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Evaluating the Students' Level of Cognitive Engagement to Achieve English Language Curriculum Objectives at International Islamic School, Gombak

Abubakar Sani^{1*} and Che Noraini Hashim²

¹Department of Education, Faculty of Education, Umaru Musa Yar'adua University, Katsina, Nigeria.

²Institute of Education (INSTED), International Islamic University Malaysia (IIUM), Malaysia.

Authors' contributions

This work was carried out in collaboration between two authors. Author AS proposed and carried out the study especially introductory part, literature review section and interpreted the analyses. Author CNH analyzed the data and proofread the work to ensure quality and to avoid elusiveness in the work. Both authors read and approved the final manuscript.

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ABSTRACT

This study evaluates the level of cognitive engagement in English class among secondary school students of International Islamic School in Gombak, Malaysia. Specifically, the objective of this research is to appraise the students' commitments in English class by observing their level of cognitive engagement, which can be deep or shallow; and this is done considering their gender, age and grades. The school has five grades (7-11) and the research was conducted in January 2014. It involves 191 participants (male and female) by using purposive sampling, ages range between 13 to 18 years. Data were obtained through questionnaire, which contains a 5-point Likerts scale. However, descriptive statistics was used to describe the level of cognitive engagement employed by the students in English language class. Thus, the overall results show that deep engagement is more associated with male students while shallow engagement is associated with their female

*Corresponding author: E-mail: kofarguga@gmail.com;

counterparts. In terms of age, the result reveals those students of the ages 13, 14, 15, and 18, display deep engagement than their colleagues aged 12, 16 and 17. Similarly, concerning grade, students in grade 9 and 10, display deep engagement; whereas those in grade 7, 8, and 11 display shallow engagement in English language class. Therefore, it is recommended that, English teachers should employ all possible efforts in teaching and organizing activities that would enhance females' attitudes towards deep engagement.

Keywords: Engagement; shallow engagement; deep engagement; English language.

1. INTRODUCTION

Apparently, the process of learning and its outcomes depend on number of important factors and considerations. These factors determine how individual, at least within the formal educational structure, learns new experiences and dispense much or less engagement in given classroom activities. Similarly, every classroom instruction aims at arousing students' interest and provides all possible ways and effective techniques to engage students cognitively, affectively and behaviorally. Studies indicated that disengaged learners could easily disturb the classroom, fail to do homework and be absent from school. Although, attendance is sometimes easy to control; but engagement is very tough to regulate. In such situation, students could become uninvolved and bored throughout the whole day; they may likely fail to come to school [1]. Engagement in learning process has been considered as a crucial component that facilitates learning; it is also regarded as prerequisite part of learning which influences both learning process and students' academic performance [2]. Some psychologist in an attempt to elucidate the importance of engagement in teaching and learning, defined the term as a psychological endeavor that entails learner's attention, interest, investment and effort display during classroom activities. This definition however, encompasses all three aspects of students' engagement (cognitive, behavioral and affective). Cognitive engagement specifically, expounds the extent to which a student postulates the importance of school in relation to future ambition. This can be epitomized through students' interest in learning, self-regulation of performance and goal setting [3]. In addition, educationists found it well fascinating to investigate the motives or factors that make students to exert efforts cognitively while undertaking learning activity. However, some educationists demarcate that students usually operate within two types of cognitive engagement namely, deep and shallow engagement. The former refers to cognitive expansion on the learning material. It includes

linking up new knowledge with the existing information, which leads to generating a compound knowledge structure. While the latter associates with the actual memorization of the new material to be learned or depending solely on reading material of a given subject without consulting other related documents [2]. Essentially, numerous research findings asserted that learners, who tend to be deeply cognitively engaged, emerge to be successful. In addition, they exhibit every chance to graduate from school and demonstrate skills of mastery in any given activity [4].

Scholars assert that studies on student engagement could provide promising solution and explanation to schools' psychologists in dealing with students with different educational problems, emotional and behavioral difficulties that may eventually result to students' school dropout [2]. Primarily, student engagement was focused on learners at middle and high school setting, where usually disengagement becomes an issue [5]. Hence, this paper aims to evaluate the level of cognitive engagement in English language among secondary school students of International Islamic school Gombak, Malaysia. Significantly, both policy and practice could be enhanced to minimize the possibility of cognitive disengagement in the school. This is especially essential in a situation whereby students are required to attend schools but fail to be motivated in becoming cognitively engaged.

1.1 Statement of the Problem

Many educationists have considered cognitive engagement as fundamental factor that leads to students' success in school. Hence, some researchers have studied the concept of cognitive engagement in relation to learning [6], motivational beliefs [3] and self-efficacy [7]. Majority of such studies reveal one major thing that gives way to this research. Most of the participants used in the previous studies on cognitive engagement were students coming from the same background. Therefore, this study

aims at bridging this gap by using international secondary school students drawn from different backgrounds to appraise their level of cognitive engagement.

1.2 Research Objectives

1. To find out the types cognitive engagement displayed by secondary school students of International Islamic school Gombak, in English language class.
2. To appraise the levels of cognitive engagement among secondary school students of International Islamic school Gombak, in English language class across age, gender and grade level.

1.3 Research Question

1. What are the types of cognitive engagement displayed by secondary school students of International Islamic school Gombak, in English language class?
2. What are the levels of cognitive engagement among secondary school students of International Islamic school Gombak, in English language class across age, gender and grade level?

2. LITERATURE REVIEW

Research works on student's engagement evolved in 1980's, and were all geared towards to improve students' positive behaviors, achievement, and sense of belonging. Engagement is considered as a core element in academic learning, and it is recognized by psychologists that learners master the learning experience only if they pay attention to the learning material [8]. Early researchers such as Dewey [9] regarded students' interest in learning as engagement. Harris [10] states that student engagement emerged "as an academic concept during the 1970's and 1980's with many early constructs emphasizing time-on-task and participation". She emphasizes that research on student engagement emerges in an effort to tackle problems with disengaged students who were perceived to be underachievers. Williams [11] substantiates Harris's theory by summarizing his findings that "most of the researches on engagement have been concerned with their relationship with academic achievement; and others concern with whether or not students are likely to complete secondary school". Eventually,

student engagement became a strategy or means for controlling classroom behaviors [12].

2.1 Concept and Application of Cognitive Engagement

Previous studies on cognitive engagement indicate two argumentative issues on which, yet to some extent, contemporary scholars do not reach a distinctive agreement. First, on the definition of cognitive engagement and the second has to do with the reasons for the emergence of research on engagement. This shows a noticeable modification and variance in both purpose and definition of students' engagement over decades because of rapid development in the body of knowledge. Most importantly is the mounting move from appreciating students' engagement as an instrument for enhancing learner's attendance and achievement to employing student engagement as a means of encouraging and improving the learners' capabilities to learn. Previous researches indicated that instructional contexts which include active learning strategies and student oriented approach have become important factors to student engagement. Training students to plan, organize and synthesize information in an instructional setting could lead to cognitive engagement and yield a positive impact on their performance [13].

Cognitive engagement is also defined as a psychological process that comprises student's interest, attention, effort and investment [14]. Equally, Shukor and Tasir [15], defined the term as "the process, which entails incorporation and application of students' motivations and strategies in the sequence of their learning". Additionally, Furlong and Christenson [16], defined cognitive engagement as "the degree to which students presume the importance of school in relation to future ambition, which can be understood, through student's interest in learning, goal setting and self-regulation of performance". Interestingly, educational researchers found it very fascinating to fathom the motives as well as reasons why students approach learning differently. Researchers frequently strive to investigate the antecedents to students' approaches to learning, which are significant in forecasting both approaches to learning and outcome of learning in an educational setting [17].

However, the above inconsistency on the definitions and the reasons for the emergence of

research on engagement show a noticeable modification and variance in both purpose and definition of students' engagement. Presently, there is an agreement that student's engagement is quite an essential concept and multifaceted in nature, which comprises student's feelings, behaviors and thoughts [18]. Many researchers concentrate on effective, behavioral and cognitive aspect of engagement. However, the focal point of this study is cognitive engagement. It is paramount to know that, cognitive engagement is an outcome of motivation in a learning process [19]. Therefore, cognitive engagement in relation to academic work has been defined as "psychological exertion expended by learners in an attempt to understand and master learning skills, which is provided by academic environment" [20].

2.2 Factors Affecting Students' Cognitive Engagement

In the views of Helme and Clarke, [21] cognitive engagement involves assimilation and use of both learners' motivations and strategies in the process of their learning. Fundamentally, they defined an engaged learner as motivated learner. In addition, they paid attention to the type of motivations and learning strategies that result to cognitive engagement so that learning environment can be manipulated in order to enhance students' cognitive engagement. They conclude that the indicators of cognitive engagement comprise students' participation in a class; which includes asking questions, synthesizing information and making extra effort to obtain information on learning tasks. Indeed, the ability of the instructor to understand appropriate ways to structure the information to the learner (the client), may stimulate students' motivation to comprehend information [21]. Most importantly, Pearl and Diane [22] developed a model of four stages related to interest development that affects both learning and cognitive engagement. Apparently, each phase is described with different value, knowledge and effect.

The first stage for stimulating students' cognitive engagement comprises learners' interest development, which includes creating opportunities for students to gain positive feelings and firm attention in a classroom. While the second stage of cognitive engagement development maintains positive feelings while also entails sustained knowledge and value. Indicators of second stage of cognitive

engagement are regarded as learners' repeated knowledge and engagement. Similarly, sustained interest which leads to cognitive engagement can be achieved through either the difficulty or opportunity exhibited by the learning task or by the encouragement from others. It is believed that the capacity of developing cognitive engagement exists in the individual; albeit the nature of the content and environment guide the students' cognitive engagement as well as affect its development [23].

The initial interest in learning process can be prompted by individual relevance, whereas continued interest might be maintained and achieved by providing room for personal involvement and meaningful tasks that include individual tutorials and project-based-learning. Nevertheless, individual interest has to be supported in order to actualize cognitive engagement [24]. Indeed, Marks [25] stated that an individual who is well developed in terms of their interest, managed to be affectively and psychologically engaged. He added that, learners that were encouraged to perceive the relevance of the learning task to their lives, tended to have much value on the activity, increased their interest and accelerated their classroom performance, especially for the learners who thought they were not up to the task. Hence, learners' perceptions of task value and meaningfulness of the activity serve as important factors in creating and promoting students' cognitive engagement.

Newmann Wehlage and Lambaorn [26] found that course value is intrinsic and it can be observed at the beginning of learning. Previous studies confirmed that learners attach value to a course that employs various methods in studying pertinent curricula [27]. However, learners' perception of task or course value varies from engagement. A student could find a course valuable but on the other hand partially engaged regarding its content. Course value, however, leads to engagement and both lead to deep learning [28].

2.3 Levels of Cognitive Engagement and Their Implications on Student's Achievement

The idea of deep and shallow engagement was first introduced and elucidated by Marton and Saljo [29]. The former refers to the display of high thinking attitude that include evaluation, synthesis and individual engagement to the

learning task. It goes beyond learning purposely to pass a course [25]. The latter relies more on rote learning with the aim to pass a given course without going beyond the requirement. Learners with shallow engagement always make little effort and less contribution to a learning process and their main concern is to avoid failure [30].

The difference between learners with shallow engagement is that they understand the learning task clearly, but unable to realize relationships between concepts which learners with deep engagement do [30]. Deep engagement learners usually apply what they have learned in various situations and that help them to create a profound understanding and knowledge. Motivation is the major factor that influences the students' level of cognitive engagement [19]. Likewise, motivation has three factors that are consistently guiding students' level of cognitive engagement. These include self-efficacy, achievement goals and perceived course value [31].

It is essential to find out the extent to which students become cognitively engaged in learning process because that will help in knowledge building [32]. This process could be either online learning process or traditional system of learning, which is also known as face-to-face learning encounter. Regarding online discussion, most studies have viewed some students' online discussion as shallow engagement, which encompassed only information-sharing statement. Consequently, there was an absence of higher order of thinking such as critical analysis and creation of new knowledge among themselves [33]. Likewise, Zhu [32] claimed that to achieve higher level of cognitive engagement/deep engagement, there must be an appropriate setting up of learning activities as well as enhancement throughout the learning process. In fact, the level of students' engagement affects leaning and learners' motivation. In some cases, students can be highly motivated, but found to be shallowly engaged [34].

2.4 Empirical Studies on Students' Cognitive Engagement

A number of researchers have carried out various studies related to cognitive engagement. Most of the studies conducted in the area of cognitive engagement were carried out with high school students. Among those studies are some that aimed to examine the relationship

between cognitive engagement and students' achievement. Others focused to find out how students improve in the three dimensions of engagement (affective, behavioral and cognitive). Remarkably, the findings of Archambault Janosz Morizot and Pagani [35], in a research conducted to figure out the interconnection between behavioral, emotional and cognitive school engagement among high school students was quite magnificent. It revealed that behavioral engagement (students' adherence to school and classroom rules) and emotional engagement (learners' attitudes, feelings, and perceptions regarding school) are related. Likewise, each serves as basis and an outcome of other. Additionally, the behavioral engagement influenced cognitive engagement. It was also affirmed that the extent to which learners become committed, involves an engagement in both social and academic activities in school. Thus, it provides an important ground in promoting competence, preventing academic failure and inspires students to achieve good performance. More so, some studies related to classroom learning project, recommended that the style of instruction and the quality peer relations both have an immense impact on the student cognition and meta-cognition [36].

Lorch, Milich, Astrin and Berthianume [34] conducted a research that examines children's cognitive engagement in story comprehension, where a comparison was made with typically developing children and children with attention deficit/hyperactivity disorder (ADHD) right from their preschool to elementary school. The main aim was to enlarge the inquiry on how far children's cognitive processing changes in relation to television story content, either by increase, or decrease when the central or incidental sequence of story decreases or increases. The findings of the study supported the hypothesis that a reflection of the causal organization of the televised story helps the typically developing children to create representation while watching a program; though this is lacking in children of four to nine years that have ADHD disease.

In addition, a research was conducted by Archambault, Janosz, Morizot and Pagani [35], in Canada with 69 high schools, and within three sequential high school years. The aim was to investigate how students improve in the three dimensions of engagement (effective, behavioral and cognitive) in high school, and how these are associated to dropout. The sample was 13,330 children, and questionnaires were distributed to

the participants. The findings of the study indicated that majority of adolescents became very engaged in high school, whereas one-third depicted changes, particularly decreased in willingness to learn, interest in school and in rule compliance. Moreover, those students observed with low engagement from the short run, presented maximum risks of later dropout.

Based on the discussed research findings on students' cognitive engagement, it can be presumed that there are many things that influence cognitive engagement, among which include motivational factor and instructional context. Thus, this provides an insight to investigate the level of students' cognitive engagement at International Islamic school Gombak, Malaysia and as well, to find out whether lack of motivation, interest and absence of effective instructional materials are part of the causal agents of students' shallow engagement.

3. METHODS

This research intends to examine the students' level of cognitive engagement in English class at Gombak. Therefore, it used survey method, which has been considered as the most frequently used method in quantitative research. More so, the survey method allows research to collect quantitative data that can be analyzed quantitatively using either descriptive or inferential statistics (Saunders, Lewis and Thornhill [37]). In addition, some previous related studies on cognitive engagement used quantitative techniques to evaluate the students' level of cognitive engagement.

3.1 Participants of the Study

The participants of this study comprise secondary school students of International Islamic school Gombak, Malaysia from grade 7-11. These students are from diverse backgrounds with different norms and values. The school has a total number of 375 secondary school students composing five (5) grades. At each grade, there are three classes with 25 students respectively (*Al-Ghazali*, *Al-Farabi* and *Ibn-Sina*). Therefore, each grade consists of 75 students. Subsequently, Table 1 indicates students' enrolment register.

3.2 Sample Size and Sample Technique

Ideally, any research sample size is generated from a population that represents the entire

group of the study. In order to ensure representation of the target population, which is quite remarkable in a survey research, there is need for a researcher to employ all possible means to overcome non-response bias. Thus, in the present study the researcher used Krejcie and Morgan [38] sampling size determination for which out of total population of 375 students, 191 were selected as the study sample size with 5% margin error that shown 95% confidence level. In addition, purposive sampling technique was used to obtain the required total number.

Table 1. Registered students' enrolment

Description of secondary level students' population at International Islamic school Gombak (IIS), 2015			
	Class 1 (Al-Ghazali)	Class 2 (Al-Farabi)	Class 3 (Ibn-Sina)
Grade 7	25	25	25
Grade 8	25	25	25
Grade 9	25	25	25
Grade 10	25	25	25
Grade 11	25	25	25
Total	125	125	125

Source: School enrolment register, 2015

3.3 Instrumentation

Survey method enables a researcher to have an easy access to numerical facts, percentages and frequency that serve as ground to elucidate participants' demographic features. For the purpose of this research a questionnaire, which measures students' level of cognitive engagement (deep and shallow) was adapted in the study. Biggs, Kember, and Leung [39], develop the scale with 13 items. Thus, for all the questions except those measuring level of processing, students responded to a Likert scale ranging from low of 1 (strongly disagree) to high of 5 (strongly agree). While questions measuring level of cognitive engagement, students responded to a Likert scale ranging from low of 1 (never) to high of 5 (always). Specifically, items 1-9 measure deep cognitive engagement and items 10-13 measure shallow cognitive engagement. Table 2 shows the 13 items that measure students' level of cognitive engagement.

3.4 Validity of the Instrument

Validity of a research normally targets to find the length and breadth of what it intends to measure.

Table 2. List of cognitive engagement items

Category	Item Statement
Cognitive engagement	1. I find that at times studying in English class gives me a deep feeling of personal satisfaction.
	2. I feel that almost any topic in English class can be highly interesting once I get into it.
	3. I find new topics in English class interesting.
	4. I often spend extra time trying to obtain more information about many topics related to English class.
	5. I find that reading my English books at home can at times be as exciting as a good novel or movie.
	6. I test myself on important topics in English class until I understand them completely.
	7. I work hard at my studies because I find the material used in English class interesting.
	8. I spend a lot of my free time finding out more about interesting topics which have been discussed in the English class.
	9. I come to English class with questions in mind that I want their answers.
	10. My aim is to pass English subject while doing as little work as possible.
	11. I do not find English subject very interesting, so I keep my work to the minimum.
	12. I actually restrict my English study to what is specifically set, as I think it is unnecessary to do any extra studies.
	13. I make a point of looking at most of the suggested readings that go with the teachers.

There are three classes of validity of an instrument, which include construct validity, content validity and face validity. The last one, which has been approved by the experts, encompasses three PhD students and one specialized lecturer in research methodology. Moreover, the experts affirmed that the items are strong and meaningful to measure the level of students' cognitive engagement (deep or shallow) in English classroom.

3.5 Reliability of the Instrument

In order to obtain reliability for the instrument and to ensure items' consistency, the researcher went for pilot testing of the questionnaire. During the process, the he administered 20 questionnaires to 20 students that were randomly selected from 7-11. From the analyzed result, it was obtained that all the variables satisfactorily obtained both mean values and internal consistency reliability of Coefficient Alpha=0.667.

3.6 Data Collection Procedure

Initially, the institute of education of International Islamic University Malaysia (IIUM), through Head of International Islamic School (IIS), offered a letter of approval to the researcher. With the principal's consent, teachers from the IIS, where

the research was carried out, voluntarily assisted the researcher in dispersing questionnaires to the participating students who were 191 in number. Before they began filling the questionnaire, the researcher read out all the instructions to the students so that they would properly understand the intended questions and to avoid any ambiguity. Furthermore, the students were made to understand that they could still ask for more clarification whenever there was a need to do so. This was to make sure that the information gathered would yield a good result. Though no duration was given to the students within which they must complete the exercise, but it was observed that they finished within 30 to 40 minutes.

4. DATA ANALYSIS AND PRESENTATION OF DEMOGRAPHIC RESULTS

This research employed descriptive statistics to describe the students' level of cognitive engagement at International Islamic School Gombak, in English class. The original questionnaire adopted entails 5 Likert scale (never, rarely, sometimes, often and always). However, during the analysis, the researcher collapsed the scales into three (never, sometimes and always). This was done in order to ease the analysis process and to produce

substantive findings. As stated earlier, the original questionnaire that measures students' level of cognitive engagement consists of 13 items; 9 out of 13 assess deep engagement, whereas the remaining four (4) items evaluate shallow engagement. Moreover, Table 3 illustrates descriptive statistics about the students' demographic variables, which comprises age, grades and nationality. The result represents that more female students participated in the study than the males with 60% (N=78) and 40% (N=52) respectively. Regarding the participants' age, the score indicates that the minimum age group was 12, whereas the maximum was 18 with a mean age of 14 and a half years (SD=1.43). Again, it was recorded from the results that the respondents with age below the mean were 58 or 44.7%. Contrarily, the respondents' age above the mean age were 72 or 55.3%, which explains that majority of the respondents were above the mean age. Furthermore, out of the total number of the participants, 33% (N=42) were Malaysians and 67.7% (N=88) were international students. This however, expounds that non-Malaysians students participated in the study much more than Malaysians populace. Regarding the students' grade, the result shows that participants from grade 9 were the highest with 30.8% (N=37), followed by grade 11 students with 28.5% (N=37), then those from grade 8 25.4% (N=33) and the least were grade 10 students 15.4% (N=20).

Table 4 shows the breakdown information regarding the students' gender and age, which reveals that total number of 52 male students participated in the study. This number accumulates those of age 16 with the highest frequency of 15 (28.8%). Then those of 15 age with frequency of 4 (26.9%), whereas students aged 12 and 17 were with the lowest frequency of 3 (5.8%) each. Regarding female respondents,

it was recorded that they have frequency of 78 from which students of 15 age have the highest frequency of 18 (23.1%), then those of 13 and 16 with frequency of 15 (19.2%) each. Whereas the least was a student of 18 age with frequency of 1 (1.3%).

Table 3. Demographic information of the respondents

Demographic	Frequency	Percentage
Gender		
Male	52	40.0
Female	78	60.0
Age		
12.00	13	10.0
13.00	24	18.5
14.00	21	16.2
15.00	32	24.6
16.00	30	23.1
17.00	9	6.9
18.00	1	.8
Nationality		
Malaysian	42	32.3
Non-Malaysian	88	67.7
Grade		
8.00	33	25.4
9.00	40	30.8
10.00	20	15.4
11.00	37	28.5

Table 5 illustrates the breakdown information based on grades and gender of the students. The results depict that male students from grade 11 were the majority with frequency of 16 (30.8%); then, those of grade 10 with frequency of 10 (9.2%); and followed grade 8 with least number and frequency of 8 (15.4%). Concerning female participants, those from grade 8 are the highest with frequency of 25 (32.1%), then those of grade 9 with frequency of 22 (28.2%); and the least were the students from grade 10 with frequency of 10 (12.8%).

Table 4. Breakdown information based on gender and age

Students' age			Age							Total
			12.00	13.00	14.00	15.00	16.00	17.00	18.00	
Gender	Male	Count	3	9	8	14	15	3	0	52
		% within Gender	5.8%	17.3%	15.4%	26.9%	28.8%	5.8%	0.0%	100.0%
	Female	Count	10	15	13	18	15	6	1	78
		% within Gender	12.8%	19.2%	16.7%	23.1%	19.2%	7.7%	1.3%	100.0%
Total		Count	13	24	21	32	30	9	1	130
		% within Gender	10.0%	18.5%	16.2%	24.6%	23.1%	6.9%	0.8%	100.0%

Table 5. Breakdown information based on gender and grade

			Grade				Total
			8.0	9.0	10.0	11.0	
Gender	Male	Count	8	18	10	16	52
		% within Gender	15.4%	34.6%	19.2%	30.8%	100.0%
	Female	Count	25	22	10	21	78
		% within Gender	32.1%	28.2%	12.8%	26.9%	100.0%
Total	Count		33	40	20	37	130
	% within Gender		25.4%	30.8%	15.4%	28.5%	100.0%

Table 6 shows breakdown of information on students' gender and nationality, which the results elucidate that male international students, with frequency of 31 (59.6%), were the highest participants compared with those Malaysians students with frequency of 21 (40.4%). Generally, the results conspicuously reveal that female international students were the majority in the study with 57 (73.1%).

4.1 Descriptive Analysis of the Students' Responses

Descriptive statistics compound four major things, which are frequency, percentage, means and standard deviation. Frequency and percentage are used to determine the extent of the agreement or otherwise of items' statements related to the variables been examined in a given study. Meanwhile, mean and standard deviation of each of the variables are used to draw substantive conclusions concerning the respective constructs.

4.2 Types and Levels of Cognitive Engagement among the Secondary School Students

In answering this research question, deep and shallow engagements were the two types of engagement taken into consideration in the study.

4.2.1 Deep engagement

The deep engagement was examined using 9 items as presented below in Table 7. The frequency and percentage of each of the item statement was computed and presented. In addition, mean and SD for each item are also presented at the end of each descriptive results for every item as well as for the variable. Mean and SD for the variable were used in drawing conclusion about the variable in the study. Thus, the table reveals that many of students have deep engagement as regard to learning of English language (Mean= 3.1 SD =.787). The results further reveal that although students have deep engagement in learning English language, but majority of them 53.8% (N=70) did not often spend extra time trying to obtain more information about many topics related to English class. Similarly, most of the students 54.7% (N=71) did not come to the English class with questions in mind which they need answer.

4.2.2 Shallow engagement

The shallow engagement was assessed using 4 items as presented in Table 8. The frequency and percentage in each of the item statement was computed and presented. In addition, mean and SD for each item are also presented at the end of each descriptive results for every item as well as for the variable. Mean and SD for the variable was used in drawing conclusion about

Table 6. Breakdown of information based on gender and nationality

			Nationality		Total
			Malaysian	Non-Malaysian	
Gender	Male	Count	21	31	52
		% within Gender	40.4%	59.6%	100.0%
	Female	Count	21	57	78
		% within Gender	26.9%	73.1%	100.0%
Total	Count		42	88	130
	% within Gender		32.3%	67.7%	100.0%

Table 7. Reports students' level regarding deep engagement

SN	Item	Never	Sometimes	Always
1	I find studying in English class gives me satisfaction	53 (40.8%)	50 (38.5%)	64 (49.3%)
2	I feel that topic in English class is interesting	54 (41.6%)	39 (30.0%)	75 (57.8%)
3	I find new topics in English class interesting	36 (27.8%)	36 (27.7%)	80 (59.3%)
4	I often spend extra time trying to obtain information on many topics in to English class	70 (53.8%)	43 (33.1%)	36 (38.5%)
5	I find that reading my English books at home can be exciting	54 (41.5%)	30 (23.1%)	58 (77.4%)
6	I test myself on important topics in English class	52 (39.9%)	41 (31.5%)	51 (54.6%)
7	I work hard because I find the material use in English class interesting	40 (30.7%)	46 (35.4%)	70 (54.3%)
8	I spend a lot of my free time finding out interesting English topics	90 (69.2%)	31 (23.8%)	49 (37.6%)
9	I come to English class with questions in mind that I want answer	71 (54.7%)	32 (24.6%)	61(47.0%)

Detailed information see Appendix 1

Table 8. Reports students' level regarding shallow engagement

SN	Item	Never	Sometimes	Always
1	My aim is to pass English subject.	43 (33.1%)	24 (18.5%)	63 (48.4%)
2	I do not find English subject very interesting.	60 (46.2%)	28 (21.5%)	42 (32.3%)
3	I generally restrict my study to what is specifically set.	48 (37%)	43 (33.1%)	39 (30%)
4	I make a point of looking at most of the suggested readings that go with the teachers.	34 (26.1%)	46 (35.4%)	50 (12.3%)

the variable in the study. Thus, the results regarding shallow engagement indicate on average half of the students have shallow engagement ($m = 3.05$; $SD = 1.05$). The findings revealed that most of the students found English subject very interesting and they do not generally restrict their study to what is specifically set and they think it is necessary to do anything extra.

4.2.3 Deep and shallow engagement and gender

The results for deep and shallow engagement among gender were obtained using mean and SD. In obtaining the results, mean and standard deviation for the sample and that population were compared in drawing conclusion. For example, mean and SD of male was compared to the total mean and SD. Table 9 presents the degree of deep and shallow engagement among gender. The results reveal that male students have more deep engagement of ($m = 3.166$; $SD = .787$) than female counterparts ($m = 3.024$; $SD = .965$) having mean value below the average mean that is ($m = 3.08$; $SD = .898$). Besides, the results for shallow engagement show that female students have shallow engagement ($m = 2.99$; $SD = .943$) with below the average of mean of 3.05 (SD

$= 1.05$). The overall findings indicate that male students have deep engagement than their female counterpart, while female students have shallow engagement above male students.

Table 9. Reports level of deep and shallow engagement among gender

Gender	Deep engagement		Shallow engagement	
	Mean	SD	Mean	SD
Male	3.1667	.787	3.1587	1.199
Female	3.024	.965	2.993	.943
Total	3.081	.898	3.05	1.05

4.2.4 Deep and shallow engagements and age

The results for deep and shallow engagement with respect to ages of the respondents were obtained using mean and SD presented in Table 10. In obtaining the results, mean and standard deviation for the sample and that population were compared in drawing conclusion. Thus, Table 10 presents the results for deep and shallow engagement among students. The results show that students aged 18 ($m = 3.88$; $SD = -$), 15 ($m = 3.27$; $SD = .801$), 14 ($m = 3.11$; $SD = 1.07$) and

13 ($m = 3.10$; $SD = 1.02$) have deeper engagement with a mean above the mean average of 3.08 ($SD = .898$) than their counterparts aged 17 (3.02), 12 (3.00; $SD = 1.00$) and 16 ($m = 2.86$; $SD = .802$). On the other hand, results for shallow engagement showed that students aged 13 ($m = 2.95$; $SD = 1.16$), 15 ($m = 2.79$; $SD = .932$), 16 ($m = 3.00$; $SD = .964$) and 17 ($m = 2.88$; $SD = 1.13$) have shallow engagement with mean value below the average mean of 3.05 ($SD = 1.05$). Generally, the findings reveal one striking issue that all the age levels demonstrate similarity in terms of deep and shallow engagement. However, there is an exception with the results for students aged 13 and 15, which depict highly deep engagement with ($M = 3.10$ and 3.27 ; $SD = 1.02$ and $.801$); and shallower engagement with ($M = 2.95$ and 2.79 ; $SD = 1.16$ and $.932$), which is consistent with finding in correlation (Table 10).

Table 10. Reports deep and shallow engagement by age of students

Age	Deep engagement		Shallow engagement	
	Mean	SD	Mean	SD
12	3.00	1.00	3.50	.946
13	3.10	1.02	2.95	1.16
14	3.11	1.07	3.42	1.18
15	3.27	.801	2.79	.932
16	2.86	.802	3.00	.964
17	3.02	.587	2.88	1.13
18	3.88	-	3.75	-
Total	3.08	.898	3.05	1.05

4.2.5 Deep and shallow engagements and grades

The results for deep and shallow engagement with respect to grades of the respondents were obtained using mean and SD presented in Table 11. In obtaining the results, mean and standard deviation for the sample and that of population were compared in drawing conclusion. Table 11 below presents results for deep and shallow engagement of students by their grade. The levels of students' deep and shallow engagements were examined across grade 8-11. The results indicated that students in grade 9 with ($m = 3.14$; $SD = .966$) and those in grade 10 with ($m = 3.3$; $SD = .77$) have deep engagement than their counterparts in grades 8 with ($m = 3.02$; $SD = 1.09$). Moreover, those in grade 11 depict ($m = 3.03$; $SD = .89$), which represents mean values below the average mean of 3.08 ($SD = .898$). More so, the results indicate that deep and

shallow engagement with respect to the grades of the students show similarities except students in grade 9. Specifically, the grade shows highly deep engagement with ($M = 3.14$; $SD = .996$) than that of shallow engagement with ($m = 2.98$; $SD = 1.21$), describing that students exhibit deep than shallow engagement.

Table 11. Reports deep and shallow engagement by grades

Grade	Deep engagement		Shallow engagement	
	Mean	SD	Mean	SD
8	3.02	1.09	3.25	1.10
9	3.14	.966	2.98	1.21
10	3.13	.77	3.08	.79
11	3.03	.89	3.05	1.05
Total	3.081	.898	3.05	1.05

5. DISCUSSION AND CONCLUSION

This study intended to assess both the types and levels of students' cognitive engagement at International Islamic school Gombak, in their English class. The findings reveal that all the age levels of the students almost showed similarity in terms of shallow and deep engagement. The findings also reveal that male students tended to adopt an approach in which they tried to understand the whole picture of English language and to comprehend ways to learn the language. Hence, the male students are identified with adopting a deep approach to learning. On the other hand, the findings demonstrated that female students tried to remember facts contained within the text that have been taught then focused on what they thought would be required to provide either during examination or during lesson in the class. Hence, they portrayed an approach that is recognized as shallow engagement indicating that they did not go deep as far as learning English language is concerned.

Learners could be classified as having deep or shallow engagement, but these are not attributes of the individual learners. They are just levels of engagement and student can use both engagements at different times, although he or she might have preference of one type of engagement over the other. Learners with shallow engagement mostly try only to pass a course and they are reluctant to go beyond that (by making extra effort, commitments such as reading their notes books for pleasure). The fear of failure is the motivating factor for students who

exhibit shallow engagement. Students that are engaged in shallow learning tended to have experience that is regarded as climbing struggle that is characterized by striking back against failure and depression feelings. Both deep and shallow engagements correlate fairly with motivation but intrinsic motivation is associated with deep engagement while extrinsic motivation is closely link to shallow engagement.

However, the level of engagement in relation to students' age revealed that with exception of students aged 16, all students demonstrated satisfactory level of deep engagement. This indicates that they focused on the analysis of new ideas, connecting them to concepts and principles that have been known already, thereby leading to the understanding and long-term retention of those concepts so that the concepts and principles retained could be used to solve problems during unfamiliar contexts. Deep engagement is likely to promote understanding and application for concepts and principles through learning process.

On the other hand, students with exception of those aged 13 and 15 illustrated a similar engagement for both deep and shallow engagements. All other students demonstrated satisfactory level of shallow engagement, indicating that students accept information about English and memorize it solely for two reasons. First, is to pass examination, which is mostly the primary motive of many students nowadays. Second, is to gain recognition in class by giving answers whenever a teacher asks during lesson. Students who are engaged in shallow engagement lack long-term retention and understanding of knowledge and information about English language. In terms of engagement by grades, only students of grade 9 depicted an inconsistent shallow engagement.

The findings indicated that students displayed both deep and shallow engagements, which are consistent with the findings of Artherton [39] that an individual may display both deep and shallow cognitive engagement at a time. Both levels of engagement relate strongly with motivation. Shallow engagement correlates with extrinsic motivation while deep engagement associates with intrinsic motivation [19]. Moreover, it can be seen from the result that the higher the age of the students, the deeper they become in terms of their cognitive engagement. Similarly, the students at the lower age have showed low engagement. Therefore, students' level of

cognitive engagement normally increases along with the students' age. However, both deep and shallow engagements have showed inverse relationship. Additionally, Helme [21] stated that students tend to be affectively and psychologically engaged if they develop interests in a course. He added that, students that are motivated to perceive the relevance of a learning task to their lives tend to show deep cognitive engagement in a learning process.

Generally, the findings demonstrated that deep engagement have higher mean values than that of shallow engagement, indicating that there is inconsistency in the result. Moreover, this is unlike other ones in which both deep and shallow engagements have mean values above the averages. Similarly, students in grade 9 also have mean value that is above the average (mean=3.14; .966) regarding deep engagement which is slightly higher than the mean value of shallow engagement (2.98; SD=1.20). Besides, students in grade 8 show different results which is higher shallow engagement (m=3.25; SD=1.10) than deep engagement (3.02; SD=1.09).

6. RECOMMENDATION

1. This study investigated students' levels of cognitive engagement at International Islamic school Gombak, Malaysia. Thus, future studies can be conducted to explore the influence of other factors such as learning environment, teachers' qualification and motivational beliefs on students' academic performance.
2. To reiterate, this study used an international school situated in urban area. Therefore, future researches can use both high schools students at rural and urban areas to explore differences in terms of their level of cognitive engagement; and as well propose possible means to maintain high level of deep engagement.
3. More so, this study used survey method to appraise students' level of cognitive engagement. Hence, future studies can use both questionnaire and interview as triangulation method to explain learners' level of engagement. This process could enrich the research process and make it more valid for generalization.
4. This study used International school students and the research participants, future research can use conventional high

schools to assess students' level of cognitive engagement.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ainlye M, Hidi S, Berndorff D. Interest, learning and the psychological process that mediate their relationship. *Journal of Educational Psychology*. 2002;94(3):543-561.
2. Archambault I, Janosz M, Moriszot J, Pagani L. Adolescent behavioral, affective and cognitive engagement in school: Relationship to dropout. *Journal of School Health*. 2009;79(3):408-415.
3. Barbara AG, Christopher OW. The relations between students' motivational beliefs and cognitive engagement in high school. *Journal of Educational Research*. 2009;103(6):463-480.
4. Danielle SM. Measuring deep, reflective comprehension and learning strategies: challenges and success. *Metacognition and Learning*. 2011;6(1):195-203.
5. Dennis C, John O. Introduction to psychology: Gateway to mind and behavior. USA: Thompson Watson Corporation; 2007.
6. Douglas JL. Motivational factors, learning strategies and resource management as predictors of course grades. *College Student Journal*. 2006;40(2):423-428.
7. Ju YJ, Hyuck S, Sunyoung J, Kyung YL. The effects of academic self-efficacy, learning strategies, and perceived instructional strategies on high and low achievers' in the middle school Korean language. *KEDI Journal of Educational Policy*. 2012;2(9).
8. Greene BA, Miller RB, Crowson HM, Duke BL, Akey KI. Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology*. 2004;29(4):462-482.
9. Dewey J. Interest and effort in education. Boston, MA: Reverside Press; 1913.
10. Harris LR. A phenomenographic investigation of teacher conceptions of students' engagement in learning. *The Australian Educational Researcher*. 2008; 5(1):57-79.
11. Williams JD. Student engagement at school: A sense of belonging and participation: Results from PISA 2000. Paris: Organization for Economic co-operation and Development (OECD); 2003.
12. Williams JD, Friesen S, Milton P. What did you do in school today? Transforming classroom through social, academic and intellectual engagement. Toronto: Canadian Education Association; 2009.
13. Finn JA, Blumenfeld PC, Paris AH. School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*. 2004;59(3):117-142.
14. Glanville JI, Wildhagen T. The measurement of school engagement: Assessing dimensionality and measurement invariance across race and ethnicity. *Educational & Psychological Measurement*. 2007;67(6):1019-1041.
15. Shukor AN, Tasir Z. Overcoming issues in cognitive engagement for learning computer related subject through computer supported collaborative learning. *Journal of Edupres*. 2011;26(1):145-151.
16. Furlong JM, Christenson LS. Engaging students at school and with learning: A relevant construct for all students. *Psychology in the Schools*. 2008;45(3): 365-369.
17. Fredrick JA, Blumenfeld PC, Paris AH. School engagement: Potential of the concept, state of the evidence. *Review of Educational Research*. 2004;74(1):59-109.
18. Arabzadeh M, ShfyNady M, Salami NM, Bayanati M. The effect of teaching self-efficacy on students' cognitive engagement. *Journal of Education Research and Review*. 2012;1(6):99-103.
19. Erdem DK, Ibrahim K. Motivational and learning strategies as predictors of high school students' math achievement. *Faculty of Education Journal*. 2013;58(3): 258-265.
20. Greene BA, Miller RB, Crwson HM, Duke BI, Akey KI. Predicting high school students' cognitive engagement and achievement: Contributions of classroom perceptions and motivation. *Contemporary Educational Psychology*. 2004;29(4):462-482.
21. Helme S, Clarke D. Identifying cognitive engagement in the mathematics

- classroom. *Mathematics Education Research Journal*. 2001;13(2):133-153.
22. Pearl N, Diane M. Moments of joy: Students' engagement and conceptual learning in the design of hypermedia documents. *Journal of Research on Technology in Education*. 2003;35(4):402-417.
 23. Wysocki Z. A study of cognitive engagement in online learning. Unpublished Dissertation: Washington state University, USA; 2007.
 24. Christenson SL, Reschly AL, Appleton JJ, Berman S, Spangers D, Varro P. Best practices in fostering students' engagement. *Best Practices in School Psychology*. 2008;5(1):109-122.
 25. Marks MH. Student engagement in instructional activity: Pattern in the elementary, middle and high school years. *American Educational Research Journal* Spring. 2000;37(1):153-184.
 26. Newmann FM, Wehlage GG, Lamborn SD. The significance and sources of students' engagement. New York NY: Teachers College Press; 1992.
 27. Nunan D. *The learner-centered curriculum*. Cambridge: University Press; 1988.
 28. Zhu X, Chen A, Ennis C, Sun H, Hoppole C, Bonello M, Bae M, Kim S. Situational interest, cognitive engagement, and achievement in physical education. *Contemporary Educational Psychology*. 2009;2(34):221-229.
 29. Danielle SM. Measuring deep, reflective comprehension and learning strategies: Challenges and success. *Metacognitive and Learning*. 2011;6(1):195-203.
 30. Entwistle NJ, Waterson S. Approaches to studying and levels of processing in university students. *British Journal of Educational Psychology*. 2000;58(3):258-265.
 31. Newmann FM, Wehlage GG, Lamborn SD. The significance and sources of student engagement. New York, NY: Teachers College Press; 1992.
 32. Zhu E. Interaction and cognitive engagement: An analysis of four asynchronous online discussions. *Instructional Science*. 2006;34(1):451-480.
 33. Ma WWA. Computer-supported collaborative learning and Higher order thinking skills: A case study of Textile studies. *Interdisciplinary Journal of E-learning and Learning Objects*. 2009;5(2): 145-167.
 34. Lorch PE, Milich R, Astrin CC, Berthiaume SK. Cognitive engagement and story comprehension in typically developing children and children with ADHD from preschool through elementary school. *Development Psychology*. 2006;4(6):1206-19.
 35. Archambault I, Janosz M, Morizot J, Pagani L. Adolescent behavioural, affective, and cognitive engagement in school: Relationship to dropout. *Journal of School Health*. 2009;79(3):408-415.
 36. Baranik LE, Barron KE, Finney SJ. Examining specific versus general measures of achievement goals. *Human Performance*. 2010;2(3):155-172.
 37. Saunders M, Lewis P, Thornhill A. *Research methods for business model of 4th ed*. Pearson education limited: Watson.
 38. Krejcie RV, Morgan DW. Determining sample size for research activities. *Educational and Psychological Measurement*. 1970;2(3):607-610.
 39. Atherton JS. Learning and teaching: Deep and surface learning. Available:<http://www.learningandteaching.info/learning/deepsurf.htm> (13 December 2015)

APPENDIX 1: QUESTIONNAIRE



Assalamu alaikum warrahmatullahi wabarakaatuh

Dear Brother / Sister,

My name is Abubakar Sani, currently undertaking my Master research in *students learning strategies and cognitive engagement: A case study at the International Islamic school Gombak (IIS)*, under the supervision of Assoc. Prof. Dr. Che Noraini Hashim.

The main objective of my study is to investigate the relationship between students learning strategies and cognitive engagement among secondary level students of International Islamic school Gombak. I would be very grateful if you could help me by answering all the questions in this questionnaire.

Certainly, the information provided will be treated with confidentiality. Your participation is very important as well as valuable.

Thank you for your cooperation

Yours truly,
 Abubakar Sani
 Mobile: +60102422835
 Email: a.sani64@yahoo.com

STUDENTS' LEVELS COGNITIVE ENGAGEMENT QUESTIONNAIRE

Section A: Demographic Information (Tick where appropriate)

<p>Gender: Male <input type="radio"/></p> <p>Female <input type="radio"/></p>	<p>AGE: _____</p>	<p>NATIONALITY</p> <p>Malaysian <input checked="" type="radio"/></p> <p>Non-Malaysian</p> <p>Specify: _____</p>
<p>Grade: _____</p>	<p>Class: _____</p>	

Section B: Levels of Cognitive Engagement

Please circle the best option that represents your opinion in each of the question below.

	1=Never	2=Rarely	3=Sometimes	4=Often	5=Always					
SN	Item (s)					NV	R	ST	O	AL
1	I find that at times studying in English class gives me a feeling of deep personal satisfaction					1	2	3	4	5
2	I feel that almost any topic in English class can be highly interesting once I get into it					1	2	3	4	5
3	I find new topics in English class interesting					1	2	3	4	5
4	I often spend extra time trying to obtain more information about many topics related to English class					1	2	3	4	5
5	I find that reading my English books at home can at times be as exciting as a good novel or movie					1	2	3	4	5
6	I test myself on important topics in English class until I understand them completely					1	2	3	4	5
7	I work hard at my studies because I find the material use in English class interesting					1	2	3	4	5
8	I spend a lot of my free time finding out more about interesting topics which have been discussed in the English class					1	2	3	4	5
9	I come to English class with questions in mind that I want answer					1	2	3	4	5
10	My aim is to pass English subject while doing as little work as possible					1	2	3	4	5
11	I do not find English subject very interesting, so I keep my work to the minimum					1	2	3	4	5
12	I generally restrict my study to what is specifically set, as I think it is unnecessary to do anything extra					1	2	3	4	5
13	I make a point of looking at most of the suggested readings that go with the teachers					1	2	3	4	5

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