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Research paper

Development and Evaluation of an English Speaking Skills Web-based Resource: A Pilot Study

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Abstract

This study aimed to develop and evaluate a web-based resource known as 'Hey Let's Speak'. The resource provides assistance for secondary school students in Malaysian suburban and rural areas. 'Hey Let's Speak' was developed using the design and development research method (DDR) to establish a suitable design for the respondents and involved collaborative effort among the researcher, teachers and experts in the field. The respondents chosen were intermediate and weak secondary school ESL learners from the Terengganu state. The web-based resource is evaluated using both Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) to measure respondents' acceptance and use of the web-based resource. Preliminary results suggest that the ESL learners responded positively towards the web-based resource usefulness, ease of use, ease of learning and satisfaction. The findings based on UTAUT also show positive results with expert expectancy, attitude towards using technology, social influence and facilitating conditions. The findings provide some insights on the benefits of web-based learning to the ESL pupils; thus, educators will be able to use the web-based resource effectively and more frequently in speaking skills lessons.

Keywords: *speaking skills, technology, TESL, web-based learning,.*

1. Introduction

Speaking skills are considered vital for communicating and sharing information with others effectively [1,2]. Communication skills are some of the most important skills that need to be possessed by undergraduates when they want to apply for a university course or jobs. The term "web-based resource" refers to an online website that is available through any mobile devices or computers [3]. The use of web-based learning can encourage pupils to learn to speak English ubiquitously, according to their own pace and time [4,5]. Hence there is a need to integrate web-based resources in teaching and learning of English speaking skills among ESL pupils.

Recent studies have shown that Malaysian students fail to communicate fluently thus adversely affect their job applications [6]. In the Malaysian context, the students' inability to speak well is due to their lack of practice in speaking the language outside of their English lessons, so educators need to create opportunities for the students to practise their speaking skills beyond the classroom environment. One of the measures that should be taken by educators is to design a web-based resource. According to Razagifard [7], ESL pupils can practise and improve their speaking skills through online text-based communication which is incorporated in web-based learning. It could indirectly improve their communication skills by developing a similar cognitive system to that of face-to-face conversation. This idea reflects Levelt's [8] Model of Speech Production which introduces three major components: (i) conceptualizer, (ii) formulator and (iii) articulator. These components work together in creating a learning system that mirrors face-to-face conversation, hence as long as the pupils are able to have conversations online, the positive effect is similar as having real-life conversations [7]. However, previous studies and development of web-based resources in Malaysia have focused more on reading and writing skills [3,9], so there is a need to conduct a local study on the development and evaluation of a web-based resource that focuses on speaking skills.

This study was conducted to gain responses on ESL pupils' acceptance towards the use of web-based learning in the context of English speaking skills based on the Technology Acceptance Model (TAM) and Unified Technology of Acceptance and Use of Technology (UTAUT) constructs. In particular, this study addresses two research questions: (1) What are the Form Four ESL pupils' responses to the web-based resource, 'Hey Let's Speak', in terms of usefulness, ease of use, ease of learning and satisfaction? (2) What are the Form Four ESL pupils' responses to the web-based resource, 'Hey Let's Speak', in terms of performance expectancy, effort expectancy, attitude towards using technology, social influence, facilitating conditions and behavioural intention?

2. Literature Review

2.1. Teaching and learning of speaking skills

In traditional class settings especially in developing countries, teachers act as the main source of guidance for communication practices through face-to-face interactions which including the 'chalk-and-talk' method and the initiation-response-feedback (IRF) mode of discourse [10]. These practices provide ESL pupils with models and patterns of interaction in everyday usage of English, however the main concerns for these methods are lack of interaction and heavy dependence on rote learning. Hence, there is a need to create a learning environment that encourages active

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participation and interaction among the ESL pupils in order to increase their spoken proficiency [10]. Mohamad et al.'s [11] research on teachers' practices in English classes shows that Malaysian teachers used more drilling and teacher-based activities and focused on improving pupils' reading skills and grammar rather than speaking skills.

2.2. Web-based learning resource for speaking skills

The main focus of a speaking lesson is to provide ESL pupils with opportunities to practise real communication based on situations in real life [12,13,14]. Thus the resource should include content which reflects real-life communication [10,14,15,16,17]. Wang and Young [12,13] carried out a study on Taiwanese primary and tertiary level students using a web-based learning resource called the intelligent computer assisted speaking language (iCASL) system to improve the speaking skills. The iCASL system enhances students' speaking skills by diagnosing utterances and providing multiple levels of immediate corrective feedback. Both studies show that the ESL pupils perceived the web-based technology positively and that this technology improved their speaking skills.

2.3. Constructivism Theory

Cognitive constructivism builds on the assumption that pupils develop their knowledge through the connections they build from their experience in specific situations [18]. The main proponent of cognitive constructivism, Piaget, focused on building new knowledge from previous experiences. Teachers are expected to provide learning opportunities according to learners' developmental readiness [19]. Hence, the researchers employed Piaget's principles in developing 'Hey Let's Speak' through ensuring the topics followed the curriculum specification, as well as considerations of the goals and experiences of the ESL pupils. Another branch of constructivism theory is socio-constructivism. The prominent proponent of this theory, Vygotsky [20], defined social constructivism as a process of acquiring knowledge and cognitive development through collaborative activities with teacher, peers and resource. Through the 'Zone of Proximal Development' (see Figure 1), ESL pupils develop their thinking through exposure towards social context which includes teachers, peers, resources and their environment to achieve the targeted learning objectives [21]. Social constructivism has been integrated into 'Hey Let's Speak' through the opportunity for the pupils to work together during the speech practise and games sessions.

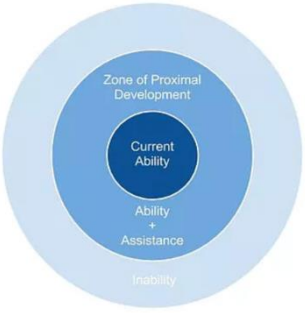

Fig. 1: Zone of Proximal Development

2.4 Technology Acceptance Model

The researchers used the Technology Acceptance Model (TAM) in developing the web-based resource, 'Hey Let's Speak' (see Figure 2). Technology Acceptance Model (TAM) is one of the most salient models for explaining information technology acceptance behaviour [22] and it underpins this study. It identifies the pupils' acceptance towards the resource in terms of usefulness and ease of use. Perceived usefulness is defined as the users' perception whether the resource would improve their performance. Meanwhile, perceived ease of use is identified as of whether the resource requires little or no mental effort to use [23]. In this study, two more constructs from past studies were added: ease of learning and satisfaction. These constructs were adapted from local studies [3], since they are relevant to the background of the local pupils which is the focus of this study.

Previous studies have shown consistent positive findings related to the pupils' acceptance of online and web-based resources in learning [3,24]. Hsu et al. [24] and Rahamat et al. [3] studied the relationships between usefulness, ease of use, satisfaction, and user intention among primary school pupils. Both studies' findings showed that the resources' usefulness and ease of use are strongly related to pupils' satisfaction in using the online resource. However, both studies were on primary school pupils, therefore, the researchers of the current study also intend to reduce the research gap by studying the Malaysian secondary school pupils.

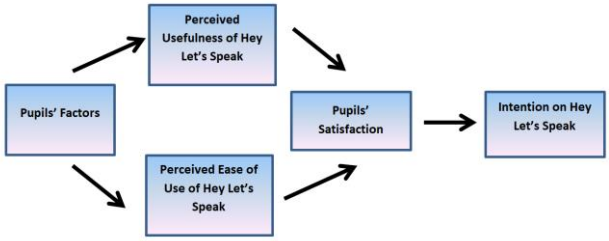

Fig. 2: Adapted Technology Acceptance Model (TAM) from Davis [23]

2.5 Unified Technology of Acceptance and Use of Technology (UTAUT)

Venkatesh et al. [22] expanded on TAM by coming up with UTAUT – Because only around 40% of the variance in the dependent variable is explained in TAM [25], there was room for refinement and model expansion. UTAUT identifies four main constructs: performance expectancy, effort expectancy, social influence, and facilitating conditions. It also includes four moderators such as age, gender, experience, and voluntariness (see Figure 3). These constructs are used to predict behavioural intention to use a technology and actual technology use among users [26].

Venkatesh et al. [26] stated that performance expectancy, effort expectancy, and social influence are found to influence behavioural intention to use a technology, meanwhile behavioural intention and facilitating conditions affect technology use [26].

Previous study on UTAUT showed pupils' positive acceptance towards online learning and web-based learning [27]. Thomas et al. [27] found that 322 students from the University of Guyana accepted mobile learning but their findings confirmed less than 70% of the UTAUT model.

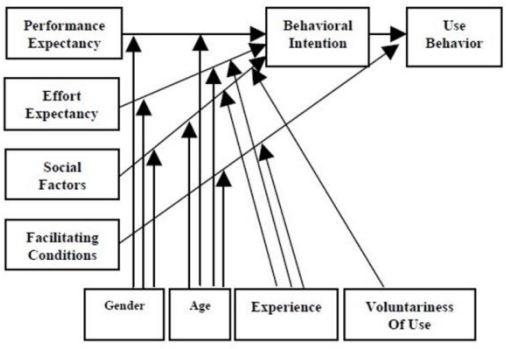

Fig. 3: UTAUT Model

3. Methodology

3.1 Design and Development Research (DDR)

This study is a Design and Development Research (DDR) study based on Van den Akker [28] and Richey and Klein [29] previous studies. Specifically, it is a DDR research Type 1 which focuses on designing, developing and evaluating the new design of a web-based resource called 'Hey Let's Speak', a website for teaching English speaking skills designed to cater to the ESL pupils in Malaysia. The researchers analysed the respondents' responses gathered after the development of the web-based resource.

3.2 Description of the site

The researchers designed a web-based resource, 'Hey Let's Speak' to facilitate ESL pupils' learning English speaking skills in a rural secondary school setting in Terengganu, Malaysia. The respondents were instructed and facilitated to use the web-based resource for two and a half months or a minimum of one topic. Upon completion of the topic, they were considered qualified to enter the evaluation stage and completed the exercises in 'Hey Let's Speak'.

3.3 Participants

In conducting this study, the researchers collaborated with 40 ESL pupils who were going through their fourth year of secondary school. There were 17 (42.5%) male and 23 (57.5%) female participants who are 16 years old. These participants were of intermediate to low-level proficiency English speakers (the participants scored from B to F in their Form Three national examination). The findings in the questionnaire indicated that they hardly communicated in English outside of the classroom. They have gone through the primary and secondary school system in Malaysia, and they are from suburban and rural areas in Terengganu, on the east coast of Malaysia.

3.4 Design and structure of 'Hey Let's Speak'

'Hey Let's Speak' is divided into three Form 4 Malaysian National Curriculum *Kurikulum Bersepadu Sekolah Menengah* (KBSM) or Integrated Curriculum Secondary Schools topics: 'Making Plans and Arrangements', 'Solving Problems' and
'Making and Responding to Complaints'. These topics consist of notes, exercises, quizzes and pronunciation examples. There are YouTube videos, and examples of conversations in the notes section. The exercise section is consists of online exercises and recorded speech practice. Pupils are able to record their conversations online and listen to the feedback given by the instructor. The quiz section covers the input given throughout the topic while the pronunciation examples allow the pupils to listen to the recordings of selected words used in the resource. Pupils also can enjoy online games in the resource such as Kahoot and crossword puzzle.

3.5 Research Tools

The evaluation questionnaire consisted of 58 items. It was adapted from Rahamat et al.'s [3] and Venkatesh et al.'s [22] studies, which included constructs from TAM such as usefulness, ease of use, ease of learning and satisfaction, and constructs from UTAUT such as performance expectancy, effort expectancy, attitude towards using technology, social influence, facilitating conditions and behavioural intention. The questionnaire was distributed from late February to March 2018 during the evaluation stage. The researchers took measures to ascertain the validity and reliability of the questionnaire items. The questionnaire for the evaluation was validated by one Information and Communication Technology (ICT) expert and one Teaching English as a Second Language (TESL) expert. Both experts have 10 years of experience in their respective fields. Since the questionnaire needed to be translated, an expert in Malay language was asked to validate the items with regard to language. Based on the pilot study, all the items in the questionnaire were positive and accepted. The questionnaire items' reliability was ascertained to be at Alpha Cronbach's value of 0.6 and above (see Table 1). According to George and Mallery [30] the items with Cronbach's alpha value of above 0.6 are acceptable.

Table 1. Reliability analysis (n=40)

TAM Constructs	Cronbach's Alpha	Number of Items (n=58)
Usefulness	0.809	9
Ease of Use	0.905	12
Ease of Learning	0.811	6
Satisfaction	0.884	8
UTAUT Constructs		
Performance Expectancy	0.688	4
Effort Expectancy	0.813	4
Attitude towards using Technology	0.834	4
Social Influence	0.768	4
Facilitating Conditions	0.636	4
Behavioural Intention	0.627	3

3.6 Data collection

Development
The researchers developed the content for the 'Hey Let's Speak' web-based resource based on the students' needs analysis conducted in October to November 2017. Based on the findings, the researchers determined the topics, activities and features of 'Hey Let's Speak'. The topics are taken from Integrated Curriculum Secondary Schools (KBSM) syllabus. A web developer designed and created the web-based resource on a *wordpress* platform, since it works well with computers and mobile devices. A team of two English teachers and three Form 4 ESL pupils were established to provide guidance and feedback on the prototype version of 'Hey Let's Speak'. After the development Was completed, the web-based resource was uploaded in the VLEFrog in schools' computer laboratories.

Evaluation
The pilot study was conducted in March 2018 to 40 pupils in order to ascertain the reliability of the questionnaire used for the evaluation stage. Furthermore, the pilot test was also conducted to identify possible navigation and operation issues with 'Hey Let's Speak'. 40 ESL pupils were chosen to be part of the pilot study. The respondents were chosen using stratisfied random sampling from the six schools involved in the final evaluation. Their characteristics are similar to the respondents of the actual study. 35 items were adapted from Rahamat et al.'s [3] to examine the pupils' acceptance to the resource based on the TAM model. Furthermore, 23 items were adapted from Venkatesh et al. [22] to determine the pupils' acceptance to the resource based on UTAUT.

3.7 Data analysis

Data derived from the questionnaire were analysed using frequency and mean analysis. SPSS version 21 was used to analyze the data. The mean score and standard deviation for items were identified in order to ascertain 'Hey Let's Speak' level of usefulness, ease of use, ease of learning, users' satisfaction.

performance expectancy, effort expectancy, attitude towards using technology, social influence, facilitating conditions and behavioural intention.

4. Results and Discussion

The analysis of the quantitative data is to answer both the research questions – (i) What are the Form Four ESL pupils' responses to the web-based resource, 'Hey Let's Speak', in terms of usefulness, ease of use, ease of learning and satisfaction? (ii) What are the Form Four ESL pupils' responses to the web-based resource, 'Hey Let's Speak', in terms of performance expectancy, effort expectancy, attitude towards using technology, social influence, facilitating conditions and behavioural intention?

The level of readiness and interpretation of the Likert scale are based on Mohamad et al. [31] classification which is presented in the following Table 4.2:

Table 2: Classification of Likert Scale Level

Indicator	Likert Scale level
High	3.67-5.00
Moderate	2.34-3.66
Low	1.00-2.33

The Findings of Research Question One

Descriptive statistical analysis is presented in order to provide the answer for research question one. Table 3 shows the overall mean score of the constructs as follows;

Table 3: Mean Score of TAM Evaluation Phase for 'Hey Let's Speak'

Aspect	Mean Score	S.D.	Evaluation
Usefulness (9 items)	4.12	.522	High
Ease of Use (12 items)	4.10	.682	High
Ease of Learning (6 items)	3.98	.666	High
Satisfaction (8 items)	4.18	.586	High
Overall	4.10	.614	High

S.D. = Standard Deviation

As reported in Table 3, the findings of this pilot study show that Form Four ESL pupils' overall acceptance towards 'Hey Let's Speak' is high (M=4.10, S.D.=.614). This correlates with high value found for all the four constructs - usefulness (M=4.12, S.D =.522), ease of use (M=4.10, S.D.=.682), ease of learning (M=3.98, S.D.= .666), and satisfaction (M=4.18, SD.= .586). These figures reflect the elements suggested by the proponents of Technology Acceptance Model (TAM). According to TAM proponents, end-users would achieve high level of satisfaction towards the resource if the web-based resource is useful for their learning, easy to navigate and easy to learn [22].

In this study, the resource is useful as it is able to fulfill the pupils' needs in relation to their Integrated Curriculum Secondary Schools (KBSM) syllabus based on the needs analysis which was conducted earlier. Furthermore, it also provided the respondents with examples of recorded conversations using correct sentence structure, pronunciation and videos that serve as guidance to them. Pupils' level satisfaction also depends on the resource's ease of use [32]. Easy navigation would ensure high satisfaction [32]. 'Hey Let's Speak' uses clear and simple menu and instructions hence pupils could easily surf from one section to another and complete the recordings on the same page. Through easy access and use, the pupils' satisfaction increase. This finding is similar to the findings of the previous studies by Hsu et al. [24] and Rahamat et al. [3]. Both studies showed that usefulness, ease of use, satisfaction, and user intention are strongly correlated to each other and positively affect the pupils' acceptance to the resource.

The Findings of Research Question Two

Descriptive statistical analysis is presented in order to provide the answer for research question two. Table 4 shows the overall mean score, frequency and percentage of the constructs as follows;

Table 4. Mean Score of UTAUT Evaluation Phase for 'Hey Let's Speak'

Aspect	Mean Score	S.D.	Evaluation
Performance Expectancy (4 items)	3.97	.620	High
Effort Expectancy (4 items)	4.05	.593	High
Attitude towards Using Technology (4 items)	4.25	.542	High
Social Influence (4 items)	4.20	.539	High
Facilitating Conditions (4 items)	4.10	.690	High
Behavioural Intention (3 items)	3.98	.743	High
Overall	4.09	.621	High

S.D. = Standard Deviation

As reported in Table 4, the mean score for all the four constructs namely performance expectancy (M=3.97, S.D=.620) effort expectancy (M=4.05,S.D=.593), attitude towards using technology (M=4.05, S.D.=.542), social influence (M=4.20,S.D.=.539), facilitating conditions (M=4.10, S.D.=.690) and behavioural intention (M=3.98, S.D.=.743) are all high. The pupils' overall acceptance towards 'Hey Let's Speak' is also high (M=4.09, S.D.= .621). These figures reflect the elements suggested by the proponents of Unified Theory of Acceptance and Use of Technology (UTAUT). According to UTAUT proponents, performance expectancy, effort expectancy, and social influence are found to influence behavioural intention to use a technology, meanwhile behavioural intention and facilitating conditions affect technology use [26]. As UTAUT constructs stem from TAM's constructs [26], there are similar positive findings for the resource performance expectancy and effort expectancy since this resource is considered to be useful and easy to use. There is positive attitude towards the use of web-based learning among the pupils, and the use of this resource is highly supported by the school administrators and teachers.

The schools that were involved in this study have sufficient facilities such as computers. Thus, based on the findings of this research, it can be concluded that there is moderate behavioural intention to use 'Hey Let's Speak' but since the facilitating conditions are high, it can be deduced that there is high possibility that the pupils will continue to use 'Hey Let's Speak' in the future. These findings resonate with previous studies [27, 32] which highlight that pupils showed positive acceptance towards web-based learning. Nevertheless, there are still concerns over poor internet connectivity and features which eventually adversely affects their acceptance towards the resource [33].

5. Results and Discussion

In summary, the ESL pupils responded positively to the 'Hey Let's Speak' web-based resource in regards to both TAM and UTAUT. There is high level of usefulness, ease of use, ease of learning and satisfaction among the secondary school ESL pupils in using 'Hey Let's Speak'. Since the UTAUT model is derived from TAM model's components, performance expectancy and effort expectancy are also high since it stems from TAM's construct:

usefulness and ease of use. Besides that, the ESL pupils show there are positive attitude towards the resource, social influence and sufficient facilitating conditions to encourage their behavioural intention in using 'Hey Let's Speak'. The findings of this study are also important to determine the reliability of the items. All the items were retained for the final evaluation since the questionnaire's reliability was ascertained to be at Alpha Cronbach's value of 0.6 and above.

These finding have implications towards the development of speaking skills web-based resources by the local developers and educators as there is a need to provide more diverse features in the resources for ESL pupils. Hence, in order to ensure that web-based resource would cater to the needs of the ESL pupils', it is crucial to take into considerations the resource's content and features, ease of use, navigation, facilitating conditions and pupils' attitude towards web-based resource as discussed in this research. However, this study was conducted on Form Four ESL pupils from Terengganu only and did not include the moderating effects on UTAUT model such as age and gender. Hence further studies are needed to address these limitations. More research is needed to identify how ESL pupils from other levels of English speaking proficiency respond and accept the 'Hey Lets' Speak' resource and whether age and gender have moderating effects of the pupils' acceptance towards the web-based resource.

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