]. The components of the Engagement Catalyst are reviewed in brief.

5) Personal

The notion of ‘personal’ approach characterizes teaching efforts aimed at viewing or treating students as individuals rather than a class. Hence, the teaching content is the same but the delivery is to have individual considerations on specific needs, learning styles and interests. Reference [5] introduced the ability to relate to the concept/theories or textbook material on a deeper and more individualized manner. Reference [21] drew upon the foundations of ‘learners make what they learn part of themselves’. Essentially, a personalized approach to teaching attracts a personalized approach to learning. This generation of young learners seems to want to know how facts relate to them or their surroundings [22].

This approach implies two-fold, where it is not just how the learner personalizes the module content but how the interaction of academic staff draws personal attention. For example, sharing of personal experience or relating about career pathway and the challenges they went through. Reference [23] stated that the best tool in a classroom is an enthusiastic teacher who can connect with students on a personal level while amongst other elements of what makes a lecture ‘unmissable’ is a personal approach to teaching that can strengthen the rapport with student [24]. Reference [25] further affirms that learning is most powerful when knowledge develops within a context of personal and environmental demands.

6) Practical

The notion of being ‘practical’ in this context applies to applying real-world scenarios, real-life examples and relating to current best practices or products to illustrate the lesson [5]. Applied methods and the use of real-life examples in lectures were thus considered powerful ways of encouraging deeper approaches to learning [24]. Reference [26] also commented where learning is not only limited to conceptual understanding, but also of the application of these concepts in a variety of real” situations”. Reference [27] equated this to
‘situated learning’ or otherwise known as ‘authentic learning’ where it applies to real-world activities that value the application of knowledge to solve real-world problems. In terms of linking industry needs and applicable skills to be developed through these activities, learners will see it as significant [28]. Reference [29] suggested with an organizational frame of reference, students would appreciate the relevance of subject matter.

The practical approaches used in this study were case studies, video illustrations on workplace scenarios and sharing of workplace experience.

7) Pursuit

Reference [5] coined the ‘pursuit’ as an element to bridge the Personal and Practical approach with a learner-centered task of some challenge, goal or competitive element. This has to appeal, spark curiosity and sustain interest. Reference [30] suggests making them active participants in the learning process. The concept goes further to stimulate arousal in learners, engaging both attention and memory to a state of alertness [31].

The need for a pursuit element to shake things up in the classroom can be further supported by claims that students who adopt a deep approach take an active role and see learning as something that they themselves do, whereas those who adopt a surface approach take a passive role and see learning as something that just happens to them [32]. Examples of particular activities of this nature would be calling out students in a lecture to demonstrate a concept or giving groups a competitive team-task where winners are acknowledged.

III. RESEARCH METHODOLOGY

A. Survey Objective

The survey aims to provide an indication of the student’s perspective towards the proposed range of activities. This is easily achieved with the guide of the enquiry for student preference, making it a personal experience for the students to easily relate to. The overall objective was also made clear to the students from the start to facilitate comprehension of the questions posed in relation to their responses. A preliminary action is crucial to ensure that the design of the questionnaire is appropriate for the respondents [33].

B. Data Collection and Research Design

A mixed mode of research was identified to best illustrate the responses gathered from students in order to gain an overview of preferences towards specific nature of activities and also the ability to interpret the student opinions. Reference [34] mentioned that this mode of research is occasionally referred to as mixed methodology, multiple methodology or multi-methodology research, mixed methods research offers you the best of both worlds: the in-depth, contextualized, and natural but more time-consuming insights of qualitative research coupled with the more-efficient but less rich or compelling predictive power of quantitative research. Basic quantitative research was conducted in terms of a questionnaire with questions created and focused on the contextualized information derived from the Engagement Catalyst [5]. Due to the main advantage of the questionnaire in obtaining the general overview of the student population, this aspect of the research carried out was able to provide a clear indication of the student’s preference at a comparative level across different demographical factors, as well as background of study. The fulfillment of a wholesome quantitative response was achieved through attainment of the written feedback through an open ended question stating their opinion on what should be the focus of teaching and learning delivery to improve their learning experience. Students from two separate universities were asked to fill in a questionnaire administered online through a link shared with the students either through the communication channels or displayed in classrooms. The online questionnaire was selected over the pen and paper method to ensure that convenience and flexibility was provided to the students to complete the questionnaire at their own time as it was pertaining to them indicating their preference [35].

The questionnaire content was designed with the following outline in mind whereby there are three questions on demographic information and the twelve likert-scale questions places an importance for the students indicating their preferences in terms of effectiveness to various experiential learning methods. The questions were not made compulsory, as it was a matter of preference, thus enabling the students to contemplate the question’s relevance towards their personal perspective. The questions were based on the Engagement Catalyst and were divided into three main sections, namely; Personal, Practical and Pursuit, with no indication of the sections given to the respondents so as to not affect or influence their thought process.

C. Sampling

Reference [36] states that a simple random sampling that was carried out, clearly demonstrates the relevance of the sampling method towards the students in different universities relating to the same techniques and practices. It is also considered as a fair way of selecting a sample from a given population since every member is given equal opportunities of being selected, thus justifying that the total students from the two groups selected would be able to represent the population of students in both of the researcher’s higher education institutions. This generalization of the student sample would be able to provide a clear signification of the overall student population as several details were also obtained to support the information of the population further such as the gender and also whether the students are local or international [37]. A total of 159 students were involved in the questionnaire across two higher education institutions which are Asia Pacific University with Technology related specializations and Sunway College Victoria University Program Business related streams. This provided the opportunity for a combined and articulated response [38].
IV. FINDINGS AND IMPLICATIONS

The overall student’s response was very encouraging as the response rate was high. An average of 98% of response for each of the twelve likert-scale questions was achieved despite the questions not being required/compulsory to answer. The students were able to relate to each activity mentioned as it was carried out throughout a semester. The comprehensive overview of the student was achieved in the form of their respective likings towards each activity in view of the effectiveness concerning their understanding of the module as well as maintaining their level of attention. As shown below, the three main categories of the demographics are also collected to provide an overview of the sample representing the population. The first category is origin of the university, while the second category is in terms of gender and the third category is the nationality whereby opportunities of an extensive analysis would be possible to identify whether the sample involved would be similar to the overall population.

**TABLE I**

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia Pacific University</td>
<td>86</td>
<td>54.10%</td>
</tr>
<tr>
<td>Sunway College</td>
<td>73</td>
<td>45.90%</td>
</tr>
<tr>
<td>Male</td>
<td>104</td>
<td>65.40%</td>
</tr>
<tr>
<td>Female</td>
<td>55</td>
<td>34.60%</td>
</tr>
<tr>
<td>Malaysian</td>
<td>116</td>
<td>73.00%</td>
</tr>
<tr>
<td>International</td>
<td>43</td>
<td>27.00%</td>
</tr>
</tbody>
</table>

A. The Personal Aspect

**TABLE II**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Demographic</th>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personal Feedback For Assignment</td>
<td>Least Preferred</td>
<td>8</td>
<td>5.1%</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>35</td>
<td>22.2%</td>
</tr>
<tr>
<td></td>
<td>Preferred</td>
<td>79</td>
<td>50.0%</td>
</tr>
<tr>
<td></td>
<td>Most Preferred</td>
<td>36</td>
<td>22.8%</td>
</tr>
<tr>
<td>Personal Stories by Lecturer (Life Experience)</td>
<td>Least Preferred</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>22</td>
<td>13.9%</td>
</tr>
<tr>
<td></td>
<td>Preferred</td>
<td>88</td>
<td>55.7%</td>
</tr>
<tr>
<td></td>
<td>Most Preferred</td>
<td>47</td>
<td>29.7%</td>
</tr>
<tr>
<td>Personal Learning (Student Relates Concept/Theory to Self)</td>
<td>Least Preferred</td>
<td>3</td>
<td>1.9%</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>42</td>
<td>26.6%</td>
</tr>
<tr>
<td></td>
<td>Preferred</td>
<td>79</td>
<td>50.0%</td>
</tr>
<tr>
<td></td>
<td>Most Preferred</td>
<td>34</td>
<td>21.5%</td>
</tr>
</tbody>
</table>

Additionally, the personal feedback and personal learning where concepts relate to self, should not be disregarded as these are means of adding the ‘personal touch’ in the education experience an undergraduate receives. Reference [24] indicated that a personal approach can strengthen the bond with students. Students’ additional comments indicated that the personal feedback for assignment shows the lecturers caring and patient attributes when students need assistance. However, it was pointed out that when feedback is too brief or not specific, mistakes or progress would be unknown to them.

B. The Practical Aspect

**TABLE III**

<table>
<thead>
<tr>
<th>Activity</th>
<th>Demographic</th>
<th>Number of Students</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case Study</td>
<td>Least Preferred</td>
<td>6</td>
<td>3.8%</td>
</tr>
<tr>
<td>(Organization Related, News Updates and Best Practices Examples)</td>
<td>Fair</td>
<td>34</td>
<td>21.5%</td>
</tr>
<tr>
<td>Video Illustrations</td>
<td>Least Preferred</td>
<td>2</td>
<td>1.3%</td>
</tr>
<tr>
<td>(Company, Work or Job Related)</td>
<td>Fair</td>
<td>21</td>
<td>13.2%</td>
</tr>
<tr>
<td></td>
<td>Preferred</td>
<td>82</td>
<td>51.6%</td>
</tr>
<tr>
<td></td>
<td>Most Preferred</td>
<td>54</td>
<td>34.0%</td>
</tr>
<tr>
<td>Personal Sharing by Lecturer (Work or Job Related)</td>
<td>Least Preferred</td>
<td>3</td>
<td>1.9%</td>
</tr>
<tr>
<td></td>
<td>Fair</td>
<td>21</td>
<td>13.2%</td>
</tr>
<tr>
<td></td>
<td>Preferred</td>
<td>76</td>
<td>47.8%</td>
</tr>
<tr>
<td></td>
<td>Most Preferred</td>
<td>59</td>
<td>37.1%</td>
</tr>
<tr>
<td>Attending</td>
<td>Least Preferred</td>
<td>7</td>
<td>4.6%</td>
</tr>
<tr>
<td>Seminars/Workshops</td>
<td>Fair</td>
<td>43</td>
<td>28.1%</td>
</tr>
<tr>
<td></td>
<td>Preferred</td>
<td>71</td>
<td>46.4%</td>
</tr>
<tr>
<td></td>
<td>Most Preferred</td>
<td>32</td>
<td>20.9%</td>
</tr>
<tr>
<td>Soft Skills Emphasis</td>
<td>Least Preferred</td>
<td>3</td>
<td>1.9%</td>
</tr>
<tr>
<td>(Team Interactive Discussions, Critical Thinking Scenarios)</td>
<td>Fair</td>
<td>28</td>
<td>17.7%</td>
</tr>
<tr>
<td></td>
<td>Preferred</td>
<td>79</td>
<td>50.0%</td>
</tr>
<tr>
<td></td>
<td>Most Preferred</td>
<td>48</td>
<td>30.4%</td>
</tr>
</tbody>
</table>

Table III indicates that video illustrations records the highest level of preference followed by personal sharing from the lecturer on workplace/job related experience. In the comments by students, they find videos interesting, enjoyable and entertaining and they learn where it specifically relates to cases or workplace situation. It was commented that it can ‘stimulate a boring lecture.’ Videos have been known to appeal to the young learners as a form of visual stimulation. Reference [42] highlights that imagery is a powerful mechanism for communicating ideas while supporting items such as selected films and videos can enhance learning processes [43].

In terms of lecturers sharing particular work experience, the remarks were repeated that such learning from real-life scenarios is more hands on. There was a comment that it improves understanding on how to solve workplace problems considering that many undergraduates would have little or sometimes not work experience. Realism and relevance draw appeal and delivers a deeper approach to learning [24] [44]. Reference [45] indicated that the learner can relate to a mirror
of life by looking at the past, which helps them understand the present.

Team interactive discussion and critical thinking scenarios that emphasizes soft skills would encompass teamwork, leadership and communication. This category reveals a significant preference of 80% for both preferred and most preferred. These are related to employability skills and to what is expected of them. Reference [46] stated that for graduates to be attractive to employers it is vital they are able to show evidence of having such skills.

The impact on critical learners of these various approaches is to stimulate their thinking and provide varied perspectives on the taught subject. It is also an aid to retain their interest and keep their attention at the highest levels [47]. A notable students comment was that it “focuses on real, practical work stuff”

Students stated their opinion on the open-ended question that company best practices link theory and practice for better application and amplifies practical implementation. As for attending workshops or industrial visits to complement their current module content, the undergraduates’ response to this was comparatively poor in terms of preference and effectiveness. It could be viewed as an additional obligation or commitment. Despite that, the comments from those who appreciated it gives insights that higher education in classrooms can’t provide relating to work life in future.

C. The Pursuit Aspect

<table>
<thead>
<tr>
<th>TABLE IV: ‘PURSUIT’ APPROACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activity</td>
</tr>
<tr>
<td>Presentation in Class</td>
</tr>
<tr>
<td>(Group or Individual)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Demonstrations of</td>
</tr>
<tr>
<td>Concepts/Theories</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Team-Based competition (Debates,</td>
</tr>
<tr>
<td>etc.)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>Quizzes</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

The four activities enquired from the students as shown in Table IV, falls into the aspect of Pursuit whereby implications of action-oriented activities are mainly being emphasized [30]. The nature of these activities were student-lead instead of instructor-lead which provided the opportunity for the students to be independent yet displaying their individual capabilities either on a personal or group level. The highest level of preference was indicated at 82.5% for the activity of ‘Demonstration of Concepts/Theories’ as it reaches out to the student’s curiosity through demonstrations that sustains their attention. Students commented that they are able to foresee the relevance of the demonstration and connecting towards the outcome of an achievement.

Reference [31] supported the fact that stimulated arousal can be achieved through the students being exposed to this form of action oriented activities whereby a team based competitive or challenge can also be utilized as a critical thinking tool. The student’s preference is clearly noted with a percentage of 73% indicating that team-based challenges was encouraging and cultivating a sense of achievement whilst the ability to go through a proper flow of a thought process, provided them with a different perspective. The students have also indicated that the possibilities of being compared to each other created a sense of fulfillment in relation to the goals.

Implications from the feedback was also directed at the activities of presenting in class as well as quizzes whereby, a lacking of preference was seen here. The students tend to prefer activities that do not require a prior or preliminary action especially in relation to a mode of measurement of their respective performance, whether it is academic or non-academically related. This was related to many other aspects of the students not being able to do well in presentations due to either, lacking of communications skills or even just not being confident in carrying out the tasks provided.

V. LIMITATIONS

The authors selected twelve activities that fell under the scope of experiential learning to implement and seek response in this study. However, it is noted that are numerous other activities to consider and future researchers may not just limit to these specific selections. The weakness of random sampling applies where a sampling error can occur with a simple random sample if the sample doesn't end up accurately reflecting the population it is supposed to represent. In this case, we took a representative sample size of 159 students to represent the population of undergraduates. Furthermore, these undergraduates were either IT majors or business specializations. It would be good to see how the results were across other specializations. Lastly, further depth of analysis could be explored such as correlational studies or significant studies with other variable

VI. CONCLUSION AND RECOMMENDATION

Although the research was not meant to highlight the relative effectiveness of the three approach as a comparison with another, the categories of activities identified under Personal, Practical and Pursuit is worth exploring as it revealed favorable responses from undergraduates of two higher education institutions. It also implicated that undergraduates do indeed appreciate these variety of methods and approaches. This study provides some answers to fill the possible gaps that arise from the implementation of the Engagement Catalyst and provides a link with various
experiential learning activities to be explored and utilized. Practitioners and academicians are advised to engage with caution on carefully selecting a range of suitable activities to complement the module and to always match it with their students needs; using either the Practical and Pursuit approach or the Personal and Pursuit approach or all three for better effectiveness. This study also proves that streams as different as IT and Business can benefit from such an approach and it is with fervent hope of the researches that teaching staff in other disciplines would see great merit in actively applying the Engagement Catalyst to make it work to deliver engaging and empowering outcomes. This in consideration of the fact that the undergraduates involved in this study evidently did 'experience' the Engagement Catalyst as it should be experienced.

ACKNOWLEDGMENT

Acknowledgment goes to students who were involved within the research from two different universities and the unwavering support of the university’s management.

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Bet on Accounting – The *Opportunivore* Card

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**Abstract**— Engaging students are one of the greatest challenges facing lecturer. Thus, this educational game being developed to help lecturer engage, entertain and educate students with a captivating and interactive tool to supplement their curriculum in an accounting subject for introductory level. Bet on Accounting features more than 50 opportunivore cards inspired by real life business transactions within the context in accounting textbooks on basic level. The game challenges students on accounting fundamentals and real-world scenarios in making the right decision when they grab the opportunity. In addition, the game weaves in real-life professional scenarios and reinforces principles already being taught in the classroom. The concept of the game was designed for students to be competitive, interactive, and smart in making decision and how luck will lead their fate.

**Keywords**—Educational games, Financial Accounting, Innovative teaching, Interactive learning style.

I. INTRODUCTION

Learning accounting subject always trigger negative perception by students such as boring, mechanical, repetitive, number crunching, introverted, methodical and tedious [1], [2], [3] [4] and [5]. The need for interactive and fun learning style is become essential to be adopted in class rather than the traditional method. As such, more creative and interactive learning approaches need to be integrating to assist students in applying the theory with a real-business situation when they graduate soon.

There are many previous studies done to investigate the effects of accounting game in stimulating the students’ performance in accounting course. Accordingly, [6] concluded that the use of accounting game in accounting course will lead the students to have a greater understand ability, appreciation and affinity towards financial accounting information. This is also supported by [7] in which the study found that by incorporating games into accounting courses, the students are able to learn the somewhat difficult accounting concepts and financial processes in exciting ways. Hence this paper presents a simple accounting game appropriate for basic financial accounting class.

II. LITERATURE REVIEW

Prior study such as [8] had presented some of the games that can be used to assist accounting educators in teaching topics considered as difficult by students. The games are designed to focus on basic financial accounting terminology, financial statement account classifications, conceptual framework terminology, adjusting entries and managerial accounting terminology. Apart from that, previous studies have found that games also can be used to assist accounting educators in areas such as cost accounting [9] and public sector accounting [10].

In the other hand, recent study by [11] had integrated
Accounting Balancing Game in financial accounting course. Accounting Balancing Game is a manual board game whereby some accounting principles have been taken into consideration in designing and building the game board, game cards, timers and game regulation. This game was conducted in order to examine the students’ ability to recall accounting principles and to determine their performance in class after taking part in the game. The study found that accounting students who were exposed to the Accounting Balancing Game did improve their performance by comparing the pre and post-test score. In the other hand, study by [10] applies accounting game in public sector accounting area. The study reported that the puzzle game implemented in government and non-profit accounting course did enhance the students’ understandability about the subject. At the same time, the students who participated in the puzzle game stated that the game was fun and interesting which subsequently improve their learning.

Apart of all the positive effects indicated from the use of accounting games in accounting course, study by [12] found that there is no significant difference between active learning and traditional passive learning in terms of critical thinking and evaluation skills. In his study, traditional passive learning means a lecture format using debit/credit journaling while an active learning means a format using case analysis and a simulation game. Nevertheless, this study agrees that traditional pedagogy in accounting education does help students to memorize the rules and procedures required to record business events in a particular manner. While [6] found that students learn to evaluate the information in the financial statement produced from the financial accounting and investment game. In this game, the evaluation part plays an important role since it will assist the students to make the best investment decisions in a manner similar to the real-world process. Therefore, this paper presents related to [6] works by focusing a simulation game but integrates decision making in real-world business transactions and recording process of financial accounting. Many educational games particularly in accounting subject are based on board games and puzzle. However, Bet on Accounting involves visual aids, cards and enhance strategy skill of participants.

III. HOW TO PLAY THE GAME
‘BET ON ACCOUNTING: THE OPPORTUNIVORE CARD’

The game can be conducted by those who have accounting knowledge such as teacher. It is recommended to have four facilitators to conduct the game. They will become an instructor of the game, person to handle the dice or trivia question, the ‘Opportunivore Card’ and money. The game can be played individually or in groups. The game requires visual aid, dice, ‘Opportunivore Card’, money and list of trivia questions.

Students are divided into five groups consist of four to five members. They will start the game with a capital in a form of cash and able to acquire a loan as financial aid in order to run the business operation. The basic concept of opportunity applies here whereby the students need to choose the transaction offered based on their turn. The turn to choose the transaction is based on the dice or the trivia question that will be asked. Students who scored the highest dice will get an early opportunity to choose the transaction while students who scored lowest dice will have the last chance to choose a transaction. The same rules is applied to trivia questions whereby the first person who give the correct answer to trivia question will get an early chance to choose the transaction. Another trivia questions will be asked in the next group and they have to compete in order to get an early opportunity to choose the transaction. Then, the transactions for the day will be revealed using visual aid and the group that got the first chance (the highest score of the dice or the first groups to answer trivia questions) will be the first participant to select the business transaction. Supposedly, the group who has an early chance to choose the transaction is able to grab the opportunity to earn higher income and to reduce the business cost. However, this is based on the students understanding about the concept of asset, income, expense and liability. The group might have good opportunity but make a wrong decision due to lack of understanding in terms of that concept in which it will lead them in making inaccurate decision.

If the transaction involves the payment of money (expenses), the group needs to pay the money to facilitator and if they generate income, they will receive money from the facilitator. The transactions that they choose will be given a card as source of documents as well as an evidence of the transaction. The winner of the game is based on the group who obtain the highest asset to liability ratio. Asset consists of non-current asset such as motor vehicle, office equipment and the amount of cash in hand as the transaction involved in this game is based on a cash basis. Liability is represented by loan acquired by participants during the game play. All the creditors need to be fully paid by the end of the game. Figure 1 showed the game cycle presented in the flow chart:

Fig. 1 Flow chart of the game
IV. RESULT AND FINDING: STUDENT’S FEEDBACK

A. Participants

The sample investigated here was a subsample taken from 65 number of students who sit for basic accounting course. This subsample consisted of \( N = 33 \) (30 males, 4 females) from the Faculty of Sport Science and Recreation of Universiti Teknologi MARA (UiTM). Mean age of participants was 18.67 years (SD = 2.35; range: 18–19 years).

B. Procedures

The measures were administered on 21st March 2015. Participants were tested in their classrooms during a workshop conducted by their accounting lecturers. The game was always administered first and they are given three minutes to complete each transaction. Between the two transactions there was a break of one minute. To complete one business cycle, almost one hour and thirty minutes was utilized. Students received no reward for their participation in term of marks however the winner of the game awarded with prize. For the purpose of evaluation, students are given a form of feedback about their experience playing the game. All 33 subjects filled out the accounting-game questionnaire. This study concerned with psychological engagement, therefore questionnaire and interview was used because it was more feasible. The survey consists of 16 statements that divided into three categories (effectiveness, soft skill engagement and innovation). The objective of the survey is to understand the individual perceptions of an experience throughout playing the games.

C. Statistical Analysis

In order to access the understanding of basic accounting principles, the analysis consist of five items of accounting concept (refer [13] and [14]). In the present study, SPSS is utilized to find the result. In order to keep the number of estimated parameters within a reasonable range, the survey grouped into five categories. That is, the categories “strongly disagree” and “disagree” were collapsed into the category “1” and “2” while “agree” and “Strongly agree” were collapsed into the category “4” and “5”.

D. Result

<table>
<thead>
<tr>
<th>Psychological Engagement</th>
<th>Score (mean)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effectiveness</td>
<td></td>
</tr>
<tr>
<td>1. The game increase my understanding on accounting classification</td>
<td>4.8</td>
</tr>
<tr>
<td>2. I understand what is CAPITAL</td>
<td>4</td>
</tr>
<tr>
<td>3. I understand what is ASSET</td>
<td>4.2</td>
</tr>
<tr>
<td>4. I understand what is LIABILITY</td>
<td>2.5</td>
</tr>
<tr>
<td>5. I understand what is REVENUE</td>
<td>4.5</td>
</tr>
<tr>
<td>6. I understand what is EXPENSES</td>
<td>4.8</td>
</tr>
<tr>
<td>Soft skill engagement</td>
<td></td>
</tr>
<tr>
<td>7. The game require me to be competitive</td>
<td>5</td>
</tr>
<tr>
<td>8. The game test me on problem solving ability</td>
<td>3</td>
</tr>
<tr>
<td>9. The game engage me in teamwork</td>
<td>4</td>
</tr>
<tr>
<td>10. The game involve me to practice my communication skill</td>
<td>3.3</td>
</tr>
<tr>
<td>11. The game require me to make effective decision making</td>
<td>4</td>
</tr>
<tr>
<td>12. I able to practice my leadership skill throughout this game</td>
<td>2</td>
</tr>
<tr>
<td>Innovation</td>
<td></td>
</tr>
<tr>
<td>13. I prefer this learning style rather than traditional teaching in a classroom</td>
<td>5</td>
</tr>
<tr>
<td>14. The game is different from other learning games and its fun and useful to increase my accounting knowledge</td>
<td>4</td>
</tr>
<tr>
<td>15. I would recommend this game for those undertaken accounting course</td>
<td>4.3</td>
</tr>
<tr>
<td>16. I believe that this game is one of innovative learning style that I ever experienced</td>
<td>4</td>
</tr>
</tbody>
</table>

Participants were asked to rate their level of agreement with a set of statements about the effectiveness of the game, the soft skill engagement and the innovation.

Table 1 below is the result of the survey conducted for the students:

<table>
<thead>
<tr>
<th>Score (mean)</th>
</tr>
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<tbody>
<tr>
<td>4.8</td>
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<tr>
<td>4</td>
</tr>
<tr>
<td>4.2</td>
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<td>4.8</td>
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<td>4</td>
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<td>4.3</td>
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<td>4</td>
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</tbody>
</table>

Virtually all respondents (4.8 out of 5 or 96%) strongly agree to have better understanding on accounting classification using this approach. When the account classification split into its category, the students rank ‘liability’ at 2.5 out of 5, which means that they unsure what liability means. This probably, the game entitle them to acquire loan (liability), however, they are not require to make a repayment of the loan for that particular cycle. Therefore, there is no obligation to repay that lacking nature of liability. For the other category of accounting classification shows that most of them agree that they understand what its’ means.

Next, the students rate on their soft skill engagement by playing the games. In their opinion, it shows that the game not testing on leadership skill. However, the game requires them to be competitive (5 out of 5 point scale), teamwork (4 out of 5), effective decision-maker (4 out of 5), improve communication skill (3.3 out of 5) and a good problem solver (3 out of 5).

The surveys shows that 100% of the respondents feel that the approach of this game is different with the traditional teaching such as using textbook, exercises and other teaching method. Students gave a positive feedback on innovation.
learning style as they would recommend this game for accounting course. From the interviews with students, it was found that they really understand the accounting principles after playing this game. The respondents say that this game is interesting and fun. It really adapts interactive learning style in the class. It is also found that better communications and interactions among members in the class as well as the lecturer which can adapt in better understanding.

V. CONCLUSION AND DISCUSSION

This paper reports on research that investigates the effectiveness of using Bet on Accounting: The Opportunivore Card in accounting courses at UiTM institutions of higher education. The research focuses on the effects of this instrument as a medium in teaching accounting to non-accounting students, which is thought to be linked to the adoption of effective approaches to learning. This learning style anticipated to diminish negative perception on accounting subject itself such as boring, introvert, methodical and etc.

Total of 33 students were surveyed after their mid-term test. The weaker students were asked to participate in this survey, enabling analysis of changes in responses brought about as a result of the field experience. Potential differences were looked for between groups of students determined by gender, age and understanding few accounting definitions and discussing on effectiveness, soft skill engagement and innovation. The research found that the game leads to significant effects in students’ understanding and better perception in the accounting subject itself.

Most students exhibited higher levels of anxiety about this learning method prior to the class; however, such differences were mitigated by the interactive learning style experience. This study concludes that innovative teaching and educational games particularly in accounting course is recommended.

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Rethinking Education in the Age of Technology: The Marriage of Skills and Technology in Curriculum Process

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Abstract—The tremendous upheaval changes of information and communication technologies have a great impact on educational world. Thus, learning in the 21st century has so much different than previous years. The revolution of technology in this digital era has brought changes in the educational world with introducing a brand new learning environment which is called as Frog Virtual Learning Environment (Frog VLE) in Malaysian schools. Besides, the importance on the integration of the 21st Century Skills among students becomes a watchword in today's world. A new learning strategy on how to best learn in this 21st century by taking into account technology usage in a Virtual Learning Environment (VLE) and 21st Century Skills acculturation become an important step to be implemented. This paper will explore in-depth how to best prepare learning strategy that will involve technology usage in teaching and learning process in order to enhance 21st century skills as well as achieving desired learning outcomes by amalgamating Dale’s Cone of Experience and Bloom’s Taxonomy along with the framework of 21st Century Skills as presented by Partnership for 21st Century Skills. Hence, this paper provided a brand new framework on how to best learn in this 21st century by using technology as the main catalyst in today’s classroom by introducing a new framework of learning strategy which is called as Framework for 21st Century Skills Acculturation (FF21A Model) to be applied in today's educational world. The FF21A model carefully and clearly explain how the process of teaching and learning in this 21st century should be carried out effectively by implementing the Web 2.0 technology along with teaching and learning activities in order to achieve the desired learning outcomes.

Keywords—Dale’s cone of experiences, Bloom’s taxonomy, technology, 21st century skills.

I. INTRODUCTION

The tremendous changes in information and communication technologies have a great impact on various sectors around the world. Educational world seems to have enormous pressure in adapting this digital age in order to produce graduates who are not only successful in their education, but also in their life, career and work. This is because learning in the 21st century is so much different than learning in previous years.

Consciously or not, educators today know that digital technology is becoming an important part of students’ education (Glancy & Isenberg, 2011; Gill & Dalgarno, 2008). Today’s educators are preparing their students not only for the life immediately after they graduate, but also for the future in which, within the students’ working lifetimes, technology will become over one trillion times more powerful (Prensky, 2010). As technologies continue to change and newer technologies emerge, the characteristics and properties of the educational world in fulfilling the workforce demand also change. The “21st Century Skills” has become the watchword in the educational world, and this causes educators to be more concerned about the implementation of the 21st Century Skills.
along with the use of technology in teaching and learning process. As a result, the educational world has become more challenging day by day (Partnership for 21st Century Skills (P21), 2007; Pandian, 2005; Dakich, 2005; Kementerian Pelajaran Malaysia (KPM), 2010). The implementation of the 21st Century Skills need to progress along with the current technology because both elements are important aspects of today’s digital era. This is because the use of technology will enable students to gain knowledge on the 21st Century Skills such as solving complex tasks, make quick decisions, and critical thinking which are the skills needed in the 21st century (Prensky, 2006; Sanders & Morrison-Shetlar, 2000; Jones & Fitzgibbon, 2006). With the awareness of the changes caused by this digital era, for the sake of future education, a proper planning on learning strategy to fulfill this century’s requirements needs to be formed wisely.

Nevertheless, how to best prepare a better learning strategy to meet this 21st century’s requirement is yet to be answered. A deeper understanding of learning environment in this century needs to be mastered by those who are interested to do research in this area. The engagement of learning environment which is enriched by technology usage, the adoption of learning theories, and the connection with human brain in the learning process are the main aspects need to be considered in designing a proper learning strategy. Engaging technology and students is important. This is because the increased engagement, in turn, typically produces better retention of material and higher test scores (Prensky, 2010).

Hence, this paper presents a new framework and deeper discussion on the combination of two theoretical frames which are expected to have its own connectedness and how will these frameworks matches in this 21st century learning and fit into supporting 21st century learners, technology training, and 21st century skills acculturation.

II. THE BLOOM’S TAXONOMY, DALE’S CONE OF EXPERIENCE AND 21ST CENTURY SKILLS THROUGH VIRTUAL LEARNING ENVIRONMENT

A. Bloom’s Taxonomy

Bloom’s Taxonomy of Educational Objectives in the Cognitive Domain is an attempt to identify the cognitive level of a learner and provide a common vocabulary for educators to discuss their students’ abilities as well as the educator’s own personal goals for the student. From the basic knowledge of the subject, this taxonomy progresses toward more complex or higher levels of critical thought, culminating with sophisticated thinking processes by using the concepts under study. The structure of Bloom’s Taxonomy is hierarchical in nature and provides six levels of learning: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. Deeper knowledge is hopefully achieved as one move to the higher levels (e.g. analysis, synthesis and evaluation). The higher levels often involve active learning participation (Rahn & Moraga, 2007). Bloom’s theory has been widely used in today’s education. In this theory, Bloom identified a relationship between levels of learner effort and levels of learning achievement. Specifically, he associated high levels of learner effort with the achievement of high-level or more complex learning objectives (Bloom et al., 1956).

Previously, the cognitive domain is divided into six levels as shown in Figure 1. However, in the 1990’s, a former student of Bloom, Lorin Anderson with David Krathwohl, revised Bloom’s Taxonomy and published Bloom’s Revised Taxonomy in 2001. The terms of knowledge, comprehension, application, analysis, synthesis and evaluation have been changed to remembering, understanding, applying, analyzing, evaluating and creating.

![Fig. 1: Bloom et al. (1956) vs. Anderson & Krathwohl (2001)](image1)

B. Dale’s Cone of Experience

Dale’s Cone of Experiences is a model that incorporates several theories related to instructional designs and learning process. Dale (1969) stated that the students acquire more knowledge through what they “do” compared with what they “heard”, “read” or “observed”. His research led to the development of the Cone of Experience. Today, this “learning by doing” has become known as “experiential learning” or “action learning”. Figure 2 shows the cone of experience. Edgar Dale’s “Cone of Experience” (1969) organizes learning experiences according to the degree of concreteness. According to Dale’s research, the least effective method at the top, involves learning from information presented through verbal symbols, i.e., listening to spoken words. The most effective methods at the bottom, involves direct, purposeful learning experiences, such as hands-on or field experiences. Direct purposeful experiences represent reality or the closest things to real, everyday life.

![Fig. 2: The cone of experience (Edgar Dale, 1969)](image2)
C. 21st Century Skills

Our society is developing towards a knowledge society because of the ubiquitous presence of technology in this era. Anderson (2008) stated that the impact of technology in our society has caused many jobs for routine production workers - those who perform repetitive tasks - such as assembly line workers, to disappear because of the increasing potential of technology to take over recurring tasks. However, according to Levy and Mundane (2004), for tasks that are rule-based, computers are an easy substitute, but computers cannot easily replace humans in tasks that require the interpretation of complex patterns. These more complex tasks can be found in many jobs – for example, a truck driver that has to find his way to deliver goods and a physician diagnosing a patient. In both tasks, humans cannot be replaced by computers, but they can be supported by computer-based information at low cost. Not the exchange on information as such has become important, but a particular understanding of information has become an important part of many jobs (Levy & Mundane, 2006). Because of this reason, new competencies called 21st Century Skills have emerged in order to fulfill the skills needed in this century.

Partnership for 21st Century Skills (2009) has developed a unified, collective vision for learning known as Framework for 21st Century Learning. This Framework describes the skills, knowledge and expertise students need to master to succeed in work and life. It is a blend of content knowledge, specific skills, expertise and literacy. This Framework is to help practitioners integrate skills into the teaching of core academic subjects. Each of 21st Century Skills implementation requires the development of core academic subject’s knowledge and understanding among students. According to Ledward & Hirata (2011), the P21 is a national organization that advocates for the 21st century readiness of every student. P21 defines 21st Century Skills as a blend of content knowledge, specific skills, expertise, and literacies necessary to succeed in work and life.

III. AMALGAMATION OF BLOOM, DALE AND 21ST CENTURY SKILLS THROUGH VIRTUAL LEARNING ENVIRONMENT

The output from all the discussions, explanations and in-depth research on the interrelationships between Dale’s Cone of Experience and Bloom’s taxonomy is a framework called Framework for 21st Century Skills Acculturation (FF21A). The connection between Dale’s Cone of Experience and Bloom’s taxonomy was explored in designing an appropriate learning strategy to fit in the 21st century learning environment especially in Virtual Learning Environment (VLE). The design also took into account the implementation of 21st century skills.

In the real world of education, learning objectives and learning outcomes are the crucial part of teaching. The success of a teacher in his or her teaching and learning process can be seen on his or her students’ achievement in answering questions during examination or test. Effective teaching and learning process promise desired learning outcomes. Teachers use Bloom’s taxonomy to initially plan their curriculum objectives. It aims to ensure that students achieve the desired learning objectives effectively (Bloom et al., 1956). However, how learning should be conducted still depends on teachers themselves. The options are vast, but educators should make the right choice to ensure it can help to boost students’ learning. As you can see from Figure 4, Pastore (2003) have disclosed the percentage of the retention of knowledge gained by students using alternatives suggested in Dale’s Cone of Experience. The result can be seen in Figure 4. It was proven that various tools can cause different retention of knowledge gained by students during their learning process (Dale, 1969). Because of the awareness of the effect of using technologies in teaching and learning process, and in order to align suggested
tools in Dale’s Cone of Experience in this digital age learning environment, researcher has listed out the appropriate Web 2.0 technologies that match with the alternatives given in Dale’s Cone of Experience to expose readers to various alternatives in conducting and performing their teaching and learning process and stay connected with their students, teachers and peers by using interesting approach. Dale (1969) strongly suggests engagement through participation in interactive materials is more likely to result in student engagement, thus understanding.

Even though we are aware that interactive materials affect students’ learning process, we still cannot simply judge the cognitive level of a student. Students’ cognitive level can only be specified by using Bloom’s taxonomy. That is why Bloom’s taxonomy was placed in this framework. Teachers have the responsibility to guide students to achieve higher levels of cognitive thinking or known as Higher Order Thinking Skills (HOTS) during their learning process as it was one of the crucial skills that needed to be implemented among them in this century (New Straits Times, 2012a, 2012b; MOE, 2011). Figure 4 show that the Bloom’s taxonomy was built inverted from the real one because of its own reason. For example, let us compare two different situations here, a teacher uses reading method and a teacher uses experiment method during teaching and learning process. Wiman & Meierhenry (1969) stated that reading activity will produce learning outcomes that ask students to describe, explain, define and list. If you align these learning outcomes with Bloom’s taxonomy, you can find out that these learning outcomes refer to the level of cognitive which are knowledge and comprehension. But we cannot simply say that reading will only help our students to achieve knowledge and comprehension level in Bloom’s taxonomy. Then, what about the students who have vision disability but are able to succeed at the university level? This shows that there is no doubt that students can still achieve higher cognitive level from knowledge to evaluation even when they only use reading as the main activity during their learning process.

For the second situation, a teacher prefers to use experiment (do the real thing in Dale’s Cone of Experience) during their teaching and learning process. Students in this situation can achieve higher cognitive level in Bloom’s taxonomy faster compared to students who are in reading activity. Wiman & Meierhenry (1969) stated that students in this activity able to achieve learning outcomes such as analyze, design, create and evaluate. Same goes here, if you align these learning outcomes with Bloom’s taxonomy, you can find out that these learning outcomes refer to the levels of cognitive which are analysis, synthesis and evaluation. Dale (1969) stated that, “do the real things” experiences were closer to the real world experiences rather than reading text, thus for some students, “do the real things” experiences were better learning experiences than reading from a book. “Do the real things” is about engaging students with the content of learning and mental process. This activity involves several senses. This showed that all of our senses contribute towards the total input which we receive. The more we try to use our senses, the more we get engage with content and our mental process. When the engagement of mental activity is getting higher, we tend to retain more knowledge from our learning process and learn faster than when we use reading method.

The differences between both situations are how fast can a student travel from the lowest part in Bloom’s taxonomy which is knowledge to the highest level which is evaluation? They can still achieve higher level in Bloom’s taxonomy by using one of the activities mentioned above, but, how fast? At this point, the mental ability and time play a salient role in order for a person to achieve higher cognitive level as stated in Bloom’s taxonomy. As teachers, we need to always keep in mind that different students have different mental ability in processing the knowledge given, and there is a possibility that some pupils will work and learn less effectively than others in the class (Berk, 2009; Pritchard, 2009). Besides, the engagement of the human brain and the learning process will take time. The inculcation of knowledge will take time as it depends on students’ mental ability (Pritchard, 2009). Besides, learning experiences must make sense in order to allow new information to settle into existing brain patterns of knowledge (Bos, 1997). The question is whether the methods used by teachers such as using Web 2.0 technologies as embedded in FROG VLE which is closer to the students’ real world and by involving greater engagement in mental activity will help students reach faster to the top level in Bloom’s taxonomy is yet to be answered.

The 21st Century Skills is a set of skills that needed to be implemented among students in this century. These skills are in fact have already been located within this VLE-based learning environment. I started to realize this fact after in depth reading on the meaning and explanation of 21st Century Skills. This is because through the use of technology, students able to gain knowledge in 21st Century Skills such as solving complex tasks, make quick decisions, and critical thinking which are skills needed in the 21st century (Prensky, 2006; Sanders & Morrison-Shetlar, 2000; Jones & Fitzgibbon, 2006). That is why the implementation of 21st Century Skills needs to move along with the current technology, because they both shared a phenomenal bonding. But it is important to keep in mind that the purpose of using technologies in classroom is to help us to achieve desired learning outcomes during teaching and learning process. Therefore, the connection between Dale’s Cone of Experience and Bloom’s taxonomy becomes an important aspect in today’s educational world. Results gathered from previous research by Mohamad Mohsin, Hassan, & Ariff (2014) strengthen the effectiveness of the amalgamation of Bloom, Dale and 21st century skills through VLE. This research finally comes out with a new framework of Virtual Learning Environment (VLE) with emphasis on the amalgamation of the framework of Dale’s
Cone of Experience and Bloom’s Taxonomy along with the Partnership for 21st Century Skills.

IV. Conclusion

As a result, through the data collected and in depth reviews, it shows that the mapping on Bloom and Dale in the VLE able to improve students’ 21st century skills and students still can achieve desired learning outcomes as required by teachers. Besides, the findings of this study demonstrated positive uses and results of knowledge on strategy in using VLE for 21st Century Skills acculturation through teaching and learning process. In designing a culture of learning based on VLE to harness the 21st Century Skills through teaching and learning process, this study takes into account various important aspects such as a paradigm shift on pedagogical aspect from behaviorism to social learning in order to fit in the acculturation of 21st Century Skills through VLE; the transition of knowledge from abstract to concrete in order to make sure students will achieve desired learning outcomes in using VLE for 21st Century Skills acculturation; teachers’ role in teaching and learning which is more as a facilitator in guiding students in their learning process; students’ role which allowed students to become more learner centered, self-directed and responsible on their learning; and cooperative and collaborative learning that gives students the opportunity to experience their own learning process through group activities and presentations on topics given. Hence, FF21A can be said to be effective and able to fit into this 21st century. It is hoped that the formation of this FF21A model will be a starting point for future research.

References


The Relationship between School Attitude and Learning Style among Social Science Students in Malaysian Private Higher Education Institutions

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Abstract—School attitude is an important element that stimulates students’ motivation to perform well at college/university, while learning style refers to students’ ability to acquire knowledge and participate in the learning experience. One of the more popular instruments to identify this learning style is VARK—visual (V), aural (A), read/write (R) and kinesthetic (K). This is particularly important for private higher education institutions (PHEI) in Malaysia as the industry is extremely competitive and the need to brand the institution for sustainable competitive advantage by matching school attitude with learning style becomes crucial. With this background, the research aims to examine the relationship between high/low school attitude and learning style among social science students in PHEI. This was undertaken using the School Attitude Assessment Survey and VARK Learning Style Inventories administered to 300 social science students in two PHEI in Klang Valley. Results of the study revealed that students with high school attitude were positively correlated to visual, aural, read and write, kinesthetic and mixed leaning styles. Furthermore, mixed learning style was the preferred learning style for both students’ with high and low school attitudes.

Keywords—VARK, learning style, school attitude, private higher education.

I. INTRODUCTION

There is a widespread perception that private higher education (PHE) providers do not enhance the quality of higher education in Malaysia (Wilkinson and Yusoff, 2005). Contributing factors to this perception have been linked to dissatisfaction towards teaching methods (Sohail and Saeed, 2003) and value/quality of education (Zain, Jan and Ibrahim, 2013). Existing researches have mainly focused on the influence of VARK (Visual, Aural, Reading/Writing, Kinesthetic) among clinical and hospitality students, taking into account variables such as conventional/online/blended learning and gender. This creates an opportunity space for investigating the role of VARK and students’ high/low school attitude in PHE institutions (PHEI).

II. RESEARCH QUESTIONS

The research aims to answer two questions as seen below:
1. What is the relationship between students’ school attitude and VARK learning style among social science students in PHEI?

2. Which is the prevailing learning style that corresponds with high/low school attitude among social science students in PHEI?

III. LITERATURE REVIEW

The literature review will present the main ideas of discussion and important findings from relevant academic sources relating to the key areas of school attitude, VARK Learning Style Inventories and Malaysian PHEI.

A. School Attitude

There are many school related factors that can be associated to students’ achievement. While Bouchey and Harter (2005) linked achievement to students’ perceptions of their academic abilities, Wei and Williams (2004) related it to the feeling of belonging to and pride in their school. Needham, Crosnoe and Muller (2004) stated that achievement can also be based on students’ perceived relationships with teachers.

In addition to these factors, Phalet, Andriessen and Lens (2004) stated that the level of performance can be based on students’ motivation to perform. They added that this motivation can be influenced by how much the students value schooling and education.

Since most of the existing researches are on school related attitudes, McCoach and Siegle (2003) suggested that an integrated assessment of school attitude and motivation is needed for measuring beliefs predictive of scholastic achievement. The School Attitude Assessment Survey – Revised (SAAS-R) by McCoach and Siegle (2003) was developed with this end in mind. The instrument measures students’ academic self-perception, attitude toward school, attitude toward teachers, goal valuation and motivation/self-regulation. Together these five factors aim to predict students’ school attitude.

B. Learning Styles

McLeod (2010) emphasized that by knowing the learning style of the individual, it helps the learning to be focused on the preferred method. Grasha (1996, p.41) has defined learning style as “personal qualities that influence a student’s ability to acquire information, to interact with peers and the teacher, and otherwise participate in learning experiences”. Despite the fact that there are so many studies on learning styles, Anderson and Adam (1992) found that there is still little agreement on the precise definition of learning style. This is supported by Scott (2010) who observed that the term ‘learning style’ is characterised by many confusions on the concept itself and therefore, it is difficult to establish a definition which can be generally accepted.

As Kwakman (1999) stated, learning is a social process. He identified that the individual characteristics and the psychological meaning of the learning situation may influence the learning process. There is a need for both the educator and the learner to identify the learning preferences in order to match the teaching style and learning environment with the learner needs. There are many theories and instruments that can be used to identify the learning preferences. A few key examples of theories are that of Mills’s (2002), Felder–Silverman (1988) and Kolb’s (1984).

One of the common learning style instrument is VARK which was developed by Fleming (2001; Fleming and Mills, 1992). VARK is an acronym that stands for Visual (V), Aural (A), Read (includes writing) (R), and Kinesthetic (K). According to Fleming (2001), these are the sensory modalities that humans use for learning and processing information. VARK learning styles inventory is an instrument that can be used to measure instructional preferences independent of personality characteristics, information processing strategies and social interaction strategies in the classroom. Individuals who prefer visual, learn and process information which is presented in charts, graphs and other symbolic devices instead of words while aural individuals prefer to have spoken lessons. Read/write individuals prefer to learn from printed text and kinesthetic individuals prefer to use direct practice in their learning process.

VARK questionnaire uses observations of behaviors and concrete incidents that respondents can recall or imagine and identify (Fleming, 2001). VARK is popular due to its face validity and simplicity (Leite, Svinicki and Shi, 2010) and is designed to help people create awareness on learner differences and therefore inspire the educators to use wide ranging instructional methods. The instrument has been extensively used for students to identify their own learning style and preferences and thus help the students to better plan their learning strategies based on their strengths (Fleming, 2001).

C. Relationship between School Attitude and Learning Style

Currently there seems to be no existing literature that review, research and/or report on the relationship between school attitude and learning style. A contributing reason can be the fact that the SAAS-R was initially developed to differentiate between under achieving and high achieving gifted students. Although researchers such as Suido, Shaffer and Shaunessy (2008) as cited in Perez, Costa and Corbi (2013) have tried to extend that boundary to ordinary high school students, no other studies have been found investigating SAAS-R and students of higher learning institutions.

D. Malaysian Private Higher Education Institution

In Malaysia, the term higher education refers to all post-secondary education (Wilkinson and Yusoff, 2005). However, in this paper, the definition will be confined to institutions offering tertiary education leading to the award of certificates, diplomas and degrees (undergraduate and post graduate). Within this scope of definition are included private colleges, university colleges, universities and foreign university branch campuses. Wilkinson and Yusoff in their 2005 comparative study of public and PHE in Malaysia has indicated Arts and Social Sciences, Economics and Business and Information Technology as prominent fields of study (Wilkinson and Yusoff, 2005).
There are 470 PHEI registered with Malaysian Qualifications Agency (MQA, 2015). These institutions comprise 52.5% of student enrolment in Malaysian higher education totalling to 921, 797 students (Jamshidi, Arasteh, NavehEbrahim, Zeinabadi and Rasmussen, 2012). The Malaysian government has actively supported this industry to develop their own differentiated education strategy (Sohail and Saeed, 2003) in line with developing nations’ emphasis on intellectual capital and knowledge based societies that can raise the country’s economic growth (Jamshidi et al., 2012).

Within the scope of this research, the literature review has shown that there is a widespread perception that PHEI providers do not enhance the quality of higher education in Malaysia (Wilkinson and Yusoff, 2005). Contributing factors to this perception have been linked to dissatisfaction towards teaching methods, student-faculty interactions and dissatisfaction with class sizes among foundation and first year degree students who prefer smaller size classes (Sohail and Saeed, 2003). Zain, Jan and Ibrahim (2013) are also in agreement by stating that cost of education; value/quality of education; type, content and structure of programs; and faculty qualifications as some of the determinant factors of students’ choice of PHEI in Malaysia. They further stated that these have increased the challenges facing PHEI more so when public institutions are gradually increasing the quality of education offered.

The review thus far would have clearly highlighted the need for Malaysian PHEI to pursue market driven strategies that are responsive to the needs and wants of consumers (Jamshidi et al., 2012; Sohail and Saeed, 2003). This is especially relevant considering the intensely competitive nature of the industry (Loh, 2011; Zain, Jan and Ibrahim, 2013) and to appropriately position PHEI when Malaysians are constantly weighing the quality of education between both the public and private sectors (Zain, Jan and Ibrahim, 2013). It has been previously established that value/quality is an influencing factor in the choice of PHEI (Jamshidi et al., 2012; Loh, 2011). Loh (2011) has further stated that market leadership in Malaysian PHEI can be established through sustainable competitive advantage stemming from image and branding that guarantee a specific level of quality. This should be taken as a directional cue by the PHEI institutions considering that students in PHEI do not consider fees (as PHEI charges higher fees than public sectors) to be a barrier in pursuing higher education, where in the same research teaching methods and student-faculty interactions have been highlighted as sources of student dissatisfaction (Sohail and Saeed, 2003).

With the backdrop of this review of past researches, the following hypotheses were formulated:

H1: Students with high school attitude are associated to visual learning style.
H2: Students with high school attitude are associated to aural learning style.
H3: Students with high school attitude are associated to read/write learning style.
H4: Students with high school attitude are associated to kinesthetic learning style.
H5: Students with high school attitude are associated to mixed learning style.
H6: Students with low school attitude are associated to visual learning style.
H7: Students with low school attitude are associated to aural learning style.
H8: Students with low school attitude are associated to read/write learning style.
H9: Students with low school attitude are associated to kinesthetic learning style.
H10: Students with low school attitude are associated to mixed learning style.

IV. RESEARCH MODEL

V. METHODOLOGY

This research will be a quantitative research involving personally administered survey to social science students at PHEI. The questionnaire was administered to 300 social science students at KDU University College (KDU) and INTI University College (INTI). These institutions are situated in Klang Valley (Selangor), a region defined by ten municipalities which together accounts for 20% of Malaysia’s population (Pemandu, 2012) and as such will be a representative study in this research.

A. Research Instrument

Section one of the questionnaire asked students to identify general information about themselves such as age, level of education and program specialization.

Section two assessed the students’ school attitude. The 35 questions in this section allow respondents to be categorized into students with high or low school attitude. The School Attitude Assessment Survey – Revised (SAAS-R) by McCoach and Siegle (2003) measures students’ academic self-perception (7 questions), attitude toward school (5 questions), attitude toward teachers (7 questions), goal valuation (6 questions) and motivation/self-regulation (10 questions). Perez, Costa and Corbi (2013) confirm that the five-factor structure of the instrument is valid with high levels of internal consistency reliability among students in general education from their review of the study done by Suldo, Shaffer and...
The final section helps to identify students’ learning style through 16 questions centered on visual, aural, reading/writing and kinesthetic learning styles. VARK Learning Style Inventory was developed by Fleming (2001; Fleming and Mills, 1992) to measure learning preferences and its validity has been established in numerous studies such as that of Leite, Svinicki and Shi (2010).

B. Sampling
This study utilized non-probability sampling as its sampling design. This is because it involves collecting information from members of the population who are conveniently available to provide it. Therefore, convenience sampling was chosen (Cooper, 2014). Of the 300 questionnaires administered, 74% (222 questionnaires) was usable for the purpose of this study.

C. Data Collection Method
Data collection method is via personally administered questionnaire where completed responses can be collected within a short period of time and any doubts the respondents might have can be clarified immediately (Cooper, 2014).

D. Data Analysis
Data analysis was done using Statistical Package for Social Sciences (SPSS Version 20). Descriptive and correlation testing were used to analyze the data.

VI. RESULTS
The primary purpose of this study was to compare VARK learning styles between students with high/low school attitude. Using descriptive analysis, the study is significant and reliable to be conducted (Cronchba alpha is 0.74), with reliability value done on all variables. Table I shows the descriptive statistics of students’ learning style and level of school attitude.

<table>
<thead>
<tr>
<th>Types of Learning Style</th>
<th>High School Attitude</th>
<th>Low School Attitude</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>N</td>
<td>N</td>
</tr>
<tr>
<td>Visual (V)</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Aural (A)</td>
<td>13</td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>Read and write (R)</td>
<td>29</td>
<td>16</td>
<td>45</td>
</tr>
<tr>
<td>Kinesthetic (K)</td>
<td>13</td>
<td>9</td>
<td>22</td>
</tr>
<tr>
<td>Mixed (M)</td>
<td>79</td>
<td>43</td>
<td>122</td>
</tr>
<tr>
<td>Total</td>
<td>143</td>
<td>79</td>
<td>222</td>
</tr>
</tbody>
</table>

Table 1 summarizes the results of the five-factor school attitude structure (attitude toward school, academic self-perception, attitude towards teachers, goal valuation and motivation/self-regulation). 64% of the total respondents have high school attitude and 36% of the respondents are categorized as low school attitude. This study found that students with high level of school attitude are positively correlated with visual, aural, read and write, kinesthetic and mixed learning styles, while students with low school attitude showed no correlation with any of the learning style. It also clearly highlighted that mixed learning style was the preferred learning style among both students with high and low school attitudes.

Based on Figure 1, female students are more of read/write, kinesthetic and multi learners while male students are more of read/write, aural and mixed styles of learning. Overall, Figure II shows that the number of female students (N= 126) is more in both attitude levels compare to male students (N=96). In both attitude level, female shows 55% in high attitude and 65% in low attitude level. While male shows lower percentage than female, 47% in high attitude level and 53% in low level attitude.

VII. DISCUSSION
The study found that there is a positive correlation between high school attitude and VARK learning style among students in private higher education in Malaysia. As such, SAAS-R can be a reliable predictor of learning style/s especially among students with high school attitude. The results indicate that H1, H2, H3, H4 and H5 are supported. This study shows that 55% of respondents (122 respondents) have more than one type or mixed learning style. As such, PHEI can utilize this measure to ensure the teaching and learning environment

FIGURE I
STUDENTS’ GENDER AND LEARNING STYLE

FIGURE II
STUDENTS’ GENDER AND STUDENTS’ SCHOOL ATTITUDE
match that of the students’ learning style. Furthermore, as more than half of the respondents (43 out of 79 respondents) with low school attitude have indicated mixed learning as their preferred style, this could also help the faculty in curriculum and assessment design intended to improve the performance of this group of students.

VIII. LIMITATION AND IMPLICATION

As this was an exploratory cross-sectional study, this research is unable to gauge any changes in learning style preferences over time. Studies that examine students longitudinally are needed. This study is conducted only on a small size of population of students studying in two PHEI in Klang Valley. Therefore, to generalise the results for larger group of students in PHEI, the study must be extended by taking a comprehensive sample of all the students in PHEI as well as across various streams and PHEI in Malaysia.

This research will allow a new understanding on the different needs of social science students with regards to learning styles. This will also allow educators to employ various techniques for equal development of all students in a classroom. At the same time, student’s awareness of their preferred learning style is important to enable them to learn effectively.

Finally, understanding the learning styles of students (especially those of low school attitude) will help to develop suitable modifications in curriculum and assessment. A study that examines a group of students’ school attitude before and after changes in teaching and learning environment that is catered towards mixed learners can ascertain whether this change enables to shift students’ from low to high school attitude.

IX. CONCLUSION

School attitude and learning style are both important elements in faculty-student teaching and learning process. Findings clearly support the importance of mixed learning style in class especially for those having low school attitude. The study revealed important implications to educators, program designers, evaluators and counsellors of PHEI who are aiming and targeting for the performance of students as an instrument to strategically position their institutions.

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REFERENCES


All three authors have between 10-15 years’ experience in the Malaysian Private Higher Education Industry (PHEI) ranging from lecturing to managerial positions, mainly involving collaboration programmes with institutions of higher learning from UK and Australia.
Abstract - This study is an attempt to find out intermediate EFL (English as a Foreign Language) learners' attitudes toward the application of Thesaurus software for vocabulary acquisition. To this end, 25 learners who have already participated in an experimental Thesaurus-based study were selected as participants. The learners were given a close-ended questionnaire including 16 items. The quantitative data, collected through the questionnaire, were analyzed using SPSS and the results of the study indicated that Thesaurus was a great motive for students in vocabulary learning and they had positive attitudes towards the application of Thesaurus for teaching and learning vocabulary in EFL classrooms. The results of this study can contribute to the instructors and syllabus designers to incorporate CALL (Computer-Assisted Language Learning) in teaching language and syllabus designing.

Keywords: Thesaurus Software, EFL learner, CALL, Microsoft Word, Attitude, Motivation

1. Introduction

EVERY one's belief gives direction to his or her life and depending on the strength or weakness of the belief, the speed of movement in this direction is different so that the stronger the belief the faster the movement is. One of the fields in which belief or attitude plays an important role is language learning. In this field, language learners' beliefs or attitudes influence their performances. In other words, Learners' performances are subordinate to their attitudes and beliefs, so that the stronger their beliefs and attitudes the better their performances are and vice versa. Learners usually carry out their beliefs, attitudes and other personal learning styles when they get into a language classroom. Most scholars believe that people's success in language learning is highly dependent on their outlook toward the language they intend to learn. In addition, the learners' view of some factors such as target language, target language culture and speakers directly influence their accomplishment in learning the target language. Although merely investigating the learners' attitudes and beliefs do not lead to any success. This investigation provides the learners
2. Literature Review

The history of Learners' attitudes and its effect on foreign language learning was firstly studied at the beginning of the 1970s. Then some eminent researchers such as Gardner, Horwitz, and Dornyei conducted some comprehensive studies regarding learners' attitude toward foreign language learning. Another researcher named Wesely has dealt considerably with the language learner attitude in 2012. According to Wesely (2012), the key concepts and theoretical foundations of learners' attitudes have been investigated in 1970s.

The results of different studies conducted on language learners' attitudes have indicated that positive attitudes of language learners influence greatly their success in the process of language learning and the learners' negative attitudes reduce their motivation and hence impede their successful language learning (Bagceci & Cinkara, 2013). Based on these findings it is necessary for language teachers to be sure that their students have positive attitude toward the target language. Otherwise they should do their best to build positive attitude in them to avoid negative consequences. For building positive attitudes we should be aware of the fact that Learners view language learning from two perspectives: learning situation and target community (Wesely, 2012). Therefore, by improving the learning situation and by making the learners more familiar with the target community we can improve students' attitude and thus language competence. Finally, the learners' positive attitude toward CALL programs is the influential factor in mastering language.

Many studies have investigated the relationship between learners' positive attitudes toward computers and their achievement in the subject matter learned by computer application (Brown, & Vician, 2004; Akbulut, 2008; Bebetsos & Antoniou, 2009; as cited in Mahmoudi, 2012). Most of these studies have indicated that there is a positive and favorable attitude toward computer integration in language learning. Additionally, accepting and utilizing new instruction tools depend on the learners' opinion. Cevik (2009, as cited in Mahmoudi, 2012) said that the more experienced the learners are in using computers the more self-confident, self-efficient and less anxious they will be about using computers. However, many teachers and institutions have a negative attitude toward CALL and strongly disagree with the integration of CALL in language learning. Some institutions and teachers' reluctance to use CALL in language classrooms is due to their experience or inexperience in using computers. For example, Min (1998, as cited in Mahmoudi, 2012) conducted a research study to investigate adult learners' attitude toward CALL integration in language learning. The results of this study which was conducted in Korea with 603 adult learners showed that Korean language learners had negative attitude toward CALL integration in language learning. The most important reason for these findings was their lack of learning experience with computers. Therefore, the learners' negative attitudes toward CALL integration in language learning made them resist using computers. In other words, some learners did not agree with CALL integration in EFL classrooms because they believed that CALL incorporation demanded more time and commitment on the part of learners and teachers. Another conclusion based on the above-mentioned study was that CALL threatened language learning and limited the learners' development.

Another researcher named Almahboub (2000, as cited in Mahmoudi, 2012) found that a very important indicator of students' adaptation of a new technology for long life learning is a learner's attitude. According to Lasagabaster and Sierra (2003, as cited in Mahmoudi, 2012) when evaluating CALL programs, the learner's attitude should be considered. They conducted a research and compiled students' opinions and perceptions toward CALL (Computer-Assisted Language Learning). Their research involved 59 university students through an 18-item questionnaire about the effectiveness of CALL programs. The results of the study showed that CALL programs provided the students with a less stressful environment and they could be used as complementary tools in language learning. The study also showed that learners had a positive attitude toward using CALL. Moreover, learners' proficiency affected their opinion towards using computers. One of the main factors that influenced the learners' positive and negative attitude toward using CALL was the time spent using computers. Positive learner attitudes toward the use of computer technology depended on opportunities and training, which were provided for users of the technology (Clark, 2003; Akbaba & Kumbacak, 2003; Herman, 2002; Dexter, Anderson & Becker, 1999; as cited in Mahmoudi, 2012). Students' level of attitude toward computer aid instruction depended on total hours per day or weeks spent working with it (Beckers & Schmidt, 2003).

Similarly, in a study Zuraina et al (2012) exposed 123 undergraduate students to three vocabulary learning methods with appropriate guidelines to take next steps in the process of language learning.

The relationship between attitude and proficiency in the process of language learning is so important that it has been studied by many researchers to find new ways of improving proficiency through strengthening attitude. Regardless of the language under study, attitudes toward it are of two types: positive and negative. A successful language learner is the one who holds a positive attitude toward the language he or she is engaged in learning. It is true to say that one of the most important factors which plays a major role in language learning is language learner's attitude and a detailed study of this factor is the main objective of this study. More specifically, this study set to investigate EFL (English as a Foreign Language) learners' attitudes toward the application of Thesaurus software (a software in Microsoft Word program which plays almost the role of an electronic dictionary) in learning English vocabulary and the learners' motivation is another point which has been dealt with in this study.
including CALL, Dictionary Strategy and Contextual Clues. After exposing the students to these methods, the researchers through a survey investigated the students’ attitudes toward them. The results of the study revealed that CALL users had more positive attitudes in learning vocabulary compared to other methods. In other words, CALL changed students' attitudes positively toward learning English vocabulary.

Similarly, Mahmoudi and Abdul Razak (2012) conducted a study to examine the relationship between attitudes toward CALL and the students' performance in learning English vocabulary. In this study which was conducted with 30 Iranian postgraduate students in Malaysia, by using vocabulary tests, the effects of CALL on the students' vocabulary performance were assessed and via questionnaires, the attitudes of the students toward Computer Assisted English Language Learning (CAELL) were assessed. The results showed that participants possessed positive attitudes towards CALL and the participants' attitudes toward CALL and their vocabulary performance were positively related. They held positive attitude toward CALL.

In summary, most of the studies concerning the learners and instructors' attitude toward CALL integration have indicated that a great majority of learners and instructors have had positive attitude toward the application of CALL in teaching and learning language in general and learning vocabulary in particular.

The use of technology has received little attention in teaching and learning in EFL contexts. For example, in the EFL context of Iran especially in Khansar, Isfahan, Iran, technology is not widely used in teaching and learning. This technology application makes the present study more significant. This study investigates Iranian EFL learners' attitudes, at high school level, toward Thesaurus application in vocabulary learning. Thus, the following research question is addressed in the present piece of research:

Do Iranian EFL learners have positive attitudes toward the application of Thesaurus in vocabulary learning?

3. Method

Participants

In the present study, the participants were 25 female senior high school students in Hefdas Shahrivar high school in Khansar, Esfahan, Iran. Their age range was 17-18 years old. The students in this study had already participated in another study conducted with the purpose of evaluating the effect of Thesaurus software on improving their vocabulary knowledge. These students who were the members of the experimental group in the said study outperformed greatly the control one in the posttest.

Instruments

The applied instrument to collect data in the current study was a questionnaire. The questionnaire included 16 close-ended items concerning the attitudes and motivation of the learners. The questionnaire items were extracted from the questionnaire used in a similar study conducted in an EFL context on the use of Interactive White Board (IWB) in the classroom (Kalanzadeh, Shirvali vand & Javadani Mehr, 2014). These researchers were, too, inspired by Moss et al. (2007) questionnaire on instructor and learner perceptions of IWBS. Changes were made in some parts of the questionnaire and in order to validate the changes, three experts in CALL studies checked them. The reliability of the researcher-made questionnaire was calculated using Cronbach Alpha and it was 0.88 for the constructed questionnaire and this figure confirmed a good reliability for the questionnaire items.

Procedure

Before conducting the study all the participants signed a consent form. Then a questionnaire was prepared and given to the learners. The researcher explained to the participants how to correctly fulfill the task based on their experience in using Thesaurus for vocabulary learning. Therefore, having spent 20 minutes, the students finished with the task. Finally, the answers to the questionnaire items were analyzed and the findings were interpreted and discussed in details.

3. Results

The results obtained from the analysis of the questionnaire are presented in three parts below.

Reliability Analysis

Since the researcher has used a questionnaire to measure the respondents' attitudes and motivation, examining the reliability of the questionnaire was necessary. Therefore, the researcher utilized Cronbach's alpha technique to obtain the reliability of the attitude and motivation themes which were reported 0.88 and 0.84, respectively.

After being sure of the reliability of the questionnaire, it was used in the study and the data obtained from the first part of the questionnaire were used in one sample t-test. The results of the one sample t-test, as shown in Table 1, indicate that the participants had a positive attitude toward Thesaurus application and its effect on vocabulary learning (t =41.9, P < 0.001).

<table>
<thead>
<tr>
<th>Variable</th>
<th>T</th>
<th>df</th>
<th>Sig. (2-tailed)</th>
<th>Mean</th>
<th>Std. Deviation</th>
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</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>-41.9</td>
<td>24</td>
<td>0.0000</td>
<td>1.463</td>
<td>0.183</td>
</tr>
</tbody>
</table>

Similarly, another one-sample t-test was utilized to analyze the data obtained from the second part of the questionnaire. The results of this analysis, as shown in Table 2, indicate that the participants were motivated to use Thesaurus software (t =32.26, P < 0.001).
students toward using computers at a Turkish state university had tested in Turkey, in which attributes yielding accessibility, authenticity, its user friendliness, a special feature of Thesaurus such as interactive white boards, blackboard or paper-based teaching and learning. To this end, they consciously or unconsciously make a comparison between the old and new words; 4) by considering the point that all of these words have the same meaning, the learners learn unfamiliar words.

Regarding the learners' attitude and motivation, there are some similar or different studies. For example, the results of this study support Zurain et al (2012) who conducted a study to investigate students’ learning attitudes toward three vocabulary learning methods, i.e., CALL, Contextual Clues and Dictionary Strategy. The results of the study revealed that students who used CALL showed more positive attitudes in learning vocabulary.

Similarly, the results of the current study are in agreement with Moshenzadeh, Marzban and Ebrahimii's (2014) study in which they investigated the attitudes of EFL learners and instructors concerning the use of power point presentation in teaching and learning. To this end, they selected 40 learners and 10 instructors as participants. The learners and instructors were given questionnaires including 10 and 15 items, respectively. The results indicated that both learners and instructors had positive attitudes towards the use of power point presentations in teaching and learning.

Moreover, the results of the present study are compatible with Başaran's (2014) study, conducted in Turkey, in which the researcher aimed to investigate the attitudes of teachers and students towards CALL. The teachers and students' attitudes were collected through using an appropriate questionnaire. After analyzing the answers to the questionnaire, the researcher came to the conclusion that the students and teachers had positive attitudes towards CALL application in language teaching and learning. However, the teachers were reluctant to utilize computers in their classes because they were not trained enough to incorporate technology into English teaching process. They also said that they had low confidence in trying new technological tools in their teaching process.

In summary, almost all of the previous studies and showed that instructors and learners had positive attitudes towards the application of CALL in language acquisition in general and vocabulary acquisition in particular. But the possible reluctance may be due to lack of confidence and specialization in using CALL on the part of instructors and learners.

### 5. Discussion

This study has attempted to answer the question of "Do Iranian EFL learners have positive attitude toward the application of Thesaurus in vocabulary learning? To supply an appropriate answer to the question, through a survey, the students' attitudes toward Thesaurus have been explored and most of the students have expressed that Thesaurus-based teaching and learning is more interesting and enjoyable than blackboard or paper-based teaching and learning. In simple words, all the students in this study showed positive attitude toward this software. It can be said that the positivity in students' attitudes was due to special features of Thesaurus such as its user friendliness, accessibility, authenticity, its nearly grammatical nature, etc. Some of the features yielding this result are that in using Thesaurus program, 1) learners have very much exposure to many different words with the same meaning; 2) they are able to see and read them in a very short period of time; 3) they consciously or unconsciously make a comparison between the old and new words; 4) by considering the point that all of these words have the same meaning, the learners learn unfamiliar words.

### 6. Conclusion

The present study set out to examine the attitudes of Iranian EFL intermediate learners towards Thesaurus application in vocabulary learning and also their motivation in this process. Analysis of the learners' responses to the questionnaire indicated that they had positive attitude towards Thesaurus and they were interested greatly in learning vocabulary using this software. Moreover, they believed that the use of technology; 1) could facilitate their learning; 2) motivated them greatly; and 3) made learning more joyful.

The findings presented in this study inspire instructors and learners to tie up firmly this software in their instruction and acquisition programs.

This study would specifically contribute to syllabus designers in paying a closer attention to instructional goals of the learners by making more process-oriented syllabi. The researchers can use this study as a model to investigate the attitudes of the EFL learners and also instructors towards other modes of technology such as interactive white boards, web log, etc. In addition, for other researchers who intend to carry out similar study with the focus on other modes of technology, it would be better to use both a questionnaire and an interview to increase the validity and reliability of the results. The limitation of this study which hinders generalization of the results could be the small number of participants and this number can be increased in other studies to get more reliable and generalizable results.

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Creative Potential of Intercultural Communication in the Context of Language Teaching in Educational Transformations in the Republic of Kazakhstan

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Abstract - This paper is dedicated to the comparative study of teaching cross-cultural communication in Kazakhstan. The project submits recommendation on further enhanced strategies that will help in the development of cross-cultural communication education in line with modern trends in curriculum issues. It concludes that for any meaningful advancement to be made in the education sector there must be a conscious, deliberate, purposeful, directional policy formulation of the implementation of the curriculum. The criteria of formation of critical thinking in students when teaching cross-cultural communication are considered here. Moreover, the paper analyses the problem of motivation of students to use information technology to search the specific information for the understanding of cross-cultural communication.

Keywords: comparative study, critical thinking, cross-cultural communication, information technology.

1. Introduction

In today’s world there is a tendency to expand and deepen international contacts in various spheres of economic, political, social and cultural life that determines the need for addressing problems of intercultural communication (hereinafter – ICC) (Law of the RK, 2012). Therefore, occurrence of a new concept in education which focuses on how to prepare future professionals for the life in a multicultural space, in terms of intercultural communication as Kramsch noted [2] is very important.

Current global socio-political and economic changes have contributed to an increasing interest in foreign languages which is accompanied by a study and comparison of customs, traditions and customs of different people. Improper interpretation of the features of other cultures disrupts communication and hinders interaction of different cultures, and can also cause cross-cultural conflicts.

1.1 Background and Purpose of Research

1.1.1. The aims of this research are:
1) to define criteria of formation of critical thinking in students when teaching ICC;
2) to find ways to motivate students to use information technology to search for specific information for understanding ICC;
3) to single out ways of teaching students the ability to analyze, compare, categorize relevant information about ICC by means of information technology;
4) to determine techniques for developing students’ ability to critically evaluate the proposed aspects.

1.1.2. Methods
In this paper we used and carried out the following research tools to provide empirical materials for a comparative analysis of ICC: interviews and surveys, literature review, etc. For example, written and oral structured focus-interviews (such as face to face, by telephone, or by e-mail) were conducted when we studied the problem of ICC. The objective of these interviews was to receive more detailed materials from students and identify the influence of teaching, learning and assessment when we conduct various teachers’ trainings. Furthermore, we used such empirical methods as observation, questionnaires, analysis of the products of students’ and teachers’ activities, ascertaining and forming pedagogical experiments, computer data processing, their use in the form of charts, tables and figures, and statistical treatments.

In addition, it was important for us to demonstrate how we develop critical thinking in the classroom with students’ use of information technology, taking into account the implementation of such information technology functions as educational, developmental, and educational-creative. We believe that critical thinking in students by means of information technology produces a controlled process of interaction of the teacher and the student. Such multimedia tools as Internet technologies, the package Microsoft office, training apparatus, on-line tests help us to carry out analysis, synthesis, comparison, classification of facts, phenomena and processes, identify and solve problems from the standpoint of logic. In addition, these technologies let students preserve their own knowledge and skills acquired in non-standard situations as well as a positive attitude to criticism and reflection exercise, and evaluate phenomena and processes from different perspectives with the socially accepted cultural and moral values.

2. Theoretical Frameworks. New Paradigms
First of all, based on the study of the scientific literature [3]-[6] we came to the conclusion that when teaching ICC we need a tiered approach to the subject, i.e. review of cross-cultural interaction in a single coordinate system. This occurs when there is a single field of comparisons, for example, when we consider all the provisions in a single system of categories (traditions, customs, lifestyle, etiquette), or unity, or a radical dissimilarity of cultural value systems. We take the point of view of Savignon S. [7], [8] and Green [9] and, accordingly, allocate such levels in ICC into language skills, communicative level, ethno-psychological level, ethnographic level, level of regional studies, art history level and didactic level.

2.1. Language level
Language is the main tool in the knowledge of the world and determines the type of attitude. The presence of a common world view provides participants with understanding of communication because it is precisely the semantic framework of an utterance. Titova S. [10] has studied the problem of cultural potential of linguistic facts which are revealed using a vocabulary. Lexical comparisons lead to the discovery of similarities and differences in the vocabulary of the compared languages. According to Nurtazina M. [6], comparative analysis of lexical units can detect specificity of national images of the world. On the linguistic level we identify lexical, grammatical and stylistic gaps. Differentiation of pictures of the world for training purposes allows us to construct a classification of cultural opposition which can be the basis for learning in the context of intercultural communication.

2.2. Communicative level
This level analyzes characteristics of national communicative behavior of Kazakh, Russian and English, both verbal and nonverbal. This creates a basis for a successful interaction of various languages and representatives of different cultures.

2.3. Ethno-psychological level
There are the following fundamental aspects of ethno-psychological comparisons: national character, allocation of the main components of ethnic and social stereotypes, the relationship (universal and national, ethnic and social, ethnic and social stereotypes); interdependence of stereotypes of other nations. For example, speaking about peculiarities of the national character of the Kazaks, many researchers have observed such qualities as seriousness, openness, chivalry, humanity, a great sense of humor, self-esteem, etc. [11], [12].

2.4. Ethnographic level
Comparison of traditional cultures can be conducted in the following areas: a) national calendar and calendar rites (folklore, holidays); b) life-cycle rituals in contacting people (birth, childhood, marriage, funerals); c) traditional material culture (clothing, shelter, utensils, food, arts, and crafts).

2.5. Cultural level
At this level we analyze regional geographic characteristics of the matched linguistic and cultural communities: a) natural and cultural landscapes, images of Russian and Spanish space. Comparison of spatial thinking of different nations can occur by comparing spatial vocabulary or landscape descriptions in literature; b) social world: education and culture, science, social values and norms; c) religion; d) history of cultural interaction; d) history of the country.

2.6. Level of art history
At this level, there can be a comparison of musical traditions of the contacted people, works of art and literature. Particular attention should be paid to the Kazakh or Russian way into American literature and American way – into Russian or Kazakh literature.

2.7. Didactic level
At this level, it is advisable to consider the culture of teaching in Kazakhstan, identify national educational
traditions, determine the possibility of their use in the way we develop methodical system of teaching English to Kazakhs in Kazakhstan. Intercultural learning is a development of basic features of a non-native culture. The process of moving from ethnocentric position will enhance the potential to realize evaluation and respect an unfamiliar culture.

The organization of work in the context of intercultural communication is particularly important in the formation of the ability to understand the phenomenon of a foreign language and culture and to make the transfer to their national traditions and native culture phenomenon. From the standpoint of psychology, the transfer of acquired learning activities to the new situation is an indicator of cognitive mastery of generalized ability and model activities on subject content.

In this paper, we focus only on the analysis of communicative and didactic levels of ICC description.

3. Results and Findings

3.1 Pedagogical Experiment

We use the following pedagogical technology as holding cultural-specific trainings, cultural education and lectures. The aim of our study is to investigate the effectiveness of different types of intercultural learning. The hypothesis of the study is as follows: the use of active methods of intercultural learning increases the probability of formation of intercultural competence.

Structure of the study:

The group of subjects in the amount of 28 people was divided into three groups with 9 people each. The sample included 28 people, men and women, aged 18-28. In addition, we involved in the investigation Americans – high school students who go to schools in Astana, Kazakhstan.

The program shows a variety of methods of intercultural learning in terms of activity leaders and participants, the content of specific methods, focus on cognitive, emotional or behavioral domains. We compiled these programs based on multiple sources of literature, guidelines and based on the understanding of the formation of intercultural competence in intercultural theory of sensitivity suggested by Kramsch M. [2]. Such training as role interaction, working with artifacts, designs, attribute exercises include such topics as: customs and traditions, family relationships, behavior in a conflict situation, the problem of choice. In the first place in the training exercises students should work with their own feelings, thoughts and senses, their awareness and acceptance, and only then – obtain information. During the discussion, exercises revealed different points of view on this or that question. If during the first meeting participants showed almost complete unanimity in determining the image of Kazakh, Russian, American, by the end of the third meeting there were different opinions. Much attention is paid to differences in teaching participants to Kazakh, Russian and American cultures. The information was a surprise to them as it showed differences in attitudes, values and norms of the three cultures but not the fallacy of expectations for the US, Russian or Kazakh culture. In the final discussion participants noted that the provision of information is particularly interesting if they can verify it for themselves (for example, in the exercise with the US or Kazakh holidays such as Nauryz, the Day of Unity of Languages (Kazakh, Russian and English) in Kazakhstan and familiarity with their cuisines).

The main purpose of cultural education is to introduce students to the US and Kazakh culture with the help of visual information. It is presented in the form of a presentation and a lecture description. The substantive content of cultural education coincides with the substantive content of the lecture. Topics covered are accompanied by photographs, pictures and maps that provide visibility of the material provided. Presentation is accompanied by a story leading to summarized information on the relevant topic. The program also included cultural enlightenment of visual information concerning American and Kazakh movies. The cultural education program caused concern among participants for the very form of a non-conventional lecture and seminar and its content. During the first meeting, participants mostly listened and watched, during the second and third meetings they manifested great activity, asked questions, participants were included in mini-discussions on various aspects of the program. The following topics aroused special interest: family, parenting, attitudes toward authority, traditional cuisine. A quiz was compiled in the process of teaching a competitive moment. When discussing the revealed results special interest and positive emotions were aroused by viewing episodes of American and Kazakh films. Some participants expressed a desire to see the entire movie data and learn more about the Russian, Kazakh and American cultures.

Processing of the results was carried out using SSPS-13 Program as well as high-quality processing techniques “Attributing qualities” [8]. Thus, with the help of a pilot study we tested the hypothesis that the use of active methods of intercultural teaching increases the probability of formation of intercultural competence. Some knowledge about another culture and awareness of the presence of stereotypes forming attitudes aimed at tolerant behavior are based on the understanding of intercultural competence. It follows therefore that successful implementation of programs of intercultural teaching enables students to widen their worldview. Changing the emotional and evaluative aspects of intergroup perception concerning stereotyping as well as the overall presentation of ethnic groups shows that the subjects are at an early stage of formation of intercultural competence. Thus, we can conclude about the effectiveness of intercultural teaching in the process of development of intercultural competence in students. However, the effectiveness of these programs and their possible outcomes depending on the duration of the meeting still remains as an open question.

Therefore, we can say that a tiered approach to the understanding of ICC helps students understand the typical national traits of many people and let them in a different way comprehend the relationship between them. Below we demonstrate the results of the conducted research.
3.2. Data and Perceptions

Table 1
Typical Kazakh by perception of Americans: Myths and Realities

<table>
<thead>
<tr>
<th>Before coming to Astana</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All Kazakhs are rich because they have a lot of oil, gas and mineral resources (16.3%)</td>
<td>1. There is an extreme social stratification: there are rich and at same time poor people but in general they live well (11.2%)</td>
</tr>
<tr>
<td>2. Seemingly Kazakhs like Europeans (0.9%)</td>
<td>2. They resemble Asians but there are a lot of people of European appearance in Kazakhstan (8.1%)</td>
</tr>
<tr>
<td>3. Clothing: Kazakhs like bright, colorful outwear: men wear skullcaps and women wear a paranja (13.7%)</td>
<td>3. Kazakhs have a good taste and wear beautiful and fashionable cloths which are not always convenient (19.5%)</td>
</tr>
<tr>
<td>4. The level of teaching in universities is low (21.3%)</td>
<td>4. The level of teaching is quite high (48%)</td>
</tr>
<tr>
<td>5. Business relationships are built on an equal footing (21%)</td>
<td>5. Business relationships are based on interpersonal relationships (54%)</td>
</tr>
<tr>
<td>6. No relationship of mutual dependence (14%)</td>
<td>6. The well-developed system of mutual dependence and mutual obligations (“You scratch my back and I’ll scratch yours.”) (32%)</td>
</tr>
<tr>
<td>7. A clear gradation while meeting people (29.9%)</td>
<td>7. Hospitality (always welcome any guest who can come even without an invitation) (59.2%)</td>
</tr>
<tr>
<td>8. Very restrained, rarely show their emotions (39.1%)</td>
<td>8. A lot of singing, dancing, almost all play national instruments (77%)</td>
</tr>
<tr>
<td>9. Do not look into the eyes of another person at conversation and business meetings (31.7%)</td>
<td>9. Always listen carefully to their interlocutors without ever interrupting them (89.6%)</td>
</tr>
<tr>
<td>10. There is no gradation in communication with people of different ages (43.2%)</td>
<td>10. Particularly respectful of elders, using a special vocabulary (92.7%)</td>
</tr>
<tr>
<td>11. Not always friendly (39.1%)</td>
<td>11. Always friendly (91.5%)</td>
</tr>
<tr>
<td>12. Always complaining about bad life (14%)</td>
<td>12. Never complain about bad life (63.4%)</td>
</tr>
<tr>
<td>13. Do not go on a rough tone while talking (23%)</td>
<td>13. When swear they switch to Russian language using jargons (36.3%)</td>
</tr>
<tr>
<td>14. Never look directly into the eyes of another person, especially in business communications (22.4%)</td>
<td>14. In conversation always look into the eyes of their interlocutors (48.7%)</td>
</tr>
<tr>
<td>15. There has been no shift of one form of communication to another (12.9%)</td>
<td>15. Rapidly move from formal to informal communication (35.3%)</td>
</tr>
<tr>
<td>16. Rarely used non-verbal forms of communication (11.3%)</td>
<td>16. A well-developed system of non-verbal means (handshaking, kissing, depending on the gender dimension) (32.8%)</td>
</tr>
<tr>
<td>17. Multiples of conversation options (21.4%)</td>
<td>17. Thematic variety of conversations (87%)</td>
</tr>
</tbody>
</table>

Table 2
Typical Russians by perceptions of American: Myths and Realities (Russia)

<table>
<thead>
<tr>
<th>Before coming to the country</th>
<th>Now</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. A large ungovernable country (0.3%)</td>
<td>1. A big but diverse country (49%)</td>
</tr>
<tr>
<td>2. It is very cold (34.7%)</td>
<td>2. The weather is quite changeable (45.7%)</td>
</tr>
<tr>
<td>3. All people drink alcohol (55%)</td>
<td>3. Drink a lot of alcohol at parties and weddings (72.5%)</td>
</tr>
<tr>
<td>4. Bad policy (29.1%)</td>
<td>4. Sustainable policies (72.9%)</td>
</tr>
<tr>
<td>5. The economy is wrong (56.8%)</td>
<td>5. They know the way of development</td>
</tr>
<tr>
<td>6. Constantly at war with other countries (1.2%)</td>
<td>6. Try to talk less about wars (12.3%)</td>
</tr>
<tr>
<td>7. A gloomy, unhappy life (23.1%)</td>
<td>7. Very friendly people but often complain (69.3%)</td>
</tr>
<tr>
<td>8. Very discreet (11.5%)</td>
<td>8. Sincere and emotional, sometimes too much (38.2%)</td>
</tr>
<tr>
<td>9. Dress up too pretentiously (12.7%)</td>
<td>9. Wear tasteful, beautiful and fashionable cloths, wear a lot of jewelry (68.5%)</td>
</tr>
</tbody>
</table>

At the last stage of the study, we decided to carry out the so-called associative experiment with students from Kazakhstan who were studying in the United States via a variety of programs, including the Presidential Program “Bolashak”, and then identify the modification of their behavior after the adaptation period. This program has existed since 1999, each year about 3,000 students have an opportunity to travel abroad to study by this program. According to the Ministry of Education and Science of the Republic of Kazakhstan from 1999 to 2013, 8347 people were trained in the United States and more than 548 students are still studying there.

On the basis of the association experiment we proposed to explain, associate and formulate concepts. We can report of result of a fall 2013 survey conducted among of 79 young Russians and 92 Kazachs (aged 17-32) who studied in America regarding their views toward America and the problems of adaptation, cross-cultural communication, language barrier, gender aspect, and other issues.

The survey was attended by 181 people. We decided to analyze the components of the mentality of the Kazachs in Kazakhstan, the Russians in Russia and the Americans in the United States. We concluded that the components of mentality can be linked to different aspects: expression of personality (openness – in Kazachs and Russians; privacy – in Americans), manifestation of knowledge (if Russians and Kazachs dominated knowledge of the character that appears in the essay, then American Prospect essay present creative individuality), and others. This is described in detail in the paper of Nurtazina [6].

Many students from Kazakhstan and Russia have successfully completed training in the US, after returning
home they experienced a so-called secondary shock. They have become well-balanced in perceiving their own culture which they had previously considered to be very clear and understandable. Many of them work in public institutions and universities. We conducted a survey with students to figure out the next characters:
1. Was your adaptation successful when you arrived home from a different cultural environment?
2. What issues surprised you?
3. Did you change in yourselves? (Whether you became more patriotic, began to smile more, became more tolerant, tolerant to the judgment of others, received a good and prestigious education; whether you used the acquired knowledge for the good of your country; whether you have plans and ideas to implement in your home country).

Now we would like to go considering the issues of adaptation of Americans that came to live and study in Kazakhstan. Let us study their opinions about Kazakhstan, particularly the problem of adaptation to life in Kazakhstan.

Adaptation of Americans in Kazakhstan
1. The most difficult thing is to get used to the weather (26%): a sharply continental climate
2. The living conditions in the hostel (21%) are as follows: students are supposed to share a room with another person.
3. There is a constant need to communicate in Russian (18%), but they would like to communicate more in English.
4. Americans find it difficult to get used to a different way of life (14%): Kazakhs and Russians are sociable, communicative and sometimes too bothersome.
5. They respect others (11%): a lot of people are very surprised to see a foreigner and they ask a lot of questions (because Kazakhs and Russians want to practice English).
6. Distance from family (5%)
7. They are not always satisfied with the features of Kazakh and Russian cuisines (3%).

3.3. Experimental Procedure
We conducted an experiment in 2013 and 2014 with university students. The aim was to identify the way to effectively use information technology which helps them understand many issues regarding intercultural communication. The experimental work was carried out in the study in order to single out the students’ ability to compare, analyze and classify information by intercultural means of information technologies. In addition, we were interested in how students are able to critically evaluate the proposed sites.

As a result of analyzing the perception of students from various sites at the stage of ascertaining experiment, we concluded that the level of students’ motivation to use information technology in the control group (CG) and experimental group (EG) was average and low. The low level at the stage of ascertaining experiment showed that students divided into: CG – 49%, EG – 46%. In the average level students fell into: CG – 36%, EG – 38%. A high level of motivation of students to use information technology to search for specific information was demonstrated by students of CG – 15% and students of EG – 16%.

The ability to analyze, compare and categorize relevant information by means of information technology showed a low level: CG students – 48%, EG students – 46%; on average: CG students – 32%, EG students – 33%; on the high level: CG students – 20% and EG students – 21%.

The ability to critically evaluate the proposed sites at a low level showed the following results: CG students – 42% and EG students – 43%. The average level of consistent orientation was as follows: 58% of CG students and 57% of EG students. The high level showed only one subject.

Especially popular among the students is the use of Internet services for the coordination of collective research activities. We mean “SurveyMonkey” program. Information received after the consultation with the help of “SurveyMonkey” can be demonstrated by the Internet service in the form of graphs, charts, tables available on the website of virtual research laboratory. Thus, one of the areas of multicultural education in the electronic information-educational environment is the organization of research students in a virtual laboratory. Here they extend and deepen knowledge about different cultures and their representatives, peculiarities of establishing interpersonal relationships with different cultures.

Hence, the results of experimental work confirmed the correctness of the hypothesis about the effectiveness of the organization based on Internet 2.0. This final control showed improvement in the quality performance of independent work of students of EG which indicates an increase in their level of integrated development of informational, educational and foreign-language communicative competence. We would like to highlight the significant progress of the development of writing skills of students which is difficult to achieve in the process of traditional education. There has been an increase in indicators of motivation to implement the 2.0 Internet. There was a positive impact on the acquisition of this program as a whole. There markedly improved the performance of students’ reflective skills (flexible thinking, idea generation, system thinking, awareness and funds based on their own activities, etc.) in the process of language training.

4. Conclusions and Recommendations for Future Works
The analysis of features of realization of teaching intercultural communication in Kazakhstan compared with Russia and the United States led to the following conclusions.
1. While educating students we should use the Internet encyclopedias, educational online portal, providing them with opportunities to explore text publications, view educational videos. It helps them increase knowledge about their native culture, especially the interaction with different cultures. The formation of students’ perception of cultural diversity in today’s world helps to better understand the issues of intercultural communication.
2. Organization of students visiting virtual exhibitions, virtual tours as well as the creation and placement of electronic information-educational environment is conducive to familiarizing students to the Kazakh, Russian, American culture, and awareness of students of historical and cultural process as a complex interaction of different cultures.
3. Coordination of teaching and research, and the project activities of students by means of “Moodle” help students expand knowledge about the diversity of cultures in the world, form a tolerant attitude towards representatives of different cultures and develop skills of productive intercultural interaction.

In the future, we are planning to study the dynamics of the level of development of critical thinking among students in the study of ICC issues.

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Her works are highly regarded and she was nominated as the best teacher in 2009 from the Ministry of Education and Science (Grant KZ); Awards for Teaching Excellence and Academic Achievement; she has the Rank «The Honourable Worker of Education of KZ» (2010). In 2007-2008 she was DAAD Visiting Professor (Trier University, Germany, 1998, then was Fulbright Visiting Professor at Wisconsin-Madison and Harvard University (USA, 2007-2009); she passed a research internship by Kazakhstan Presidential International Scholarship “Bolashak” at Columbia University in the city of New York, USA (2010-2012). Prof. Nurtazina’s research involves language teaching methodologies, language curriculum and translation principles and techniques, language and education policies, multilingualism, applied linguistics. She has a strong research background; has authored numerous books and journal publications and presented keynote speeches at international research and advocacy conferences therefore she is often invited as a speaker and expert at National and International Conferences (USA, Germany, Poland, Belgium, Hungary, Bulgaria, Greece, Japan, Russia, etc) to present her research papers and teaching experiences and to chair the sessions. She was also the main trainer at the international seminars CEU, LGI, CRF, CRC, OSI, Budapest (2001-2006) and she has published more than 250 papers in journals and in international conference proceedings.
The Management Systems Disciplined of Students

Luxsanan Ploywattanawong

Abstract—This paper presents the development of the Management Systems Disciplined of students (MSD). Working on manual discipline is time-consuming and inconvenience process, since there is a huge number of students have to be checked. Moreover, it might probably to lose the collected data during the processes. Therefore, researchers have an idea to develop a system to a major issue addressed. After the pretest, the users' satisfactions were evaluated. The population in this study was the staffs at the Faculty of Science and Technology, Rajamangala University of Technology Suvarnabhumi (RUS). The samples in this study were divided into two groups. The first group was undergraduate students. The second one was a group of professors, administrator, and other concerned people from Faculty of Science and Technology, RUS.

The results were as follows: Using the MSD, the students' disciplines were checked and storage as a database. After the operation, students have to maintain and improve their discipline behaviors. The result showed the highest level of satisfaction. The MSD assisted the system operators to evaluate easier and economically save budget, time and resources in one hand. On the other hand, MSD built awareness and strengthen proper behavior of RUS students.

Keywords—The Management systems disciplined of students, Education management systems, Academic Support Services.

I. INTRODUCTION

Higher education is not only generating manpower but also create a good behavior and national intelligence for the society. Undergraduate students are sooner to step out into working society after their graduation. So, cultivating students to be good manpower with excellent knowledge as well as raising their awareness to dress properly are also one of the importation tasks of a university. RUS realizes about that. As a result, the database of discipline (MSD) was created and developed to be easier to access, be more convenient and be able to reduce the difficulty of data collection.

Students benefit from the development of the discipline. Researchers have a concept to develop a system to the major issues addressed. To apply technology to benefit, support management of education by help in the development of MSD discipline students more effectively.

II. LITERATURE REVIEW

To develop and evaluate the user satisfaction of the Management Systems Disciplined of students (MSD), several related pieces of literature were divided. Some of which are as follows:

In university education, a flexible academic environment (FAE) is advantageous compared to the rigid one because of its ability to handle student friendly flexibilities. However, implementation of FAE is hindered by the challenges in
maintaining the databases to keep track of the students' academic progress. These challenges can be overcome by designing and using systematic processes and software support. This paper presents the design and implementation of the processes, divided into various phases viz. Pre – Registration, Registration, and Post – Registration phases. The process of development and use of corresponding software modules viz. Premo, ReMO, Promo using software tools such as MySQL, J2EE, JDBC, HTML, CSS, JavaScript etc., is also presented. It has been suggested that with suitable modifications, the presented processes/software support may be used to implement FAE in any university [2].

In today's world, Web-Based Distance Education Systems have a great importance. Web-based Distance Education Systems are usually known as Learning Management Systems (LMS). In this article, a database design, which was developed to create an educational institution as a Learning Management System, is described. In this sense, developed Learning Management System consists of the basis of Virtual Education Institutions. In this study, a fully relational database design has been realized in compliance with SCORM standards and got ready to be used as Virtual Education Institutions. This system can be used for any required education institute and it can be run within the same interface. In LMS that will be generated, a faculty or institute can be defined and academic and all administrative processes of the defined institute can be managed with the designed system. Proposed database design has been used in an LMS of Afyon Kocatepe University. In this system, many processes like indexing, uploading, downloading, production and editing of web based learning materials can also be performed easily and safely [3].

There is a big need for evaluating the effectiveness of the emergent technologies in educational environments and their contribution in the achievement of the educational institute's goals. Course Management System (CMS) is one of these technologies which is used in knowledge transfer and management. It is a rich and confidant data source about student's behavior. The aim of this paper is to analyze this behavior for evaluation purpose by extracting useful knowledge from applying data mining techniques on the generated logs from this system [4]. And other research: Information Security Management in Academic Institutes of Pakistan [1], The Developmental Directions and Tasks of the School Based Curriculum Management System in Korea [7].

The above researches show the importance and implementation of information systems which were used to collect, access and retrieve the data based. In this research, an aim to support speedy of the work for educational institutions to be more efficiency has been applied to the evaluation of the data, retrieved, and developed the disciplined of students in RUS.

III. METHODOLOGY

The populations in this study were the staffs from Faculty of Science and Technology, RUS. The samples were sampling by purposive sampling method [5]. The instruments in this research consist of MSD, and MSD user satisfaction surveys. To perform the research, data were collected and then the results were analyzed accordingly.

The users in an MSD were categorized into three groups. The first group was instructors and system administrator, who have permission to access all functions for managing the system. This group of users was able to edit profile, add/remove/edit managing the system, add/remove/edit MSD detail, add/remove students group, checking disciplined detail, report the MSD, entrance exam cards, and manage system logout. The second group was 110 students. This group of users can only access the system as follows: view the news, edit their own profiles, view their own checking disciplined and print their own entrance exam tickets. The last group was the guest, users. This group of user can view only the news from MSD. The MSD has the facility to produce the entrance exam cards and follow up the checking disciplined of each student. The MSD has reliability, satisfaction, and efficiency, as show in Fig.1-4.

Fig 1. Introduction pages of the website.

Fig 2. The uniform check system pages.

Fig 3. Print: entrance exam tickets pages.
The results of satisfaction of instructors toward MSD were summarized as follows:

<table>
<thead>
<tr>
<th>Topics</th>
<th>average points</th>
<th>S.D.</th>
<th>Satisfaction Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>The MSD has a beautiful</td>
<td>4.33</td>
<td>0.71</td>
<td>Excellent</td>
</tr>
<tr>
<td>design and appropriate function to use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSD is easy and</td>
<td>4.33</td>
<td>0.75</td>
<td>Excellent</td>
</tr>
<tr>
<td>convenience to used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The data in MSD are reliable.</td>
<td>4.47</td>
<td>0.68</td>
<td>Excellent</td>
</tr>
<tr>
<td>The MSD are display the</td>
<td>4.47</td>
<td>0.62</td>
<td>Excellent</td>
</tr>
<tr>
<td>information fast.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSD is comfortable to</td>
<td>4.43</td>
<td>0.62</td>
<td>Excellent</td>
</tr>
<tr>
<td>use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSD has high performance in data editing.</td>
<td>4.33</td>
<td>0.60</td>
<td>Excellent</td>
</tr>
<tr>
<td>The MSD provides and</td>
<td>4.37</td>
<td>0.71</td>
<td>Excellent</td>
</tr>
<tr>
<td>effective solution for education.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The data in system is useful</td>
<td>4.30</td>
<td>0.70</td>
<td>Excellent</td>
</tr>
<tr>
<td>for checking disciplined.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSD is useful for instructors and student.</td>
<td>4.50</td>
<td>0.57</td>
<td>Excellent</td>
</tr>
<tr>
<td>The satisfaction to the MSD.</td>
<td>4.17</td>
<td>0.79</td>
<td>Very good</td>
</tr>
<tr>
<td>Total Mean points</td>
<td>4.37</td>
<td>0.67</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Table I: Shown average and standard deviation (S.D.) of instructors’ satisfaction to MSD. The highest average point of instructors’ satisfaction was 4.37. The instructors have the high level of satisfaction to the system in nine topics and have the very good level in one topic. Therefore, this could be implied that the instructors satisfy this developed system very much. (See Table I)

The results of satisfaction of undergraduate students toward MSD were summarized as follows:

<table>
<thead>
<tr>
<th>Topics</th>
<th>average points</th>
<th>S.D.</th>
<th>Satisfaction Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>The MSD has a beautiful</td>
<td>4.30</td>
<td>0.78</td>
<td>Excellent</td>
</tr>
<tr>
<td>design and appropriate function to use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSD is easy and</td>
<td>4.57</td>
<td>0.69</td>
<td>Excellent</td>
</tr>
<tr>
<td>convenience to used.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The data in MSD are reliable.</td>
<td>4.47</td>
<td>0.67</td>
<td>Excellent</td>
</tr>
<tr>
<td>The MSD are display the</td>
<td>4.45</td>
<td>0.62</td>
<td>Excellent</td>
</tr>
<tr>
<td>information fast.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSD is comfortable to</td>
<td>4.35</td>
<td>0.84</td>
<td>Excellent</td>
</tr>
<tr>
<td>use.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSD has high performance in data editing.</td>
<td>4.52</td>
<td>0.65</td>
<td>Excellent</td>
</tr>
<tr>
<td>The MSD change the behavior of students.</td>
<td>4.34</td>
<td>0.80</td>
<td>Excellent</td>
</tr>
<tr>
<td>The data in system is useful</td>
<td>4.68</td>
<td>0.61</td>
<td>Excellent</td>
</tr>
<tr>
<td>for checking disciplined.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The MSD is useful for instructors and student.</td>
<td>4.61</td>
<td>0.54</td>
<td>Excellent</td>
</tr>
<tr>
<td>The satisfaction to the MSD.</td>
<td>4.59</td>
<td>0.60</td>
<td>Excellent</td>
</tr>
<tr>
<td>Total Mean points</td>
<td>4.48</td>
<td>0.68</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Table II: Shown average and standard deviation (S.D.) of students satisfaction to MSD. From Table II, the highest
average point of student satisfaction to MSD was 4.48. The students have the high level of satisfaction to the system in all topics. As a result, this could be interpreted that the students satisfy this developed system. (See Table II)

IV. CONCLUSION

This research described the development of Management Systems Disciplined of students (MSD). Apart from that, the user satisfaction to the developed system was also evaluated. Moreover, the research raises awareness for the students to maintain discipline behavior after the operation. The MSD provides facilitation and minimizes the redundancy in checking disciplined of students. The system is a useful and effective tool for instructors to follow up and disseminate the student disciplined information. The system also offers assistance to the Faculty of Science and Technology of RUS with its fast and effective processing.

The average of satisfaction of instructors and students to MSD were 4.37 and 4.48, respectively. Both instructors and students have very high level of satisfaction to the system. Besides that, in the same way, this system has the ability to print out report, print entrance exam cards, check disciplined of students, reduce the mistake and complication of information, and provide an easy way to collect/check the document in a systematic manner. Lastly, the students are simply able to follow their student of checking disciplined and entrance exam cards.

V. FUTURE PLANS

It would be more benefit to add a chat system to the MSD on mobile, which provides the opportunity for students to contract with their instructor easily. Developing more data security and facilities to the system is also an interesting area needed to be taken into consideration. Moreover, the system should not only be connected to the students’ record database of Faculty of Science and Technology, but it should also be extended to the MSD of another faculty in the RUS for manage educational.

ACKNOWLEDGMENT

This work cannot complete without the great support from all faculty staffs and students from Faculty of Science and Technology, RUS for informing the survey and give a very useful suggestion for the development of the systems. Lastly, I would like to express my gratitude to my parents, for their support and encouragement that provided the foundation for this work. If any mistake in this work I would like to welcome and will improve it in the future.

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L. Ploywattanawong was born in 1980, at Sirirat hospital in Bangkok, Thailand. She graduated with a master’s degree in computer technology from the King Mongkut’s University of Technology North Bangkok, Bangkok, Thailand in 2007. And with a Bachelor of Arts, major of Library and Information Science, Faculty of Humanities and Social Sciences, Suan Dusit Rajabhat University, Bangkok Thailand in 2001.

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The Simulation Oracle Database Systems

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Abstract—The purpose of this research, to develop a knowledge base system using an Oracle database Simulation can reduce the time to learn. Enhance the teaching and learning. Make learners Oracle database users a more easily understood format Simulation creating quality human resources to society, community meet the manpower needs of all sectors. And find satisfaction with the system. To enable Oracle applications easier and the students do not have to, they can use Oracle database system. The population in this research. As a student teacher used the Rajamangala University of Technology Suvarnabhumi (RUS). The sample used in this research. Sampling methods (Purposive Sampling) divided into two groups: the first group selected from undergraduate students. And the second group selected by the site administrator or associate professors.

The results were as follows: The administrators, faculty, or users. Concerned overall have averaged 4.19 and of students in most average 4.32. The showed that Knowledge base using Oracle database Simulation models built can facilitate . Reduce the time to learn Enhance the teaching and learning. Make learners Oracle database users a more easily understood format Simulation creating quality human resources to society, community meet the manpower needs of all sectors efficiently.

Keywords—The simulation oracle database, Simulation, Knowledge-based system.

I. INTRODUCTION

Government policy in promoting the development of science, technology, research, and innovation. To proceed to accelerate the development of Thailand to be social, knowledge. Database technology has developed along with the other side, technology. The system needs to use the management information system database. Whether the system, teaching, evaluation, examination system, government agencies, the private sector, or in the business enterprise.

The RUS has partnerships with the A-Host Company about cooperative education, which the company wants students with ability. Work effectively in the database Oracle directly sent staff to educate students in to help prepare the cooperative education For 1 semester, which costs are very high. And the use of computing resources for the high into the Oracle database.

The researcher is the concept, in the development. The Simulation Oracle database systems (SOD) which result in many aspects can reduce the time to learn. Optimize the teaching. The students easy to understand by simulation Preparation of cooperative education. Create a good human resources for society, community and people in all sectors.
II. LITERATURE REVIEW

To develop and evaluate the satisfaction of the user database model of the knowledge-based system many interesting articles as follows.

The integration of interaction and simulation in e-learning systems represents a milestone in educational research and supports the student’s learning process in innumerable ways. Nevertheless, current standards do not provide appropriate mechanisms to treat simulations as learning objects, which makes their integration into e-learning systems a hard task. This work proposes an architecture as an extension to SCORM which includes a Tutoring Module for Simulations (TMS). The main objective consists in providing mechanisms to track and “observe” the student’s actions while interacting with a simulation, thus enabling the TMS to take decisions or intervene when necessary, and/or to modify the simulation course [1].

A multivariate modeling approach was developed by Istituto Motori to model and predict vehicle real-world emissions. Complex driving kinematics is represented by two blocks of variables, which require the development of a hierarchical multiblock emission model, where the two blocks of variables represent overall and instantaneous features of each driving cycle associated to a trip. The multiblock model was applied to analyze and model emissions of the large database built in the ARTEMIS project. In this database we collected emission measurements performed in European laboratories relative to real driving cycles which are statistically representative of many European traffic/road conditions from congested to rush hour traffic in urban, rural and highway roads. Data concern a varied fleet of vehicles differing in technology and class. To develop a tool useful for mobility analysts for traffic environmental impact assessment, a knowledge base was envisaged to integrate the data warehouse and the model base to build a user interface for driving cycle kinematics and emission analysis. In this paper, the modeling approach is presented together with overall emission and driving kinematics characterization based on experimental results, as well as functional analysis of the knowledge base structure and the information tool [3].

Competing in a highly competitive global market requires the commercialization of knowledge and technology to produce better, faster, cheaper, multi-functional, flexible, and intelligent products. Engineers involved in the product realization process must master technology as it develops and quickly integrate it into products well ahead of the competition. Robotics, being an interdisciplinary engineering subject, plays a key role in achieving this goal. Thus, robots have been a recurring theme in engineering education. Many educators have developed a variety of pedagogical tools and curriculums to increase the ability and competence of students. Project-based learning provides opportunities for interdisciplinary learning in the traditional classroom. The emergence of the Internet has reformed the concept and methods of engineering education. This paper presents interactive e-learning environment to enhance student participation, motivation, and learning effectiveness. This research developed inquiry modules to allow students to present their queries in natural Chinese language fashion and through engineering graphics. In addition, this study developed interactive learning platforms including mechanism design, assembly and simulation, manufacturing processes, and mechatronic integration. Quantitative and qualitative methods such as questionnaires and interviews were used to evaluate the effects of the developed system. Findings showed that inquiry modules were able to facilitate investigation and planning activities on project developing stages. The results also showed that there were significant improvements in the participants’ integration ability of technologies. Furthermore, participants with higher initial computer skills were also found to show higher performance as compared to those with lower computer skills. Generally, the online interactive e-learning environment is beneficial to the participants and ought to be given the attention it deserves as an alternative to traditional classes [4].

And other research: E-Learning by design gaming, teching and learning: an interview with Kurt Squire [2], Application of Cloud Technology, Social Networking Sites and Sensing Technology to E-Learning [6].

From research of above, showing the importance and implementation of an information system to be used to collect, access, teaching and data education to support the speed of the work for effective e-learning. Has been applied to the evaluation of preparing Cooperative education of students in the university.

III. METHODOLOGY

In this study, the populations was undergraduate students from Faculty of Science and Technology, RUS. The samples were sampling by Purposive Sampling method [5]. The instrument in this research consist of SOD, and the SOD user satisfaction surveys. Then perform the research, collected the data, and analyze the results.

The system is divided SOD user 2 groups, students, and instructors. Students can use as follows: edit the passwords, e-learning, exercises simulation, test, show level results score, web board. Instructors can use the following member system, management the exercises simulation system, the post-test system, the scoring system, web board system.

---

Fig. 1: Introduction pages of website
IV. RESULTS AND DISCUSSION

The results of SOD user satisfaction were collected from undergraduate students and instructors from Faculty of Science and Technology, RUS, Suphanburi campus. The results of all user satisfaction are at a very good level. Survey was used as a research methodology in order to evaluate the user satisfaction level. The survey form is a rating scale and the scales were classified into five levels, which are summarized in the form of interval scale [4] as follows:

- Excellent: 5 points
- Very good: 4 points
- Good: 3 points
- Fair: 2 points
- Poor: 1 point

Then we calculated the average of the score and compute the significant level of user satisfaction. The calculations for significant level of user satisfaction were shown as follow:

(a) Range = Maximum point – Minimum point
          = 5-1 = 4

(b) Class interval = Range /number of interval
                   = 4 / 5
                   = 0.8

The average points as follows:
4.21 – 5.00 mean the users have an excellent level of satisfaction to the system.
3.41 – 4.20 mean the users have a very good level of satisfaction to the system.
2.61 – 3.40 mean the users have a good level of satisfaction to the system.
1.81 – 2.60 mean the users have a fair level of satisfaction to the system.
1.00 – 1.80 mean the users have a poor level of satisfaction to the system.

Rating scale provides an effective method for measuring the user satisfaction, which are classified into five levels from highest (5) to lowest (1). For example, 5 mean that the user has the highest satisfaction to the system.

The result from satisfaction survey of instructors to SOD were summarized as follows:

**TABLE I**

<table>
<thead>
<tr>
<th>Topics</th>
<th>average points</th>
<th>S.D</th>
<th>Satisfaction Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The website has a beautiful design and appropriate function to use.</td>
<td>3.90</td>
<td>0.73</td>
</tr>
<tr>
<td>2</td>
<td>The website is easy and convenience to used</td>
<td>4.30</td>
<td>0.82</td>
</tr>
<tr>
<td>3</td>
<td>The data in the website are reliable.</td>
<td>4.40</td>
<td>0.69</td>
</tr>
<tr>
<td>4</td>
<td>The System are displays the information fast.</td>
<td>4.30</td>
<td>0.67</td>
</tr>
<tr>
<td>5</td>
<td>The System is comfortable to use.</td>
<td>4.10</td>
<td>0.73</td>
</tr>
<tr>
<td>6</td>
<td>The System has high performance in data editing.</td>
<td>4.20</td>
<td>0.78</td>
</tr>
<tr>
<td>7</td>
<td>The System provides an effective solution for cooperative education and learning.</td>
<td>4.10</td>
<td>0.73</td>
</tr>
<tr>
<td>8</td>
<td>The data in the website is useful for teaching and learning of the users.</td>
<td>4.00</td>
<td>0.66</td>
</tr>
<tr>
<td>9</td>
<td>The System is useful for instructors and student.</td>
<td>4.20</td>
<td>0.63</td>
</tr>
<tr>
<td>10</td>
<td>The satisfaction to the online evaluation system</td>
<td>4.40</td>
<td>0.51</td>
</tr>
<tr>
<td>Total Mean points</td>
<td>4.19</td>
<td>0.69</td>
<td>Very good</td>
</tr>
</tbody>
</table>

Table I showed average and standard deviation (S.D.) of instructor satisfaction to SOD. The high average point of instructor satisfaction was 4.19. The instructors have the high level of satisfaction to the system in all topics. Therefore, the instructors were very satisfied this developed system (See Table I).

The Students satisfaction to SOD survey results were summarized as follows:

**TABLE II**

<table>
<thead>
<tr>
<th>Topics</th>
<th>average points</th>
<th>S.D.</th>
<th>Satisfaction Level</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>The website has a beautiful design and appropriate function to use.</td>
<td>4.20</td>
<td>0.69</td>
</tr>
<tr>
<td>2</td>
<td>The website is easy and convenience to used</td>
<td>4.25</td>
<td>0.78</td>
</tr>
<tr>
<td>3</td>
<td>The data in the website are reliable.</td>
<td>4.30</td>
<td>0.65</td>
</tr>
<tr>
<td>4</td>
<td>The System are displays the information fast.</td>
<td>4.40</td>
<td>0.68</td>
</tr>
<tr>
<td>5</td>
<td>The System is comfortable to use.</td>
<td>4.05</td>
<td>0.82</td>
</tr>
<tr>
<td>6</td>
<td>The System has high performance in data editing.</td>
<td>4.25</td>
<td>0.78</td>
</tr>
<tr>
<td>7</td>
<td>The System provides an effective solution for cooperative education and learning.</td>
<td>4.40</td>
<td>0.75</td>
</tr>
<tr>
<td>8</td>
<td>The data in the website is useful for teaching and learning of the users.</td>
<td>4.50</td>
<td>0.68</td>
</tr>
<tr>
<td>9</td>
<td>The system is useful to create understanding And enthusiasm in learning of students.</td>
<td>4.45</td>
<td>0.68</td>
</tr>
<tr>
<td>10</td>
<td>The satisfaction to the online evaluation system</td>
<td>4.40</td>
<td>0.68</td>
</tr>
<tr>
<td>Total Mean points</td>
<td>4.32</td>
<td>0.71</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

Table II shown average and standard deviation (S.D.) of students satisfaction to TRMS. From Table II, the highest average point of student satisfaction to SOD was 4.32. The students have the high level of satisfaction to the system in all topics. Therefore, the students very satisfy this developed system (See Table II).

**V. CONCLUSION**

In this research, we developed The Simulation Oracle database systems (SOD). We also evaluated the user satisfaction to the developed system. The SOD systems can reduce the time of learning, Optimize the teaching, easy to understand by simulation. Preparation of cooperative education and can learn by self-access. The SOD were developed according to the objective and the scope of the project.

The average instructors and students satisfaction to SOD were 4.19 and 4.32 respectively. Both instructors and students have the high level of satisfaction to the system. Besides that, in the same way, This system has the ability to promote learning in web development, writing code simulation, the study has made in the same way. The students can be practice continuously. The content of the course in full. And can integrate the knowledge from the study through the system to the cooperative education, courses and knowledge applied to it in the future.
VI. FUTURE PLANS

There should be a creation and development of SOD that can connect to other e-Learning system. Developing a model of knowledge (Knowledge Based) to develop the course in other form simulation and the integrated together. And should have further proposed on the mobile operating system. To add a channel in the education of students’ wide.

ACKNOWLEDGMENT

This work cannot complete without the great support from all faculty member and students from Faculty of Science and Technology, RUS, Suphanburi campus for informing the survey and give a very useful suggestion for the development of the system. Lastly, we would like to express my gratitude to my parents, for their support and encouragement that provided the foundation for this work. If any mistake in this work we would like to welcome and will improve it in the future.

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J. Phumcharoen was born in 1979, at huachiew hospital in Bangkok, Thailand. He graduated with a master’s degree in 2007 and a bachelor's degree in 2001 in computer technology from the King Mongkut’s University of Technology North Bangkok, Bangkok, Thailand. 2001- present he is a head of the Department of Computer Science, and Meanwhile he was a Lecturer, Faculty of Science and Technology Rajamangala University of Technology Suvarnabhumi, Suphanburi campus,(RUS).

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P. Songsangyos was born in Chiangmai, Thailand. He obtained his M.Eng, in information technology from Asian Institute of Technology, Bangkok, Thailand in 1997, and M.B.A. in management from Maejo University, Chiangmai, Thailand in 1999. Currently, he is a head of computer science department, faculty of science and technology, Rajamangala University of Technology Suvarnabhumi. His research interested was focussed on decision support system, and knowledge-based system which appeared as,”Automated Reference Services”, Proceeding of International conference on computer technology and development, 2009, Kota Kinabalu, Malaysia. The Knowledge Management in Higher Education in Chiang Mai: A Comparative Review.Procedia - Social and Behavioral Sciences, [Online] Volume 69, 24 December 2012, Pages 399-403.

Mr.Songsangyos is a committee of Applied Computer and Information System Academic Network University since 2010-present.
The Usefulness of I-Learn System in the Execution of e-Learning: A Case Study of UiTM Negeri Sembilan

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\textbf{Abstract}—Electronic learning or e-learning (eL) is becoming the most effective learning method aligned with rapid evolving technologies in the Malaysian higher education system. The shift to online learning environment has permitted efficient interactions among students and lecturers and increased the students’ engagement in learning. Hence, Universiti Teknologi MARA has developed the learning management system named as i-Learn as the eL platform. This study aimed to determine the correlation among students’ understanding, eL applications and eL materials towards eL usefulness and to identify the major factors that contribute to eL usefulness among lecturers in UiTM Negeri Sembilan. This study involved UiTM Negeri Sembilan lecturers who have practiced blended learning as their teaching module. Data were gathered through surveys among academicians from every faculty in UiTM Negeri Sembilan. Therefore, this study provided insight on increasing the effectiveness of i-Learn applied in UiTM and applicable to every course which it can motivate all academicians to engage in eL.

\textbf{Keywords}— e-learning, Learning Management System, usefulness.

I. INTRODUCTION

In the recent years, electronic learning, also called as e-learning, has emerged as an effective learning method. eL is a learning method using electronic applications that makes learning activities become more attractive. Therefore, eL programmes give the flexibilities for the lecturer and students to easily access learning materials at any time and from anywhere with the Internet support [30]. eL has become increasingly more common in Malaysian higher education institutions, and it is expected to grow [31] since it is aligned with the needs of the government initiatives to transform the education system in order to produce more productive and successful graduates that meet RMK-11 aims. Furthermore, every university gives initiatives to appreciate lecturers who are actively involved and applied eL courses as subject matter experts [31]. Lecturers become more aware of the geographical difficulties and encourage students to engage
with eL by ensuring the equity and fairness on every assessment item as individual basis performance [18].

According to [19], the online environment requires different behavioural factors such as asynchronous (time-delayed) interactions from conventional classroom approach. Thus, the behaviours of an educator or a lecturer plays an important role in increasing students’ sense of human interaction, instructor presence, caring and connectedness that are aligned with the development of computer-mediated communication tools that has evolved to a new supporting tool of eL such as web conferencing, audio, and visual. Thus, the aim of this study is to determine the correlation between students’ understanding and lecturers’ readiness towards the development of eL materials. Every academician has viewed and adopted eL as a beneficial element on the process of teaching and learning [14]. Hence, goals for every educator or academician reflected to the efforts taken in fulfilling their self-learning on using eL tools as medium of teaching and learning. A previous study found that, lecturers who wisely prepared and edited course materials would increase students’ immediacy especially to an isolation of students who commonly used eL approach [38]. Therefore, this study attempts to determine the factors that contribute to e-learning usefulness.

To sum, this study aimed to answer the research questions as follows:

H1: Does students’ understanding, eL applications and eL materials positively influence eL usefulness?

H2: What are the factors that contribute to eL usefulness among lectures in UiTM Negeri Sembilan?

II. LITERATURE REVIEW

E-learning (eL) refers to the use of Internet technologies to deliver a broad array of solutions that enhance knowledge and performance [35][41]. According to [36], eL is also called web-based learning, online learning, distributed learning, computer-assisted instruction, or Internet-based learning. eL involves the use of electronic media such as the Internet, DVD, CD-ROM, video tape, television, and cell phones and it is delivered and managed independently for teaching and learning at a distance [3][10]. Nowadays, eL has become a pillar of success in higher education as it enhances the quality of teaching and learning [4]. This is because the delivery of eL programmes has been recognized as one of the essential alternative of delivery methods for education and training available around the world [3]. In addition, a positive relationship exists between the use of learning technology, the student engagement and the desired learning outcomes [7][33].

Several studies have been conducted on the students’ understanding in eL. According to [36], the faculty, administrators and learners found that eL enhances both teaching and learning and can be categorized as targeting either learning delivery or learning enhancement. Furthermore, the interactive learning shifts the focus from a passive, teacher-centred model to one that is active and learner-centred, and offers a stronger learning stimulus. Therefore, the interactivity helps to maintain students’ interest and provides a means for individual practice and reinforcement. Consequently, students who engage in eL tend to score higher marks than those who do not [7].

Studies have consistently demonstrated that students are very satisfied with eL. According to [33], students prefer face-to-face learning to acquire conceptual knowledge in the subject matter, while eL is preferred in acquiring self-regulated learning skills. Students’ satisfaction rates increase with eL compared to traditional learning, along with perceived ease of use and access, navigation, interactivity and user-friendly interface design. Moreover, students do not see eL as replacing traditional instructor-led training but as a complement to it, forming part of a blended-learning strategy [9][13][38].

In eL, a good quality of learning environment is one of the factors that contribute to the success of a course. The ease of using the learning management system (LMS) may affect course satisfaction [6][37], performance in the course [22] and the decision to continue or to drop out of a course [8][33]. [29] mentions that self-regulation of learning is an important characteristic of eL courses and students have choices regarding the time, place, and the regulation of learning processes in general. Students may also receive ample opportunities to practice and apply what they are learning [28]. Additionally, the opportunities of eL to exchange socio-emotional information may influence students’ engagement, motivation, satisfaction and the decision to continue a course [17][34].

Equally important, very good and attractive materials should be provided to make sure eL can be successfully applied. The eL materials and tools help students to understand better and they can deal with the knowledge that has been gathered [25]. This is because the use of good online tools and materials in education process creates positive effects on the attitudes of students towards lessons and learning [12]. Furthermore, eL platforms further adversely affect lecture attendance as students can easily access eL materials [40]. As a result, eL materials help students to develop thinking abilities and at the same time increase their success level [11][24].

In addition, while the instructors use eL platforms to communicate to their students, the students are able to follow lectures online, interact with instructors, start online discussions through various collaborative tools, submit assignments and check on their academic progress online. Even though the potential benefits of collaborative learning, such as the development of critical thinking skills, co-creation of knowledge and meaning, reflection and transformative learning, these collaborative tools are yet to be put into full utilization. [5][16][27][32]. Learning in an online context that gives students the opportunity to express their own ideas, negotiate meaning, and develop key professional skills like listening, presenting ideas, persuasion, self-direction, self-monitoring and team working [7][15].

III. METHODOLOGY

The purpose of this research was to investigate the eL usefulness towards teaching among UiTM Negeri Sembilan
lecturers. This quantitative study involved lecturers from all faculties in Universiti Teknologi MARA Negeri Sembilan. An online questionnaire was distributed to all lecturers via their staff email and 84 lecturers responded to the survey.

The data obtained from the questionnaire were analyzed using Statistical Package for Social Sciences (SPSS) version 22. Statistical analyses used in this research were correlation analysis and multiple linear regression analysis. There were two objectives identified for this study; RO1: To see the correlation among students’ understanding, eL applications and eL materials towards eL usefulness and RO2: To determine the major factors that contributes to eL usefulness among lecturers in UiTM Negeri Sembilan.

The research framework consists of related variables showed in Figure 1. The framework focuses on the factors that could have the influence of the eL usefulness. Those factors represent the independent variables which are students’ understanding, eL applications and eL materials. The eL usefulness is identified as the dependent variable in this study. Thus, from the literature review, the research framework was developed to shows the interconnections of all the independent variables with the dependent variable. Therefore, the figure below portrays the framework of this research.

Several steps were involved in this study; Preliminary analysis, checking for the model significance, estimation of the regression model and interpretation of the output.

IV. FINDINGS AND DISCUSSION

Table 1 represents the descriptive statistics of the respondents’ demographic information. The total number of respondents was 84 comprising 20 (23.81%) male lecturers and 64 (76.19%) female lecturers. The highest number of the respondents were from FSG (34.52%). About one third of them had 2 to 5 years of teaching experience (35.71%), followed by 5 to 10 years of teaching experience (28.57%), more than 10 years of teaching experience (21.43%) and less than 2 years of teaching experience (14.29%). Majority of them (82.14%) had the Internet access at home. Most of them (78.57%) claimed that the university provided a personal computer or a laptop for them. Almost all of them (94.05%) stated that the university provided computer laboratories.

It shows that most of the lecturers are easily accessible to the Internet that could support the implementation of the blended learning approach.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Category</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>Male</td>
<td>20</td>
<td>23.81</td>
</tr>
<tr>
<td></td>
<td>Female</td>
<td>64</td>
<td>76.19</td>
</tr>
<tr>
<td>Faculty</td>
<td>FSKM</td>
<td>25</td>
<td>29.57</td>
</tr>
<tr>
<td></td>
<td>FSR</td>
<td>3</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>FSG</td>
<td>29</td>
<td>34.52</td>
</tr>
<tr>
<td></td>
<td>FBM</td>
<td>4</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>23</td>
<td>27.38</td>
</tr>
<tr>
<td>Course</td>
<td>ACIS</td>
<td>4</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>CS</td>
<td>10</td>
<td>11.90</td>
</tr>
<tr>
<td></td>
<td>Language</td>
<td>13</td>
<td>15.48</td>
</tr>
<tr>
<td></td>
<td>Mathematics</td>
<td>10</td>
<td>11.90</td>
</tr>
<tr>
<td></td>
<td>Statistics</td>
<td>3</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>Economics</td>
<td>1</td>
<td>1.19</td>
</tr>
<tr>
<td></td>
<td>Finance</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Law</td>
<td>4</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Physics</td>
<td>7</td>
<td>8.33</td>
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<tr>
<td></td>
<td>Sport science</td>
<td>3</td>
<td>3.57</td>
</tr>
<tr>
<td></td>
<td>Chemistry</td>
<td>6</td>
<td>7.14</td>
</tr>
<tr>
<td></td>
<td>Biology</td>
<td>8</td>
<td>9.52</td>
</tr>
<tr>
<td></td>
<td>Microbiology</td>
<td>4</td>
<td>4.76</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>11</td>
<td>13.10</td>
</tr>
<tr>
<td>Years of teaching</td>
<td>Less than 2 years</td>
<td>12</td>
<td>14.29</td>
</tr>
<tr>
<td></td>
<td>2 to 5 years</td>
<td>30</td>
<td>35.71</td>
</tr>
<tr>
<td></td>
<td>5 to 10 years</td>
<td>24</td>
<td>28.57</td>
</tr>
<tr>
<td></td>
<td>More than 10 years</td>
<td>18</td>
<td>21.43</td>
</tr>
<tr>
<td>Have Internet Access at Home</td>
<td>Yes</td>
<td>69</td>
<td>82.14</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>15</td>
<td>17.86</td>
</tr>
<tr>
<td>University provide a personal computer or laptop for lecturers</td>
<td>Yes</td>
<td>66</td>
<td>78.57</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>18</td>
<td>21.43</td>
</tr>
<tr>
<td>University provide computer laboratories</td>
<td>Yes</td>
<td>79</td>
<td>94.05</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>5</td>
<td>5.95</td>
</tr>
</tbody>
</table>

Data collected were then transferred in the SPSS application for testing the reliability of the instruments used. The reliability analyses were used to verify the internal consistency among variables used in the study. For this test, the Cronbach Alpha obtained for all variables in this test were greater than 0.9. As for the test of the reliability analysis is high, this questionnaire was reliable to be run.

<table>
<thead>
<tr>
<th>No</th>
<th>Items</th>
<th>Total items</th>
<th>α</th>
<th>Role</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>eL Usefulness</td>
<td>7</td>
<td>.967</td>
<td>DV</td>
</tr>
<tr>
<td>2</td>
<td>Student understanding</td>
<td>5</td>
<td>.975</td>
<td>IV</td>
</tr>
<tr>
<td>3</td>
<td>eL applications</td>
<td>6</td>
<td>.957</td>
<td>IV</td>
</tr>
<tr>
<td>4</td>
<td>eL materials</td>
<td>4</td>
<td>.921</td>
<td>IV</td>
</tr>
</tbody>
</table>

IV: Independent variable; DV: Dependent variable
Regarding these particular independent variables, the finding as presented in Table 2 shows that students’ understanding, eL applications and eL materials in Spearman’s rank correlation coefficient was 0.944, 0.907 and 0.913 respectively with p-value < 0.01. According to [25], the eL materials and tools help students to understand better and they can deal with the knowledge that has been gathered. Therefore, it is concluded that there is a significant strong positive linear relationship between independent variables and eL usefulness.

The Multiple Linear Regression model purposively employed to explain the eL usefulness among lecturers who have participated in eL in UiTM Negeri Sembilan. The result of regression as shown in Table 5 indicates that eL usefulness was explained by student understanding (X_1) (t = 9.936, p-value= 0.000), eL applications (X_2) (t=-2.608, p-value=0.011) and eL materials (X_3) (t = 8.536, p-value= 0.000). The use of good online tools and materials in the learning process creates positive effects on the attitudes of students towards lessons and learning [12].

Specifically, one unit increases in students understanding, 0.496 units increase in eL usefulness, indicating that eL helps students to learn better. Meanwhile, one unit increases in eL applications,-0.188 decreases in eL usefulness, indicating that eL applications were not fully used by the lecturers in their teaching sessions and lastly, one unit increases in eL materials, 0.686 increases in eL usefulness, revealing that eL materials uploaded by the lecturers increased the eL usefulness.

In addition, the factor with the largest beta coefficient and t-value was eL materials (β = 0.703, t = 8.536) in which makes this variable becomes the most contributing factor towards eL usefulness. This is followed by students’ understanding with beta coefficient and t-value (β = 0.517, t = 9.936) and eL applications with beta coefficient and t-value (β = -0.218, t = -2.608). Therefore, based on the output above, it can be seen that all the independent variables of eL usefulness are significant because their p-values were below .05, which indicates that all independent variables are associated to the dependent variable. As stated by [27], students are able to follow lectures online, interact with instructors, start online discussions through various collaborative tools, submit assignments and check on their academic progress online. This research shows that students understand using the eL materials and eL applications.

Lastly, with the result of R^2=0.95, it means that 95% of the total variation in eL usefulness can be explained by the regression line using the students’ understanding, eL applications and eL materials. As a result, the understanding, eL applications and eL materials help students to develop thinking abilities and at the same time increase their success level [11][24].

V. CONCLUSION

The study examined the major factors contributed to eL usefulness among the lectures in UiTM Negeri Sembilan. The results indicate that students’ understanding(r=0.944), eL applications (r=0.944) and eL materials (r=0.913) had significant relationship and contribution to eL usefulness among lecturers with p value <0.05. It is means that lecturers at UiTM Negeri Sembilan have adopted eL because they perceived the factors of students’ understanding, system applications and materials play important roles in the effective process of teaching and learning. This is consistent with the previous research [7][33] indicating that the usefulness of learning technology, student engagement and desired learning outcomes have positive relationships. The findings of this study may also suggest that eL can enhance the delivery of learning activities among lecturers and students especially in higher learning institutions [36].
However, this study had several limitations. First, the scope for this study was limited only to respondents amongst lecturers in UiTM Negeri Sembilan who have had blended learning experience using i-Learn, the UiTM LMS. Second, the respondents answered these questions based on various or general views on personal experience rather than responding to specific subjects and contents of learning. This study could be improved by using qualitative methods by interviewing several respondents that can explain verbally respondents' experience and satisfaction in using eL from both perspectives between students and lecturers.

REFERENCES


Hybridization of Educational Games to Promote Students’ Motivation towards Learning Economics

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Abstract— Learning today has evolved into a very different process as compared to what it was in the past. As new technologies enable increasingly sophisticated game experiences, the potential for the integration of games and learning has become ever more substantial. In lieu of the importance of motivation in the learning process, this study aims to find out how the use of educational games can enhance students’ motivation towards learning economics from the students’ perspective. The projected learning outcome of the game is that it will be able to enhance students’ knowledge on subject matter, motivate and attract their interest to learn and help them to understand the subject better. Although the study found a host of beneficial outcomes associated with the game, the results may be limited to the educational content of the game and its design.

Keywords— Educational Games, Learning Process, Students’ Motivation

I. INTRODUCTION

Utilising educational games is seen as a current instructional approach for stimulating the learning motivation and problem-solving skills of learners. It can offer simulated expressive learning environments in which students acquire problem-solving abilities, help stimulate student’s motivation and enrich their knowledge while taking part in the gaming activities [1]. The benefit of educational games in terms of motivation is often attributed to its entertainment aspect. Motivation corresponds to the set of physiological processes that influence the direction, vigour and persistence of behaviours. Intrinsic motivation refers to the inner desire to engage in a task out of interest or amusement, or even because of the challenge it offers [2]. Educational games are very helpful in increasing students’ motivation in the learning process. Several perspectives of motivation have been taken into consideration to establish this research. This study examined perceptions of students towards educational games in motivating their learning process.

II. LITERATURE REVIEW

Students nowadays are better equipped with latest gadgets and devices that they are engrossed with [3]. This becomes a challenge to the pedagogical structures and strategies where the traditional learning methods alone are seen no longer suffice to fulfill the requirements of a modern teaching structure [4][5]. In order to determine how well students can learn, [6] suggest that it is vital to examine students’ attitudes and motivation towards the learning process. [7] on the other hand, suggest games to be used to enhance student interest to learn and this idea is supported by [8] saying that educational games are the best supplement to primary course curricula. As long as they are learning oriented, educational games can stimulate and support critical thinking. They can also generate interest in learning and encourage creativity, collaboration, networking, and problem-solving skills among peers in a fun, less stressful atmosphere.

Even though to some people computer games often give negative impact to the students (especially when they get addicted), [3] find that by using computer games as teaching and learning tools, students could pick up the skills and knowledge much more efficiently as compared to the
traditional teaching approach. Computer games can assist teacher-student engagements in a new and challenging way. Besides entertaining the students, engaging in games help students to develop their thinking skills. [9]; [10] share the same view by saying that educational games are a success as it can help learners to acquire knowledge just as that of nongame instructions. In addition, such games represent a more enjoyable and engaging approach, offering better results as a motivator offering similar learning outcomes [11].

Researchers recognize that the era of technological advancement has a significant impact on pedagogical activities. [12] in their study find that games could be effectively used at tertiary level for educational purposes. [13]; [14] concur with the finding saying that with the advent of internet technologies, well-designed games can be used as entertainment that serve as catalyst to stimulate the motivation to study. The findings suggest that games can be integrated with traditional lecture-based instruction to enrich learning methods. However, [15] believe that integrating games with the traditional teaching methods will be a critical aspect as teachers are less likely to use and be satisfied with instructional tools that do not match their internal theoretical perspectives. Further research in the area of game playing habits needs to be carried out in order to investigate how computer games increase motivations to study among students.

III. RESEARCH METHODOLOGY

The respondents of this study were 150 undergraduate students taking economics course in Universiti Teknologi MARA Negeri Sembilan Branch, Seremban 3 Campus, Malaysia. The gender proportion was 16.0% (n=24) males, and 84% (n=126) females with the median age were 20. The respondents were given the opportunity to try an economic game. The game was designed according to the syllabus contents. For the purposes of the investigation, questionnaires (adapted from [7]) were then given to the respondents in order to collect their perceptions towards economic game in motivating them to study economics.

IV. FINDINGS

The result of the reliability test is shown in Table 1. Cronbach’s Alpha reliability for all variables indicated the range of good, very good and excellent internal consistency with reading 0.873. The widely-accepted cut-off is that alpha should be 0.600 or higher [16]. Thus, this indicates that the data and the measuring instrument are excellent and therefore, the data obtained for this research are reliable.

<table>
<thead>
<tr>
<th>TABLE 1: RESULT OF CRONBACH’S ALPHA OF THE STUDY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach’s Alpha</td>
</tr>
<tr>
<td>0.873</td>
</tr>
</tbody>
</table>

Motivation refers to a condition to act or being eager to act. In this study, motivation was measured by using seven items with five response options from 1 (mostly disagree) to 5 (mostly agree). As shown in the Table 2 below, the results found that 68.7 percent (n = 103) agree and 20.0 percent (n = 30) of respondents mostly agree that the game enhance their knowledge on subject matter (M1), while 10.7 percent (n = 16) were not sure. Meanwhile, none (n = 0) of the respondents mostly disagree and only 0.7 percent (n = 1) disagree with the statement.

54.0 percent (n = 81) agree and 17.3 percent (n = 26) of respondents mostly agree that they prefer to answer questions in games (M2), while 21.3 percent (n = 32) were not sure. Meanwhile, only one percent (n = 1) of the respondents mostly disagree and 6.7 percent (n = 10) disagree with the statement.

58.0 percent (n = 87) agree and 20.0 percent (n = 30) of respondents mostly agree that they are very interested in using games for learning in future (M3), while 19.3 percent (n = 29) were not sure. Meanwhile, none (n = 0) of the respondents mostly disagree and only 2.7 percent (n = 4) disagree with the statement.

66.0 percent (n = 99) agree and 20.7 percent (n = 31) of respondents mostly agree that they prefer to do exercises in games (M4), while 9.3 percent (n = 14) were not sure. Meanwhile, none (n = 0) of the respondents mostly disagree and only 4.0 percent (n = 6) disagree with the statement.

61.3 percent (n = 92) agree and 26.7 percent (n = 40) of respondents mostly agree that games make Economics subject more interesting (M5), while 10.7 percent (n = 16) were not sure. Meanwhile, 0.7 percent (n = 1) of the respondents mostly disagree and only 0.7 percent (n = 1) disagree with the statement.

64.7 percent (n = 97) agree and 28.0 percent (n = 28) of respondents mostly agree that games help them to understand the Economics subject better (M6), while 14.7 percent (n = 22) were not sure. Meanwhile, none (n = 0) of the respondents mostly disagree and only 2.0 percent (n = 3) disagree with the statement.

58.7 percent (n = 88) agree and 28.0 percent (n = 42) of respondents mostly agree that games attract their interest to learn the subject (M7), while 10.7 percent (n = 16) were not sure. Meanwhile, only 0.7 percent (n = 1) of the respondents mostly disagree and only 2.0 percent (n = 3) disagree with the statement.

<table>
<thead>
<tr>
<th>TABLE 2: FREQUENCY AND PERCENTAGE MOTIVATION TOWARDS EDUCATION GAME</th>
</tr>
</thead>
<tbody>
<tr>
<td>Items Mostly Disagree Disagree Not Sure Agree Mostly Agree</td>
</tr>
<tr>
<td>Frequency % Frequency % Frequency % Frequency % Frequency %</td>
</tr>
<tr>
<td>M1 0.0 0.0 1 0.7 16 10.7 103 68.7 50 20.0</td>
</tr>
<tr>
<td>M2 1.0 0.7 10 8.7 12 21.3 81 54.0 26 17.3</td>
</tr>
<tr>
<td>M3 0.0 0.0 4 2.7 29 19.3 87 58.0 30 20.0</td>
</tr>
<tr>
<td>M4 0.0 0.0 6 4.0 14 9.3 99 66.0 31 20.7</td>
</tr>
<tr>
<td>M5 1.0 0.7 1 0.7 16 10.7 92 61.3 40 26.7</td>
</tr>
<tr>
<td>M6 0.0 0.0 3 2.0 22 14.7 97 64.7 26 18.7</td>
</tr>
<tr>
<td>M7 1.0 0.7 3 2.0 16 10.7 98 60.7 42 20.0</td>
</tr>
</tbody>
</table>
The level of study variables refers to which place, i.e. the low, medium or high based on the five-point Likert scale with responses ranging from, 1 = mostly disagree, 2 = disagree, 3 = not sure, 4 = agree and 5 = mostly agree. The highest score minus the lowest score and divided into three levels (5-1 / 3), is namely low, medium and high. The score ranged from 1.00 to 2.33 are low, 2.34 to 3.67 are moderate and 3.68 to 5.00 are high.

### Table 3: Level of Motivation Towards Education Game

<table>
<thead>
<tr>
<th>No</th>
<th>Items</th>
<th>Mean</th>
<th>SD</th>
<th>Level of Motivation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>This game enhance knowledge on subject matter (M1)</td>
<td>4.08</td>
<td>0.5737</td>
<td>High</td>
</tr>
<tr>
<td>2</td>
<td>Prefer to answer questions in games (M2)</td>
<td>3.806</td>
<td>0.8249</td>
<td>High</td>
</tr>
<tr>
<td>3</td>
<td>Very interested using games for learning in future (M3)</td>
<td>3.953</td>
<td>0.7079</td>
<td>High</td>
</tr>
<tr>
<td>4</td>
<td>Prefer to do exercises in games (M4)</td>
<td>4.033</td>
<td>0.6796</td>
<td>High</td>
</tr>
<tr>
<td>5</td>
<td>Games make subject more interesting (M5)</td>
<td>4.126</td>
<td>0.6685</td>
<td>High</td>
</tr>
<tr>
<td>6</td>
<td>Games help to understand subject better (M6)</td>
<td>4.000</td>
<td>0.645</td>
<td>High</td>
</tr>
<tr>
<td>7</td>
<td>Games attract interest (M7)</td>
<td>4.113</td>
<td>0.7192</td>
<td>High</td>
</tr>
</tbody>
</table>

From the analysis, the majority of the respondents agreed that they get motivated to learn Economics when using the game with the overall scores mean of 4.0162 and SD 0.52169 as shown in the Table 4 below.

### Table 4: Level of Motivation

<table>
<thead>
<tr>
<th>Motivation</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low (1.00–2.33)</td>
<td>4.0162</td>
<td>0.52169</td>
</tr>
<tr>
<td>Moderate (2.34–3.67)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High (3.68–5.00)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3 shows the seven items under the category of motivation. The result shows the level of motivation towards educational games was at high level. It is proven by the value of mean range at a high level for each item. Through the items that are measured, the highest motivation perspectives that contributed to the high motivation are games that make subjects more interesting (M5) (Mean = 4.1267). This was followed by games that attract interest (M7) (Mean = 4.1133), this game enhances knowledge on subject matter (M1) (Mean = 4.0800), prefer to do exercises in games (M4) (Mean = 4.0333), and games that help to understand subject better (M6) (Mean = 4.0000). Students showed a keen interest in using games for learning in the future (M3) (Mean = 3.9533). The last item that contributed to motivation in students learning process is when they prefer to do exercises in games (M4) (Mean = 3.8067).

### V. Conclusion and Recommendations

This study was conducted with the aim of identifying students’ perceptions towards economic game as an instrument in enhancing their motivation to study economics. This study yielded conclusive and useful results confirming that students do get motivated to study economics with the help of economic game. However, it is deemed imperative that more comprehensive research be done in the future to further support the findings of this study. The results obtained from this study may not be generalized as the sample was chosen from just one particular higher institution.

### References


A Discourse Approach to Reading: Its Effect on the Academic Writing Skills of Secondary ESL Learners

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Abstract—This study investigated the effects of a discourse approach to reading on the academic writing skills of secondary ESL students on their ability to transfer their discourse skills from reading to writing. Two groups (experimental and control) each consisting of 30 high school students were involved in this study. The instruments used were the Comprehensive English Language Test, a researcher-prepared writing pretest, and another researcher-prepared writing posttest. The 480 writing compositions written by the two groups of subjects were first analyzed using Crombie’s model of discourse analysis. Then, the numerical data were subjected to the statistical measures of t-test (for correlated and independent samples) and one-way ANCOVA. The study concluded that discourse approach to reading facilitates transfer of discourse skills from reading to writing.

Keywords—discourse approach, academic writing skills, ESL learners, transfer of skills

I. INTRODUCTION

The students’ attainment of academic success wherever is now the focus of attention in any educational institution. Educators and language teachers do struggle to discover the effective ways for developing students’ language and academic skills that will empower them to become successful in their academic undertakings. In the Philippine educational setting, although constant attempts to teach reading and writing effectively have been made, it is difficult to deny that a number of Filipino learners still find the task of reading a difficult one and also have difficulty in putting into writing what they have comprehended. Every year many schools are producing high school graduates who are not academically equipped and prepared to face the greater and more difficult tasks given in the tertiary level. Many students who enter college fail to manifest advanced academic literacy and are unprepared to function successfully in an academic context [1]. In most instances, these students have limited knowledge of and experience with academic discourse and often are unable to function beyond a basic literacy level within this context [2]. It is to be expressed with sadness that many of our colleges and even universities fail to prepare and empower students to adapt and respond to the rapid changes taking place in today’s complex global society. The above situation projects the present condition of language education in the Philippines.

Responding to the urgent need to develop the reading and writing competencies of Filipino learners in order to keep them abreast with the rapid changes taking place in our technologically developing society, this study attempted to investigate the extent to which explicit instruction of discourse structures in reading will help students improve their
performance in their academic writing. That is, this study tried to discover an approach that would help students make use of their knowledge and skill of discourse in order to improve their academic writing performance.

A. The Teaching of Reading and Writing

In line with the growing concern with reading and writing are the unabated efforts of language professionals to improve instruction on these areas. Because the goal of every language instruction is to ensure language acquisition and academic success of the learners for them to be able to keep abreast of the rapid developments in the global society, the need to develop both their reading and writing skills has been greatly intensified. Responding to this felt need and following the noble idea that the four language skills are complementary and integrated, a modern treatment is given to these areas of reading and writing. Instead of dealing with these skills separately, language experts now uphold the concept about the interrelatedness and interdependence of reading and writing [3]-[7].

Nevertheless, within the field of language teaching, it was chiefly within the last few years that substantial studies have been conducted to explore the reading-writing connection. Some of these studies suggest the facilitating effect of reading practices upon writing [8]-[10] while other reviews [11]-[12] show the effect of writing practices upon reading. Interestingly, the objective which seems to be common in all of these efforts was to discover if the two modes of reading and writing are really directionally interdependent and if integrating them will significantly accelerate students’ language acquisition.

Recent discussions on the reading-writing connection have proposed three somewhat interrelated hypotheses or models for the reading-writing relationship [13]: the directional hypothesis, the nondirectional hypothesis and the bidirectional hypothesis. The directional model focuses on input that is transferred in only one direction (reading to writing or writing to reading) and suggests that reading plays an important information source in the writing class. The nondirectional model focuses on the common underlying cognitive processes involved in reading and writing and claims that improvement in one domain will result in improvement in the other. Finally, the bidirectional model focuses on the multiple relations and interrelated processes that seem to constitute the reading-writing relationship and views that this relationship can be qualitatively different at different stages of development. The strength of this model lies in its claim that reading and writing are interactive as well as interdependent. These models show that they are interrelated since the fundamental concept that underlies these models is transfer of skills [13]. However, since these models or hypotheses presented above are quite new and young, they thus require further investigation.

Considering the above situation, this study aimed to find out whether discourse approach to reading would facilitate the transfer of discourse skills from the reading mode to the mode of writing.

B. The Reading-Writing Connection

Following the theory of integrated language skills is the theory that in language learning, reading and writing processes are interrelated [14]. A number of studies in language acquisition provide evidence that a relationship between reading and writing exists [13].

In this review, the researcher considers the comprehensive discussion of Eisterhold (1990) about the reading-writing connection. Among language researchers, she has been found to be the only one who formulated testable theories that seem to underlie the reading-writing relationship. The researcher finds Eisterhold’s discussion on the reading-writing connection of great relevance to the study.

Studies of reading-writing link suggest three somewhat interrelated hypotheses which she preferred to describe as models [13]. The models’ distinguishing characteristic is that they reflect the direction in which input is understood to be transferring from one modality (e.g., reading) to the other (in this case, writing).

The first hypothesis views the reading-writing connection as directional. In this model, reading and writing are viewed as sharing similar structural components that elements acquired in one modality can be used in the other. A concrete case, for example, is that, one’s ability to recognize a text pattern in a reading passage would eventually enable him to generate the same pattern in writing. However, with the model’s proposition maintaining that transfer of structural information can proceed in only one direction, researchers were led to figure out whether transfer moves from reading to writing or from writing to reading.

The reading-to-writing model of the directional hypothesis is found to be the most common pattern. Working within this model, researchers claim that reading influences writing but assert that writing knowledge is not at all useful in reading. This model finds strong supports from related theories of language acquisition maintaining that learners acquire inputs first (through reading) before they can actually generate outputs (writing).

There are studies that find supports to the reading-to-writing model. In a study, it was found out that children’s writing reflect the structures and styles of basal readers used in class [8]. The findings confirm that transfer of structures move from reading to writing. Another study investigated the effects of instruction in using text structure to recall expository text and of instruction that emphasized writing expository text [9]. The findings showed that instruction in writing did not have any significant effects in both reading and writing, but instruction in reading influenced both. What is important to point out in their study is that their findings indicate that explicit instruction seems to be a necessary condition for transfer to take place.

Another study which utilized a more indirect approach revealed supportive findings [15]. Their central premise was that students pick up rhetorical knowledge (global information) from reading and use it in writing. As such, rhetorical knowledge might be taught indirectly by exposing
students to single model of text type. After giving the students (whose grade levels range from grade 3 through college graduate level) a suspense story, a restaurant review, and a concrete fiction based on a French genre, they found that a single model of a text type had a positive effect on the students’ writing performance. Although the effects differed depending upon the type of text, the grade and the students’ economic status, they explained that in the learning process, readers note distinctive features and patterning in text which were made explicit to them and then they relate this to preconceived schemata of text types. Noteworthy in their study was that although an indirect instruction of text patterning was employed, such instruction facilitated transfer of knowledge from reading into writing.

However, in a survey of research on reading and writing relationships, some studies revealed a contradicting findings [9], [11]. The study specifically reported that additional reading was more effective than either grammar or extra writing practice but explicit reading instruction was found to be generally ineffective in improving writing [11]. Her survey report then suggests that what appears to be essential, and probably sufficient enough for transfer to occur from reading to writing is exposure to large amounts of input.

From this apparent contradiction arise two testable hypotheses: 1) explicit instruction is an important factor in the transfer of information; 2) exposure to large amounts of input alone is sufficient for transfer to occur.

In an attempt to settle this contradiction, relevant researches on reading-writing connections were reviewed and reported that several studies yielded significant results when students were taught reading strategies by examining structures applicable to both reading and writing [16]. This means then that explicit instruction in reading can be that effective in improving writing only when it focuses on a common element. Moreover, it reported that there seemed to be no automatic transfer from general reading improvement courses to written composition. Such findings weaken the hypothesis that plain exposure to inputs is sufficient for transfer to occur.

On the other side of the directional model, some researchers support the writing-to-reading model which reported that a number of studies suggest that writing activities such as summarizing, paraphrasing, and outlining can be significantly useful for improving reading comprehension and retention of information [11]. Likewise, a review of some studies reported that direct instruction in sentence, paragraph, and discourse structure for writing significantly improves reading ability or a useful reinforcement to reading [12], [16]-[20].

Documented literature and studies seem to support the directional model, be it reading-to-writing or writing-to-reading, with its contention that transfer of information proceeds in only one direction. However, as can be noticed from these evidences, putting together those studies that support the reading-to-writing model and those that support the writing-to-reading model allows for another theoretical explanation about the reading-writing relationship. This new concept is projected by the fact that transfer can actually move in either direction: reading to writing or writing to reading. Thus another hypothesis was formulated.

The second hypothesis views the reading-writing relationship as nondirectional [13]. This model is characterized in such a way that reading and writing are viewed as having a single underlying proficiency and that these two share a common cognitive process for constructing meaning.

Some study claim that that reading and writing are both constructive processes and that the reciprocal relationship between them is cognitive in nature. Because of this cognitive link between reading and writing, and having a common underlying proficiency or knowledge base, it was inferred that transfer of information can actually occur in either direction [21]-[25]. [5]. Thus, researchers assume that explicit instruction in either domain ( reading or writing ) will demonstrate effects on both. It is also assumed that improvement in one domain eventually results in improvement in the other. Several studies which are supportive of the nondirectional hypothesis have been quoted.

A study also investigated the effects of story schema training on the reading and writing abilities of fifth grader pupils [26]. The findings showed that the experimental group recalled more text structures in previous and new selections and produced more text structure categories in writing leading to a conclusion that children would readily apply story schema to related reading and writing tasks as a manifestation of transfer if instruction is so designed to facilitate such transference.

Another study investigated the relationship between the recognition and production of different text structures by college students [10]. These text structures include description, sequence, enumeration, and comparison and contrast. They found that the reading-writing relationship was significant for all the text structures except description. The results yielded that the subjects’ ability to recognize related details consistent with the topic and text structure in a written passage was related to the ability to generate related details congruent with the topic and text structure in a writing task. It was also found that high ability students were more aware of intrusive information than were low ability students. With these results, Hiebert, Englert, and Brennan [10] were led to conclude that similar knowledge bases about text structures underlie reading and writing. They also concluded that the writer is guided by his knowledge of text structure which enhances his ability to generate sentences congruent with the given topics and text structures.

Common underlying knowledge base for reading and writing exist and that comprehension and production of text patterns use some similar cognitive and linguistic skills, as well as some separate processes like reading particular structures valuable for writing. [27]. However, these research evidences seem to focus on the cognitive relationship between reading and writing. Furthermore, they reflect that the relationship is correlational and such does not actually project an interactive model which those evidences supporting the directional hypothesis seem to suggest. From this point of
understanding arises the third hypothesis which labels the *bidirectional hypothesis*.

The bidirectional hypothesis is the most complex of the three hypotheses [13]. This model holds that reading and writing are both interactive and interdependent. What makes this model different from the other two is its consideration of the existence of multiple relations between reading and writing and of the possibility that the nature of reading-writing relationship might change with development.

In his research study among second and fifth graders, it was found that reading and writing were significantly related for both groups [28]. The study reported that as students become more proficient, the nature of reading-writing relationship changes leading to a conclusion that what is learned at one stage of development can be qualitatively different from what is learned at another stage. Such conclusion suggests that at any given point of development, reading and writing consist of both dependent and independent abilities.

In another study, it was found that the interactive aspect of the bidirectional model better fits their data at the fifth than at the second grade level. They reported that since more reading instruction was given to the subjects, the effect of writing on reading decreased in the upper grades. Finally, they declared that the reading-to-writing model is superior to the writing-to-reading model. This means that more information from reading is used in writing than vice-versa [29].

These documented studies provide direct evidence for the bidirectional model. As indicated by these researcher, this model claims that the reading-writing relationship can be qualitatively different at different stages of development. What these differences are, Easterhold points out, remain at this point unspecified.

In summary, each of these models offers a different focus for the reading-writing relationship. The directional model focuses on the role of input in the development of reading and writing skills. The nondirectional model focuses on the common underlying cognitive processes involved in reading and writing. The bidirectional model focuses on the multiple relations and interrelated processes that seem to constitute the reading-writing relationship. Nevertheless, these three different hypotheses are made related by their common denominator that is explicit instruction - the key factor in facilitating transfer of skills across modalities.

In this study, the focus of the directional model that is input and the focus of the nondirectional model - the common underlying cognitive processes - have been considered in the formulation of conceptual framework. This study investigate further if the role of explicit instruction in facilitating transfer of skills holds true with the transference of students’ discourse skills from reading to writing.

**C. Discourse Approach and Transfer of Skills**

Underlying any discourse-centered approach to language teaching is the theory that views language as discourse. The functions of language are best understood in a discourse environment. They have described that a discourse-based view of language involves examining how bits of language contribute to the making of complete texts and exploring the relationship between the linguistic patterns of complete texts and the social contexts in which they function [30]. Language is a discourse using sentences which is the use of sentences to perform acts of communication which cohere into larger communicative units, ultimately establishing a rhetorical pattern which characterize the piece of language as a whole as a kind of communication [31.] Sharing the same schema, discourse may also be defined as the coherent, dynamic communicative function of a text whereby looking at a text as discourse is to look at the way in which its various elements function in relation to one another to communicate patterns of integrated meaning [32].

Researchers have presented several macro-discourse structures which can serve as models for analyzing written expository texts. Among these macro-structures, the Problem-Solution and Topic-Restriction-Illustration structures have been found as the commonest and most studied macro-discourse patterns. It is believed that these two discourse structures are deemed to enhance learners’ writing ability since they are universal and fundamental structures in written composition [32], [33].

A particular macro-pattern is typical of a particular type of discourse when the occurrence of a certain number of its discourse elements in a certain order is common in that type of discourse. Thus, the macro-pattern S-P-Sn-Ev (Situation-Problem-Solution-Evaluation) is typical of many varieties of scientific discourse (and also of many other varieties of discourse) in that the occurrence of these elements in that order is common. It should be noted however that the two elements - Problemb and Solution - act as the core elements in this pattern in that they are central to the assignment of a text to a specific discourse. Their presence or absence is definitional in the assignment of a specific text to the PSn discourse type [32].

**II. METHOD**

**A. The Venue and Subjects of the Study**

This study was conducted at the school where the researcher used to teach. Two groups of subjects were involved in this study. The first group consisted of 30 students who received the treatment (a class in which the discourse approach was employed). It was one of the 15 sections of third year high school classes.

The second group that also consisted of 30 students and also one of the third year high school classes underwent the traditional approach. The subjects were third year high school students whose ages ranged from 14 to 16 years old. Both groups were cluster samples of third year high school morning classes.
B. The Instruments

The researcher employed three types of tests determined by the purpose for which they were to be administered. These purposes were: 1) to know the subjects’ level of language proficiency, 2) to determine the subjects’ current writing competence level, and 3) to assess the extent of transfer of skills.

C. Treatment

While the control group was taught the traditional approach to reading using the traditional dimensional approach, the experimental group was exposed to a discourse approach to reading utilizing Crombie’s model of discourse analysis. Nonetheless, both groups were given the same reading texts and the same topics given in the pretests were also given for the posttests to see if the experiment exhibited significant gains.

III. RESULTS

Effect of the Discourse Approach on the Academic Writing

The main objective of the researcher-prepared test was to determine the effect of explicit instruction of discourse structures (discourse approach to reading) on the academic writing of the subjects of the study. The main statistical measure used to compare the means of the two groups of subjects on the use of discourse macro-patterns was the correlated t-test of significance. In measuring the difference between the means of the two groups regarding the use of discourse signals, one-way ANCOVA was employed since the groups’ pretests means were significantly different, in favor of the control group.

It was reported that the experimental group (72.00) had a slightly higher mean score in pretest set 1 than the control group (70.67) on the use of the PSn discourse macro-pattern. However, the difference between the mean scores was not significant. In pretest set 2, the mean scores of the same groups, (82.00) for the experimental (81.00) for the control group, are again not significantly different. The statistical results then show that the two groups were initially on the same level. However, in examining the difference between the means of the posttests of the two groups, it was found out that the experimental group scored significantly higher than the control group. In posttest set 1, the experimental group mean (96.00) was statistically higher than the mean of the control group (72.67). Likewise, in posttest set 2, the experimental group had a substantially higher mean score (95.00) than the control group (84.50). In the two posttests, the differences between the mean scores of the two groups were highly significant (p<0.001). These findings then support the hypothesis that explicit instruction of discourse structures (discourse approach to reading) exhibits significant effect on learners’ academic writing specifically on the use of discourse macro-patterns.

In addition, the table reveals that the mean gain scores of the experimental group (24.00) are substantially higher than the control group (2.00). The difference between the mean gain scores of the two groups in the first set of tests (pretest set 1 to posttest set 1) was highly significant (p<0.001).

Likewise, in the second set of tests (pretest set 2 to posttest set 2), the experimental group’s mean gain score (13.00) is significantly different from the control group’s gain (3.50) at 0.05 level of significance.

<table>
<thead>
<tr>
<th>Set 1</th>
<th>Group</th>
<th>Mean</th>
<th>SD</th>
<th>Diff.</th>
<th>t-ratio</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>72.00</td>
<td>6.64</td>
<td>1.33</td>
<td>0.94</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>96.00</td>
<td>9.32</td>
<td>23.33</td>
<td>11.37</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Gain</td>
<td>24.00</td>
<td>10.69</td>
<td>22.00</td>
<td>10.70</td>
<td>***</td>
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</table>

<table>
<thead>
<tr>
<th>Set 2</th>
<th>Group</th>
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<th>SD</th>
<th>Diff.</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Pretest</td>
<td>82.00</td>
<td>13.87</td>
<td>1.00</td>
<td>0.27</td>
<td>NS</td>
</tr>
<tr>
<td></td>
<td>Posttest</td>
<td>95.00</td>
<td>10.67</td>
<td>10.50</td>
<td>3.43</td>
<td>***</td>
</tr>
<tr>
<td></td>
<td>Gain</td>
<td>13.00</td>
<td>14.59</td>
<td>9.50</td>
<td>2.43</td>
<td>*</td>
</tr>
</tbody>
</table>

NC = 30, NE = 30
Legend:
* significant at the .05 level
** significant at the .01 level
*** significant at the .001 level
NS not significant

Again, these findings support the hypothesis that learners who received the discourse approach to reading would exhibit better performance than those who were trained under the non-discourse approach on the use of macro-discourse patterns in their academic writing.

Summary

<table>
<thead>
<tr>
<th>Source</th>
<th>SS</th>
<th>Df</th>
<th>MS</th>
<th>F</th>
<th>P</th>
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<tbody>
<tr>
<td>Adjusted Means</td>
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<td>234.45</td>
<td>9.78</td>
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</tr>
<tr>
<td>Adjusted Error</td>
<td>1366.03</td>
<td>57</td>
<td>23.97</td>
<td></td>
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<tr>
<td>Adjusted Total</td>
<td>1600.48</td>
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Set 2
Computed Means

<table>
<thead>
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<th>Adjusted Means</th>
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</thead>
<tbody>
<tr>
<td>Experimental</td>
<td>30</td>
<td>13.90</td>
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<tr>
<td>Control</td>
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<td>10.17</td>
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<tr>
<td>Total</td>
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<td>12.03</td>
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Summary

Summary Table

<table>
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<tr>
<th>Source</th>
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<th>Df</th>
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<th>F</th>
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<td>286.82</td>
<td>14.04</td>
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<tr>
<td>Adjusted Error</td>
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<td>57</td>
<td>20.43</td>
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<tr>
<td>Adjusted Total</td>
<td>1451.44</td>
<td>58</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Legend:

* significant at the .05 level
** significant at the .01 level
*** significant at the .001 level

It was reported that the experimental group consistently outperformed the control group in the two posttests regarding the use of discourse signals. In posttest set 1, the experimental group gained a higher adjusted mean (17.60) than the control group (13.43). Likewise, in posttest set 2, the experimental group gained a higher adjusted mean (14.48) than the control group (9.56). And as could be seen in the table, the differences in the mean scores of these groups on their use of discourse signals were statistically significant at 0.01 and 0.001 levels of significance. This indicates that at the level of using discourse signals, discourse approach to reading also exhibits significant effect upon the learners' academic writing performance. It was pointed out that the subjects under the experimental group performed significantly much better than the control group subjects in transferring their discourse skills from the reading mode to the mode of writing.

In summary, the findings here revealed that the learners of the experimental group showed high sensitivity to discourse structures as a result of explicit instruction of these structures. This was manifested by their writing compositions that exhibited the different discourse macro-patterns explicitly taught to them. Thus, the experimental group learners, unlike the control group learners, were found to be successful in transferring their discourse skills from reading to writing.

These findings of the study affirm Hiebert, Englert, and Brennan's [10] conclusion that knowledge of text structure apparently enhanced performance by guiding the writer in generating sentences congruent with the given topics and text structures. Finally, such idea is consistent with Fine's analysis that the psychological steps or processes involved in producing and comprehending discourse are related to the patterning of the discourse [34].

IV. CONCLUSION

The discourse approach to reading (explicit instruction of discourse structures) facilitates transfer of discourse skills from reading to writing. ESL learners who are explicitly taught with discourse patterns or structures in reading deliberately apply their knowledge and skills of discourse in their writing tasks. As a manifestation of transfer of discourse skills, significant improvements in the academic writing are evident at three levels of discourse: discourse macro-patterns, discourse micro-patterns, and discourse signals. Since reading and writing share a common base of knowledge and skills, ESL learners must be provided with linked activities of reading and writing in order to capitalize on the strong relationship between these two modes of communication.

Language teachers should capitalize on the idea of skill-transfer, benefit from it, and help their learners attain the same benefits. They should explicitly teach the discourse structures and patterns found in the reading materials their learners read and should provide them with ample writing activities for them to make use of their knowledge and skills of discourse. In doing so, the learners are trained on how to approach their reading and writing tasks as discourse comprehension and production.

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The Use of Teaching Method Using Student Centered Learning (SCL) in University

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Abstract- In today’s world, our jobs as educators become more challenging. As an educator, teaching techniques need to be improved to make it more efficient so that we can keep pace with today’s world. In line with the rapid technological changes, students become more informative and active. Therefore, as educators we need to devise teaching and learning activities more proactive than using traditional approaches. Student centered learning (SCL) is an approach that focuses on abilities and student involvement, and put the teacher as facilitator of learning. It is seen as a method to produce graduates who are more competitive and able to work independently in the future. This study aimed to examine the effectiveness of teaching methods in UiTM Negeri Sembilan. The method used in this study is SCL and we are focusing on problem based learning (PBL). PBL is a centered learning where it focuses on problem-solving skills, self-directed learning, and teamwork skills. A total number of 50 respondents were selected using random sampling method. The respondents were the students from faculty of Applied Sciences students of UiTM Negeri Sembilan. Details of the findings are useful as a guide for academicians to carry out teaching and learning methods based on student centered. Academicians can use the findings from this study to implement and improve their teaching strategies in the future.

Keywords: Teaching, Learning, Student Centered Learning, Problem Based Learning

I. INTRODUCTION

Education is a process of changing the patterns of human behavior that includes thoughts, feelings and actions. (Tyler, 1949). Therefore, education is an important agenda for the country to create a knowledge society and thus stimulate the advancement of civilization. Thus, teaching and learning must also be changed along with the progress of a country. Teaching methods discussed in this paper is student centered learning (SCL), which focuses on problem-based learning (PBL). Student centered learning (SCL) is an approach that focuses on abilities and student involvement, and put the teacher as facilitator of learning. It was seen as a method to produce graduates who are more competitive and able to work independently in the future.

In PBL learning approach, students will be exposed to problem solving. They will be directly involved in the team to find the best solutions to complex problems. By using the PBL method, the students can apply their knowledge and experience to solve problems. The role of the lecturer is as the facilitator in assisting students to solve problems. As a facilitator, delivering a lecture on proper approach would ensure a better understanding among students. In this way, we are able to have an active two-way communication.

II. LITERATURE REVIEW

Student Centered Learning (SCL)

Teaching is a process to help students build knowledge and also any activities that aim to generate learning. Teaching also
involves the supply of teachers or lecturers such as knowledge, skills, and materials available for professionals such as movies, computer software, human resources or talent, and skills and knowledge existing in students (Reigeluth & Carr-Chellman, 2009).

Student-centered learning (SCL) is a teaching strategy in which students become major players in a teaching and learning. Students are encouraged to participate actively in their learning sessions. More time is allocated to explore and solve learning problems with the help of educator who act as a facilitator (Hashim et al, 2003). This is an effective method to produce independent learners. Through this way, students can share ideas, work together in resolving problems and conflicts effectively. According to Meyers and Jones (1993), student-centered learning have an impact on the increase in motivation to learn, mastery learning deeper, and a more positive attitude towards the courses taken.

Problem Based Learning (PBL)

Problem-Based Learning (PBL) is an educational approach that involves learning constructivist methods (Harper-Marinick, 2001). According to Barrows and Tamblyn (1980), PBL is defined as learning resulting from the process of understanding or solving a problem. This issue is becoming a driving force or a trigger (trigger) that will focus on the use of problem-solving skills, reasoning and encourage students to equip existing knowledge, so that the issue can finally be settled. Issues that need to be introduced to the students serve as an appetizer to the overall topic of learning (Scot et al., 2007). Using PBL, students can apply their knowledge and experience to solve problems. Thus, when discussing in groups actively, more solutions can be realized. In this way, alternative solutions will be better and students are able to present the best solution. Two-way communication between students and lecturers can also be improved through this method.

According Searight (1996), there are four things that need to be emphasized in order to make more effective PBL, namely:

a. Theory and facts that have been known or studied.

b. Additional information is required when solving problems.

c. Hypothesize about issues raised.

d. The questions that arise are resolved by asking questions and seeking information.

Features of PBL (Savoie and Hughes, 1998) are as follows:

a. Learning begins with a problem.

b. Make sure that the problem is related to the student world.

c. The contents must be processed by the problem and not by discipline.

d. Students should be given primary responsibility for establishing and determining the direction of their learning.

e. Students learn in small groups.

f. Students demonstrate learning outcomes whether in the form of products or performance.

The emphasis on theory and the facts as a basis for solving the problem will result more relevant and accurate decision. Therefore, when a theoretical plus additional information, students can make hypothesis more efficient and able to produce a better question. In this way, the results can be obtained better. Carderoy and Copper (2000) also argues that students will be more motivated to apply PBL, has the advantage in networking and talent required for their professionalism.

III. DATA ANALYSIS

Research Design

The design of this study is categorized as frequency. This study is conducted to observe the students’ acceptance of the use of teaching methods (focusing on the SCL-centric approach – PBL) in UiTM Kuala Pilah. The results of the study were analyzed using SPSS software.

Sampling

Sampling was done randomly on the Faculty of Applied Science Degree students who take the program Bachelor of Science in Biology and a Bachelor of Science in Chemistry. A total of 80 questionnaires were distributed. However, only 50 respondents managed to give a response to the questionnaire. Respondents consist of 30 girls and 20 boys. There are 31 students of BSc Biology while 19 students are from BSc in Chemistry.

Result

Table 1: Knowledge on PBL
Based on the results of Table 1, the majority of respondents, 54% (27 students) agreed and 24% (12 students) strongly agreed that they had knowledge of teaching methods based on Problem Based Learning (PBL). There are only 2 students (4%) that do not have exposure to the PBL.

Table 2: Implementation of PBL in classroom

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It was found to be 68% (34 students) agreed while 20% (10 students) strongly agreed that their lecturers using PBL methods in their teaching and learning. Only 4% (2 students) who do not agree with this statement.

Table 3: PBL Method Helps in understanding the lesson.

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Table 3 shows that majority of respondents, 24% (12 students) strongly agreed and 54% (29 students) agreed that PBL helped them to understand better the subject learned. There are only 2 students who do not consider this method assist them in the learning process.

Table 4: PBL focusing on Solving Problem In Team

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Majority of respondents, 56% (28 students) agreed and 26% (13 students) strongly agreed with the statement that PBL method focuses on problem solving in groups. This means, students can share ideas and views with colleagues and highlight the best results. Only 6% (3 students) are not agreeing with this opinion.

Table 5: PBL supports students to actively involved in learning session

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Table 5 shows that 46% (23 students) agreed and 36% (18 students) strongly agree that students can play a more active role when PBL method are implemented in their learning. While no student is recorded as agreed with the statement.

Table 6: PBL helps in enhancing soft skills

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It was found that 78% (39 students) agreed and 10% (5 students) strongly agreed that PBL as method in enhancing student skills and confidence. There are only 3 students (6%) who did not consider PBL as method in enhancing student skills and confidence.

IV. DISCUSSION

On average, majority of students agreed with the implementation of student-centric learning centered (focusing on PBL) in UiTM Negeri Sembilan. Majority of respondents (78%) agreed that they had knowledge of teaching methods based on Problem Based Learning (PBL). This means they have been exposed to the concept of PBL in this campus. The students also agreed that their lecturers using PBL methods in
their teaching and learning.

Respondents also agreed that PBL helped them to better understand the subject being studied. They consider this method facilitates them in the learning process. They also agreed with the statement that PBL method focuses on problem solving in groups. It means that students can share ideas and views with colleagues and highlight the best results. They also consider if the PBL is implemented, they will play a more active role in their ideas and arguments.

The students believed that PBL method improve their skills in teaching and learning. They also agreed that work in team can solve problems more effectively. Group work is seen as a motivating factor in solving the problems. Overall, the students recommend that PBL method can be used widely.

V. CONCLUSION

Student-centered learning methods that focus on problem based learning (PBL) are highly recommended. Lecturer needs to play an active role in implementing the method. PBL is seen as the way to involve active student-centered commitment. It can also improve the quality of student work when this method emphasizes on problem solving in groups. Students will become more confident and played an active role in finding the best solution to solve their problems. Thus, the development of the mind will continue where they will always think and propose the best idea in performing tasks. These methods are important in producing students who are more independent, resourceful and self-confidence, and skilled in making rational decisions.

REFERENCES
