Self-instructional material-centred multimedia computer program: A solution to the challenges of large heterogeneous teacher-fronted classes

Dr. Mufeeda Irshad

University of Sri Jayewardenepura, Sri Lanka

Pei Yi Liu

Kang Chiao International School, China.

Bio Data

Mufeeda Irshad (Main Author) is a senior lecturer in Business Communication at the Faculty of Management Studies and Commerce, University of Sri Jayewardenepura, Sri Lanka. She has over 20 years of experience in teaching English as a second language at tertiary level. Mufeeda obtained her PhD (Applied Linguistics) from the University of Groningen, the Netherlands in 2015. Her main research interests are technology enhanced language learning, second language pedagogy, and a dynamic usage-based approach to second language development. mufeedairshad@sjp.ac.lk

Pei Yi Liu is a teacher at Kang Chiao International School, China. She obtained her M.A. in Linguistics from the University of Groningen, the Netherlands in 2012.

Abstract

This paper discusses the efficacy of a self-instructional material-centred multimedia computer program grounded in a dynamic usage-based (DUB) approach to second language teaching in overcoming a predicament faced by second/foreign language learners in a large heterogeneous teacher-fronted classroom – a strong affective filter. A DUB approach holds that frequency of input, scaffolding, and exposure to comprehensible authentic language input are important in achieving success in learning a second/foreign language. The self-instructional material-centred multimedia computer program described in this

Address correspondence:
University of Sri
Jayewardenepura,
Gangodawila, Nugegoda, Sri
Lanka.

paper provides individualised self-paced learning support through multiple exposures to comprehensible authentic language input and scaffolding, both instructional and visual. The stance taken is that the self-instructional material-centred multimedia computer program grounded on the tenets of a DUB approach will offer learners the opportunity to learn at their own pace in an individualised anxiety-free private language learning environment, and this in turn will facilitate learner attainment of course goals.

Introduction/Background

English has long established itself as a global language (Crystal, 2003), and good English language instruction is therefore seen as imperative in many school contexts around the world. Most university programmes, too, have an obligatory English as a second or foreign language component. At the same time, English instruction presents a number of challenges in these contexts. Most important in this respect – much more so than for many primary and secondary school settings – have been argued to be the widespread phenomenon of second/foreign language anxiety in large heterogeneous teacher-fronted classrooms. MacIntyre and Gardner (1994, p. 284) refer to anxiety as "the feeling of tension and apprehension specifically associated with second [foreign] language contexts, including speaking, listening, and learning." One reason for second/foreign language anxiety could be the differences among learners in age, personality, language aptitude (e.g., phonemic coding ability), cognitive and learning style, L2 proficiency, learner strategies, and motivation (Skehan, 1998). In turn, these individual differences that are all represented in large heterogeneous classrooms have been associated with a broad spectrum of variation in ultimate attainment (Birdsong, 2004; Dörnyei & Skehan, 2003; cf. Rimrott, 2010, p. 29). Huckin (2003, p.3) too argues that, "In general, a teacher-centered approach, no matter how specific, is unlikely to have the pedagogical effectiveness of a student-centered approach, especially in heterogeneous classes."

This paper discusses the teaching of English as a second language in large heterogeneous teacher-fronted classes at tertiary level in Sri Lanka. Some of the many pedagogical challenges that English language instruction in Sri Lanka presents are paucity of teachers arising from lack of

experience and lack of proficiency (Raheem, 2004), large classes (Karunaratne, 2009) due to limited resources, and diversity in terms of proficiency levels of the students (Perera, 2010) as a result of the admission policy of the University Grants Commission of Sri Lanka.[17] . In a setting such as this, achieving the goals of a language class is virtually impossible due in part to the challenges that teachers and learners have to encounter. From the learners' point of view, the better learners could dominate the weaker learners, which in turn could make them feel inhibited, disadvantaged, and inferior leading to second language anxiety. Krashen (2003) is of the view that high anxiety (a strong affective filter) can in fact impede language learning, for it prevents language input provided to the learners from being processed or in other words from becoming intake. Hence, he recommends that second language learning should take place in an anxiety-free environment. This necessitates English as a second/foreign language practitioners to create an educational setting in which learners learn the language in an anxiety-free environment (Jin, De Bot, & Keijzer, 2015). This paper proposes *a self-instructional material-centred multimedia computer program* (Irshad, 2015) anchored in a DUB approach to second language teaching in which learners learn at their own pace in a private learning environment as a solution to the pedagogical challenges faced in a large heterogeneous language classroom.

The Underlying Theory: A DUB Approach to Second Language Teaching

A DUB approach to second language teaching takes a holistic approach in presenting language constructions (also referred to as form-meaning mappings) with their syntactic, semantic, pragmatic, and discourse elements synchronically in meaningful and real-life contexts (Verspoor & Hong, 2013). The fundamental concepts of a DUB approach to teaching a second language are as follows:

Frequent Exposure to Input

Over the years, many studies have investigated the importance of frequency for second language acquisition (SLA). Ellis (2002, p. 143) states that "the acquisition of language is exemplar-based.

---

[17] To give an example based on the Management and Commerce study programme, in 2014/2015, 4,250 students gained admission to the national universities of Sri Lanka to follow courses in Management and Commerce. Of these 4,565 students, 1,220 students entered the Faculty of Management Studies and Commerce of the University of Sri Jayewardenepura, where the current study was conducted (Admission to Undergraduate Courses of the Universities in 2014/2015: University Grants Commission). A very high percentage of these students originated from the rural and educationally disadvantaged areas of the country with a wide discrepancy in their standard of English.

It is the piecemeal learning of many thousands of constructions and the frequency-biased abstraction of regularities within them." According to Langacker (1987, p. 59), abstraction of regularities happens through the process of "entrenchment". Langacker (1978, p. 100) refers to entrenchment as being the result of repetitions of cognitive events, that is, by "cognitive occurrences of any degree of complexity." Langacker (2008, p. 81; cf. Verspoor & Hong, 2013, p. 2) also elaborates that "learning" or "exposure" should "occur in meaningful context exchanges, approximating socially and culturally normal usage events." Thus, a DUB stipulates that if second language teaching is to be effective, it should focus on multiple exposures to conventional units (also referred to as linguistic constructions, multiword expressions, and formulaic sequences) in meaningful real-life contexts (or real life-like context).

Comprehensible Authentic Language Input

The proponents of a DUB approach to second language teaching also postulate that comprehensible and message-oriented input is a necessary and vital variable in building the second/foreign language learners internal linguistic systems (Gass, 2013; Van Patten, 2004). Van Patten and Benati (2010, p. 36) define input specifically as the language that "learners are exposed to, that is, language couched in communicative contexts that learners either hear or read" and distinguish it from language that […]

> […] the instructor might provide as models or examples of how to do something. It is distinct from language that learners process purely for its formal features. It is also distinct from the output the learners produce. (pp. 94-95)

Hong (2013, p. 18), in her study, refers to authentic materials as […]

> […] real-life language materials, not produced for pedagogic purposes (Wallace, 1992), but for real-life communication by real people. (Nuttall, 2005)

Tomlison and Masuhara (2010, p. 400) view authentic language as "designed not to transmit declarative knowledge about the target language but rather to provide an experience of the language in use." In this connection, Krashen's input hypothesis continues to assert its influence. The input

hypothesis strongly claims that, for SLA to take place, language learners should have exposure to comprehensible language which is authentic, interesting, and/or relevant, not grammatically sequenced, and includes language structures that are beyond their current level (i+1). Krashen, (1981, p. 57) recognises comprehensible language input as "the only causative variable in SLA." Krashen (1981) points out that for L1 or L2 acquisition to take place, early output and output correction should be avoided. Instead, the acquisition environment should be provided with plenty of understandable input, and in a relaxed learning context. In addition, it "must be abundant enough for the learner to abstract regularities from concrete exemplars of language use" (Zyzik, 2009, p. 14).

Scaffolding to get Meaning Across

Another factor considered to be crucial for second language development is scaffolding. Scaffolding is the guidance, support, and the necessary attributes provided to students, which according to Vacca (2008), can lead to increased motivation and successful learning. However, scaffolding can be a mammoth task, which can only be handled with instructional and visual scaffolding. Instructional scaffolding is referred to as "the systematic sequencing of prompted content, materials, tasks, and teacher and peer support to optimize learning" (Dickson, Chard, & Simmons, 1993, p. 12) while visual scaffolding is defined as the audio-visual learning aid provided to the learners (Herrell & Jordan, 2004) that helps remove the affective filter which results from understanding very little in class (Krashen, 1982).

Individualised Self-Paced Instructions

Research shows that self-paced instruction "improves performance and that students master the learning objectives in significantly less time than students in group-paced instruction" (Dalton, Hannafin, & Hooper, 1989; Fletcher, 1996; cf. Dobrovolny, 2006, p. 55). Self-paced learning promotes learner-centred learning in which learners assume greater responsibility for their learning--they have the advantage of determining the learning sequence, the pace of learning, and possibly the media. "For example, in a self-paced computer-based course, two students might begin the course on the same day but one may finish days ahead of the other" (Soyemi, Ogunyinka, & Soyemi, 2011, p. 704; cf. Irshad, 2015, p. 54). In other words, learners whose language proficiency is low can learn at their own pace while learners whose language proficiency is of a higher level

need not take the lessons in sequential order but progress through the lessons in a non-linear direction, thereby using the time spent in learning more efficiently (Soyemi, Ogunyinka, & Soyemi, 2011; cf. Irshad, 2015).

Reviews and Studies on Existing Computer Assisted Language Learning Programmes

Although computer-assisted language learning materials exist, they are either not consistent with the current model of communicative language teaching and cannot be considered completely self-instructional (Godwin-Jones, 2007) or do not provide holistic language learning in a systematic pedagogical approach supporting students at all stages of their learning process. The reviews and studies reported below serve as evidence of the preceding argument. Krashen (2013, p. 2; cf. Irshad, 2015) reviewed the commercial software that claims to promote a complete independent learning experience, *Rosetta Stone*, and concludes:

> *Rosetta Stone* does indeed present comprehensible input, but in the samples I have seen, the input is not very interesting, and a long way from compelling, hypothesized to be the most effective kind of input (Lao & Krashen, 2008). The approach is straightforward: the student hears a word or phrase and is asked to choose a picture that matches that word or phrase. Rosetta Stone then tells the user if the answer is right. As Nielson (2011, pp. 2-3) points out, "The authors (of *Rosetta Stone*) claim that 'by combining genuine immersion teaching methods with interactive multimedia technology, *Rosetta Stone* replicates the environment in which learners naturally acquire new language'. This claim is patently false. The *Rosetta Stone* interface simply presents learners with matching activities in which they guess or use a process of elimination to determine which words or phrases go with particular pictures. This pales in comparison with an actual "immersion environment" (Nielson, 2011, p. 6).

Lafford (2004, p. 32), who reviewed another computer software package, *Tell Me More* summarizes:

> *Tell Me More Spanish* is a technologically sophisticated multimedia program with high-end graphics and excellent speech recognition software that provides the learner multiple

opportunities to practice speaking, listening, reading, and writing skills and to gain knowledge about some isolated cultural facts. It is suited to the needs of individual learners, who are given a great deal of control over various elements of the program so they can forge their own learning path. However, the program's focus on pronunciation, structurally-based curriculum, mechanical exercises, decontextualized interaction, and use of culture capsules (mostly isolated from vocabulary and grammar exercises and listening, speaking and writing activities) causes this program to be out of step with modern communicatively-based views of task-based foreign language pedagogy -- views which are grounded in cultural authenticity and the notion of language as social practice.

Incorporating a DUB Approach into an Individualised Self-Paced Multimedia Computer Program

As described above, a DUB approach to second language teaching holds that frequency of input, exposure to authentic comprehensible input, and scaffolding are important in achieving success in learning a second/foreign language. The overall aim of a DUB approach to second language teaching is for learners to fully understand the input provided and therefore help to consolidate the information for easy retrieval later. The question then becomes how to incorporate these factors into an individualised self-paced language learning environment for anxiety-free learning. It is argued that *a self-instructional material-centred multimedia computer program* (Irshad, 2015) designed using the software CourseLab [18] (www.courselab.com) developed by the Russian company WebSoft Ltd (© WebSoft Ltd., Russia), an e-learning authoring tool, can be a viable alternative to overcoming learner anxiety due to large heterogeneous classes, as it can be followed by learners in a private learning environment at their own pace while stimulating the same learning environment that a teacher-fronted classroom would have.

---

[18] In order to create interactive e-Learning lessons in Course Lab 2.4. knowledge of programming language is not a requisite. What is required is a working knowledge of Microsoft Windows operating system and its basic functions. Learning modules created with CourseLab can be published on the internet, Learning Management Systems (LMS), and on CD/DVD-ROM. It can be easily transferred to any computer to ensure that the teaching programme is widely available. In addition, it is extremely adaptable and can be used for different levels of learner proficiency, for different learning resources and for different cultural or linguistic requirements.

The design of the computer program is consistent for each scene. It consists of four stages: Watching the lesson, a pedagogical design, a quiz, and a report page. The design is meant to help learners focus not only on the learning but also on the strategies used in learning. A description of each part of the design is given below:

Screen design

There are three types of screen frames for this computer program. The first is the introductory screen. This screen offers an introduction to each lesson. The second type of screen is the lecture screen, which offers tabs that could be selected to choose different options for receiving information or a lecture on the content of the lesson. The third type of screen is the quiz screen, which depicts assessment questions for each of the lesson. Each screen has been further divided into three separate panels: a heading panel, an implemental panel, and a navigation panel. The heading panel contains the goal for each screen so that learners can understand easily what it is they are expected to do. The implemental panel, also called the working area, contains the main content of each screen, such as the video. There is also a pop-up window in this area which gives instructions to the learners. This pop-up window contains an audio button and explanations. Learners can choose to just listen to the sound or also have the instructions printed on the screen. In this way, the learners can train themselves to work increasingly more proficiently, eventually only having to listen to the audio instructions rather than read them as well. Consequently, learners will be able to work towards learning in an environment similar to that of a teacher-fronted classroom. The navigation panel, also called the toolbar, consists of a menu, a help button, a replay button, a progress bar, 6 step buttons, a back button, and a next button. The MENU button shows how many scenes there are in the course. The HELP button shows the instructions for each screen or course. The REPLAY button is to ensure learners have had sufficient exposure to the input. The PROGRESS bar displays the navigation options of the screen. The 6 STEPS button shows the scaffolding process the learners need to follow for each lesson. Figure 1 below depicts an example of the screen design. The screen has been designed to be consistent with other screens of the same nature in order that learners could easily recognise the purpose of each screen.
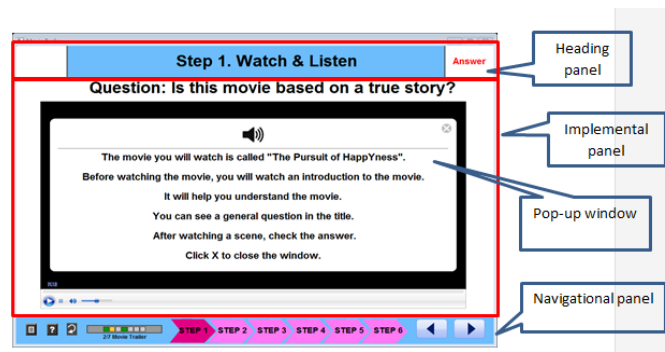
Figure 1: An example of the screen design

Pedagogical Sequence of the Self-Instructional Material-Centred Multimedia Computer Program

The primary resource used for the designing of the pedagogical materials is a movie divided into segments of 1-2 minutes duration. Movie segments were used because they contain authentic language and can be played and replayed as many times as necessary.

The instructional programme consists of 34 lessons and each lesson is accompanied by six steps that will help the learners understand everything, from a first, very generalised step, to very specific explanations by step 5.

The *self-instructional material-centred multimedia computer program* is designed to draw the learners' attention not only to the stimulus (or input) but also to the meaning and context of the input, in a repetitive fashion by using a variety of techniques including instructional and visual scaffolding six times in six steps in order to ensure that the learners understand the meaning of the input. With repeated exposure to the target language, learners subconsciously also gain grammatical and lexical proficiency that combines with the semantic knowledge that is explained in the instructional programme. This combined knowledge is then retrieved simultaneously when learners produce the language. This (multiple exposure to the target language), in conjunction with scaffolding in the form of explanations and meanings, facilitate the transference of the information from the sensory memory to the short-term memory and then the consolidation in the long-term memory.

The purpose of the six steps is as follows: Step 1 exposes the learners to the external stimulus or input. Step 2 delivers the stimulus to the working memory. Step 3 consolidates the stimulus with the addition of meaning. Step 4 stores the stimulus in the short-term memory. Step 5 encodes the

stimulus and transfers it to the long-term memory. Step 6 reinforces the information in the long-term memory and provides feedback on the entire process.

Step 1: ***Watch and Listen***. Within the cognitive process, the attention of learners plays a major role. In order to draw the learners' attention, the stimulus needs to be comprehensible and interesting. The goal of step 1 is to help the learner understand what the lesson is about in a very general sense. The lesson is shown to the learners with a view to attracting their attention from the beginning and motivating them to concentrate on the tasks to come. In this screen, learners will see a title name and a question in the title. The purpose of this question is to activate the learners' thinking and deduction skills. In this way, their attention will be concentrated on seeking meaning rather than on unthinkingly receiving the input. In this step, the ANSWER button, pop-up window and SOUND button are of particular use to the learners in that they can manage the learning process through these buttons. Figure 2 shows an example of step 1.
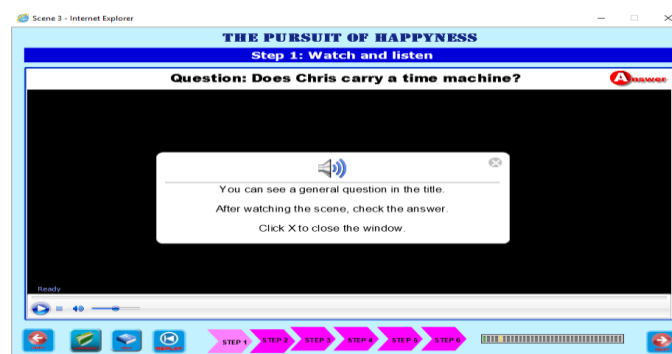

Figure 2: An example of Step 1.

Step 2: ***Watch, Listen and Read***. The goal of step 2 is to make learners notice what the characters said. Subtitles in English are also provided. The subtitles in this step provide visual confirmation of the dialogue that the learners are hearing from the movie segment and more information to the sensory memories of the learners. Within the sensory memory, storage time is rather short while storage within the echoic memory (what a person hears) is often longer (Mastin, 2010; cf. Yi Liu, 2012). Therefore, amalgamating what the learners see and hear is more likely to be transferred from the sensory memory to the short-term memory, especially if the information is noticed by the learner. Figure 3 illustrates an example of Step 2.
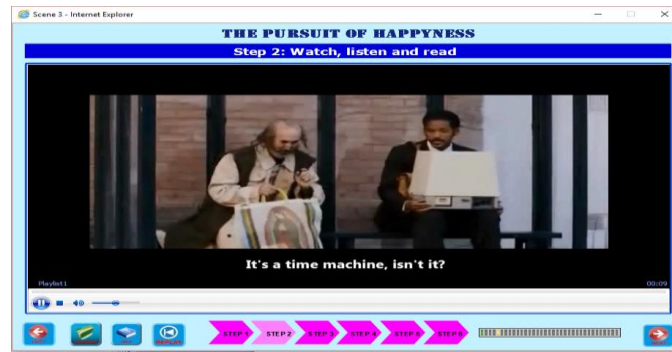
Figure 3: An example of Step 2.

Step 3: ***Focus on what the characters say***. In step 3, the information is ideally transferred from the sensory memory to the short-term memory of the learners. However, the storage of information in this memory is only temporary and works on an immediate retrieval system (Clark, 2004; cf. Yi Liu, 2012). Thus, this step contains explanations of specific spoken and written words/phrases/lexical units/utterances/sentences considered difficult for the learners in the movie scene. The navigation panel allows leaners to choose what they wish to have explained and offers the opportunity for numerous repetitions of explanations. A sound button helps learners to listen to a real teacher giving an explanation; thereby, enriching the recognition and awareness skills of the learners. This feature also allows the computer program to cater to individual levels of proficiency: Some learners will not need explanations for certain utterances, whilst others will need full explanations, both aural and written.

In order to draw learners' attention to the cognitive processes that occur, an image-schema is also provided wherever possible to help the learners recognise the meaning of the words/phrases/lexical units/utterances/sentences effortlessly. In this way, the learners connect the linguistic form with the image that has been stored in their working memory, and they will then be better able to produce the lexical unit again in the future, for they have a full understanding of what it means (Chapelle, 2001). Learners also have the option to see the lesson again in order to review the scene and focus on the lesson. Figure 4 shows an example of step 3.
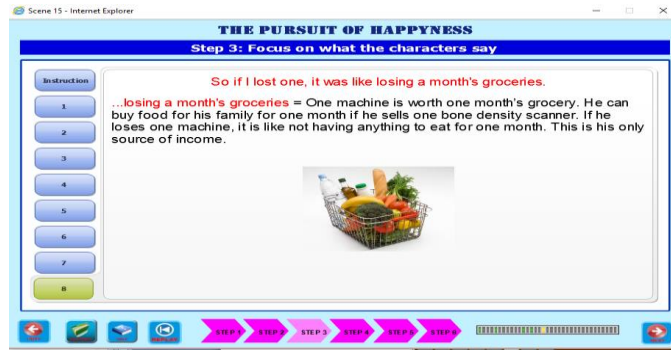
Figure 4: An example of step 3

Step 4: ***Watch, Listen, and Read.*** Look up words if necessary. Research shows that the information which is stored in the short-term memory can decay spontaneously, and therefore it needs to be repeated or rehearsed (Mastin, 2010; cf. Yi Liu, 2012). Similarly, the capacity of the short-term memory depends on the nature of the material to be recalled. It also depends on the individual, and the way in which the information has been reviewed (Mastin, 2010; cf. Yi Liu, 2012). Step 4 provides learners with the opportunity to visit the scene again to review all the expressions that the characters have used repeatedly and frequently. The aim of this step is to expose the learners to the input again through both reading and listening in order to increase the chances of the input being transported from the short to the long-term memory. The tooltips enable learners to get explanations and meanings of specific statements. If learners have forgotten the meaning or explanation of the specific sentences, they can move their mouse over the number which is located next to the sentence and a pop-up window with the meaning and explanation will appear. An example of step 4 is given in Figure 5.
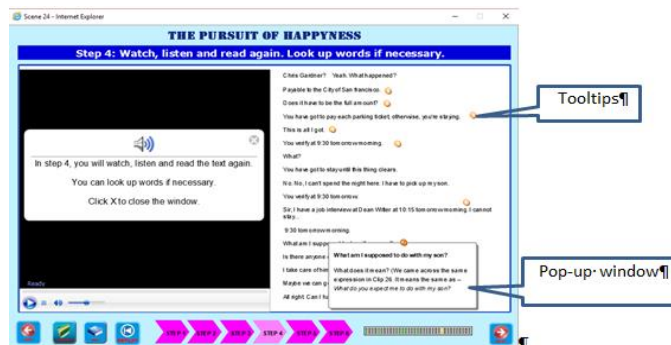

Figure 5: An example of Step 4

Step 5: **Trying to understand everything**. In step 5, it is hoped that the information provided by the previous steps will have been transferred to the long-term memory so that the learners can retrieve it when necessary. This will have been achieved through meaningful associations in Step 3, the rehearsal in Step 4, and the semantic encoding in Step 5. In order to consolidate this information, the learners in this step review the scene again with no help or explanations. Figure 6 shows an example of step 5.
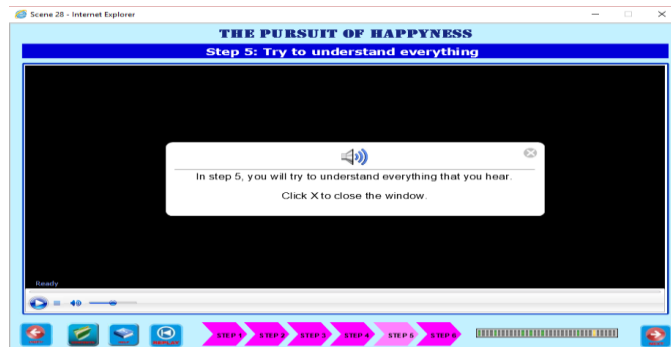

Figure 6: An example of step 5

Step 6: **Quiz**. In steps 1 to 5, learners are only provided input but are not asked to produce. The goal in Step 6 is for learners to activate their knowledge. In step 6, they are given a quiz in order to stimulate the response process within the overall cognitive process of the brain. Figure 7 shows an example of Step 6.
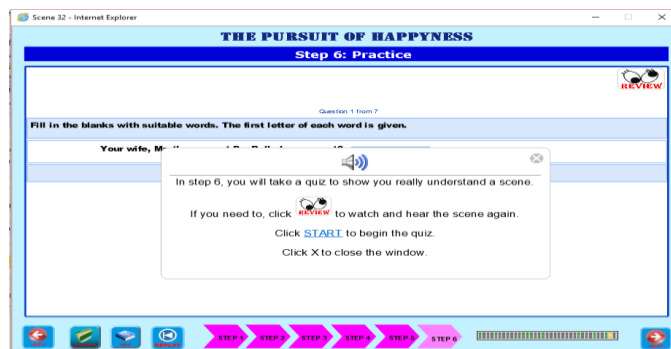

Figure 7: An example of Step 6

Quiz Design: The purpose of this quiz is to examine whether learners have been able to identify the meaning of the character utterances in each scene. Thus, the features of the quiz are designed to develop the metacognitive awareness of the learners by helping them to set the goal (i.e. grade), plan the strategy (i.e. time, learning style), and monitor and reflect upon the outcome (i.e. result). In addition, the quiz encourages the learners to move to a new and improved zone of understanding as well as bring the learners closer to a state of communicative competence.

In the quiz screen, learners will see a pop-up window which gives them instructions. On the left side corner, there is a REVIEW button that gives learners (especially learners with low linguistic competence) cues or hints from the movie segment. This function contributes to the idea of effective scaffolding by reducing failure in the performance of the learners and therefore facilitating an anxiety-free learning process. Within the quiz window, there is a question bar on the top and a timer on the bottom. The question bar indicates the total number of questions. The timer shows the time limit for doing the quiz. Although there is a time limit for the learners in the quiz, the time limit has been set to ensure that learners are able to utilise their linguistic knowledge and have a sufficient amount of time to complete the quiz without feeling anxiety or pressure. There is also a function which allows learners to redo or save the test if they do not finish in time. An illustration of an example of a quiz window (with question bar and timer) is given in figure 8.
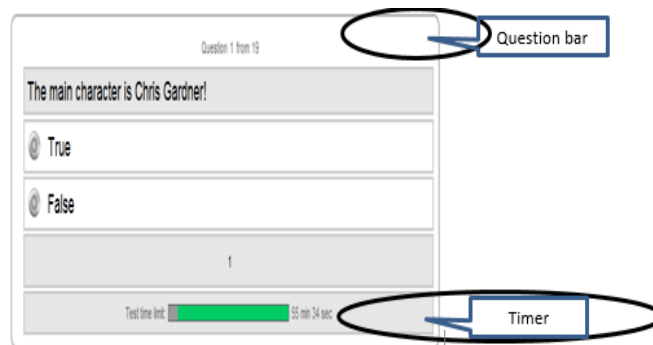
Figure 8: An example of a quiz window (with question bar and timer)

Report Page: An effective language learning programme should provide assessment and outcomes for learners to evaluate their learning process. In this section, learners are able to evaluate their own performance and understand areas which they did not perform on as well as other areas. Teachers are also able to pinpoint areas that need more work. The report page is divided into two sections: the raw score and the result area. The raw score shows the grade of the learners calculated as a percentage. The result area displays the feedback details such as individual point scores, correct

answers, and the relevant questions. The aim is for learners to understand whether they truly understood the input. No immediate feedback is provided for learners while they are doing the quiz. The purpose of this is to ensure that learners who suffer from anxiety are not negatively impacted by immediate feedback. If learners are not satisfied with their scores, they can redo the quiz. Figure 9 shows an example of a report page.
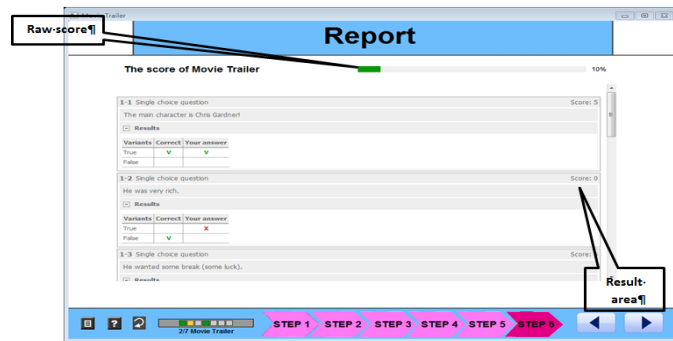

Figure 9: An example of a report page

Empirical Investigation: Students' Perception of *the Self-Instructional Material- Centred Multimedia Computer Program*

Prior to the adoption of the *self-instructional material-centred multimedia computer program,* an experimental study was conducted over a semester to assess the students' perception of their respective learning environments (see below for details).

Research Questions

The main question that guided this study was: *To what extent do students who underwent the CBg (Experimental group) and PwPg (Control group) interventions positively or negatively view the treatment to which they were exposed?*

Research Design

The research design was chosen to assess the views of participants on two different interventions. The CBg participants followed *a self-instructional material-centred multimedia* (general English) *computer program* founded on the principles of a DUB approach to second language teaching (with a movie as the primary resource) in which the participants could learn in an individualised self-paced learning environment. The PwPg participants followed a teacher-directed general English course founded on the principles of a DUB perspective to second language teaching, by using a

PowerPoint-based multimedia format with a movie as its primary resource. The CBg and PwPg instructional programmes were very similar in that they consisted of a pedagogical sequence (described above) which was based on the tenets of a DUB approach to second language teaching (Verspoor & Hong, 2013); were both multimedia instructional programmes that provided authentic input; and the primary resource used in the creation of the two programmes was a movie.

The instructional programmes (CBg and PwPg) consisted of an introduction (the movie trailer) and 33 scenes (segments of 1-2 minute duration) of the movie (that was used as a primary resource to design the instructional material), and the design layout was consistent for each scene. Since the object of a DUB approach to second language teaching is that learners should understand everything (in this case everything that the characters in the movie utter), the movie segments were shown repeatedly to the students, and all the utterances were explained in detail; the rationale being that upon each viewing the students could focus on different aspects. Each movie segment was guided by the six steps outlined above in order to help the learners understand everything from the initial generalised step through to very specific explanations by step 5 and a quiz in step 6. For the CBg experiment, the PowerPoint based multimedia instructions of the PwPg condition were transformed into 34 e-learning lessons (modules) through CourseLab. In the case of the latter, a computer was assigned to each participant who worked at her/his own pace in an individual learning environment.

Method

Learner Participants

4 intact classes of undergraduates comprising of 155 students in total participated in the study. These 4 intact classes were assigned randomly to two conditions: 3 intact classes of 100 students in total to PwPg and one intact class of 55 students to CBg. With regard to written feedback, data of 6 participants of the PwPg condition and 4 of the CBg condition were eliminated from the analysis due to reasons of illegible handwriting, leaving ninety-four (94) texts of the PwPg and fifty-one (51) texts of the CBg respondents for quantification.

Measures

The participants were asked to provide their written feedback (views) at the end of the intervention – in Sinhala, Tamil, or English – on the strengths and weaknesses of the intervention they had received and thereby to evaluate the CBg and PwPg programmes. There was neither a time limit

nor a word limit imposed. The participants were requested to provide anonymous feedback and were given the assurance that their feedback would only be used for the purpose of the research, the ultimate objective of which was to develop English courses in Sri Lankan universities.

Procedures

The CBg and PwPg groups were allocated the same amount of course time, which was thirteen weeks (fifty-two contact hours in all). At the end of their respective intervention, written comments were obtained from the PwPg and CBg participants and quantified. Prior to the quantification of the written feedback, the parts of the text that were written in Sinhala of eight PwPg and fifteen CBg respondents were translated from Sinhala into English by the researcher (Even though there were Tamil speaking participants, there were no Tamil texts for translation). The texts were then input in a word processor verbatim using double spacing with a wide margin and given identification numbers.

The 145 (94 PwPg and 51 CBg) written comments of the PwPg and CBg participants were coded (Strauss & Corbin, 1990) by two independent coders. The coders were the researcher (coder A) and an experienced second language teacher (coder B), who was not involved in the research in any respect. Coder B was informed that the texts were written feedback obtained from the participants who took part in the investigation. She was neither informed nor aware of the different treatments to which the students had been exposed.

The coders first had a discussion on how they were going to undertake the coding. It was decided to initially conduct a thematic content analysis and identify the themes/categories that emerged and then label them before quantification for statistical analysis and qualitative interpretation. Only themes pertaining to the intervention provided were coded.

First, the two independent coders conducted a content analysis by reading the data several times. This was done for two reasons: to understand the data and to identify differences and consistencies. While reading, the coders marked the data by themes by colour coding them and made notes in the margin. This way, it was easier to identify the key themes and the sub themes. Then, a careful check was conducted to ensure overlapping or similar categories and all duplications were eliminated.

The themes that emerged were organised into positive and negative categories and subsequently given labels.

Eventually, the two coders, in unison, carefully examined the lists they had made. In case of inconsistencies, the two coders discussed and came to a compromise after verification of the original text. Some of the items had to be either relabelled or excluded after negotiation. Finally, after checking all of the sections of the data under each category, a reduced list of 33 variables with 15 variables denoting negative notions and 18 denoting positive notions was drawn up.

For analysis in SPSS 16.0, the written feedback data that were obtained from the CBg and PwPg participants were first turned into a matrix where the rows were the units of analysis (the respondents or the individual students who provided feedback. The respondents were assigned numbers 1, 2, 3….), the columns were the variables (the themes that emerged), and the cells were the values for each unit of analysis (respondents) on each variable (Bernard, 1996, p 10). The presence of a theme on each comment was coded as '1' and the absence of a theme on each comment was coded as '0'. The sum total of the variables that denoted negative and positive comments was obtained, and the difference between the two variables was considered the dependent variable for the test of significance.

Results

The number of participants that provided written feedback and the positive and negative themes that emerged are given in the tables below.

Table 1

Negative remarks on languages skills that have not received enough attention

Skill(s) Missing	CBg (n = 51) Frequency	PwPg (n = 94) Frequency
Need grammar	1	30
Need exam practice	0	15
Need focus on grammar and writing	0	15
Need writing practice	0	5
Need other skills than listening	0	2
Need speaking practice	16	3
Total	17	70

The PwPg group pointed out that grammar and writing practice was missing. The CBg group only seemed to miss speaking practice.

Table 2

Positive remarks about language skills that are well developed in the instructional programmes

Skills (well developed)	CBg (n = 51) Frequency	PwPg (n = 94) Frequency
Helps improve spoken English	6	27
Helps improve listening	10	26
Helps improve vocabulary	4	24
Helps improve pronunciation	2	13
Helps English overall	0	9
Helps improve reading	6	9
Helps improve writing	5	8
Helps develop presentation skills	1	3
Total	34	119

The PwPg group pointed out more often than the CBg group that specific skills were well-addressed, especially listening, speaking, pronunciation, and vocabulary.

Table 3

Positive remarks made about the respective instructional programmes followed

Overall impression positive	CBg(n = 51) Frequency	PwPg (n = 94) Frequency
Useful method	42	35
Engaging/Interesting	22	28
Better than textbook	5	6
Easy to learn	12	0
Can work at own pace	9	0
Continue the program	7	0
Low pressure	1	1
Not shy to learn	1	0
Helps develop personality	0	4
Total	99	74

The CBg group mentioned with an overwhelming majority that the method was useful and interesting. They also stated that the *self-instructional material-centred multimedia computer program* was engaging and easy to learn. About 18% referred to the advantage of working at one's own pace.

Table 4

Negative remarks made about the respective instructional programme followed

Overall impression negative	CBg (n = 51) Frequency	PwPg (n = 94) Frequency
Too much repetition	0	21
Does not match course manual	0	12
Not completely useful	0	6
Too advanced	0	3
Total	0	42

22% of the PwPg participants were of the view that the instructional programme was repetitive and 13% felt that it failed to match the course manual. The CBg group did not make any such negative remarks.

Table 5

Negative remarks made about specific parts in the instructional programme

Other	CBg (n = 51) Frequency	PwPg (n = 94) Frequency
Cannot check correct answer	2	0
Want teacher also	4	0
Want translation	2	0
Need training in computer	1	0
Total	9	0

The CBg group mentioned a few things that were especially relevant for the *self-instructional material-centred multimedia computer program.* 2 (4%) participants expressed that they could not check their answers; 2 (4%) requested that translation (probably of the text) be provided; and 1 (2%) mentioned that they needed more computer training. 4 (8%) students mentioned that they also wanted a teacher.

A box plot (Figure 10) shows the difference between the two groups (PwPg and CBg) with regard to the positive and negative comments expressed. The participants of the CBg condition were much more positive than the PwPg participants of the intervention they had undergone.
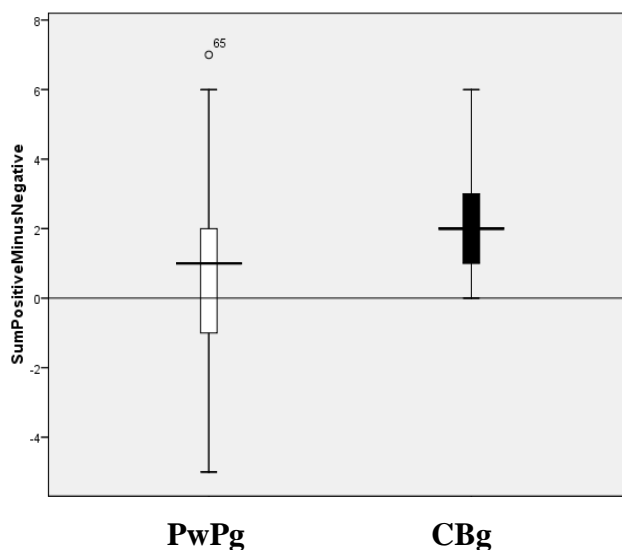
Figure 10: By condition difference between the positive and negative comments

The question that the study wanted to answer was how the students felt about the respective instructional programme they were exposed to.

The participants of the CBg group were significantly more positive than the PwPg participants of the self-instructional material-centred multimedia computer program (due to their perception of its utility and educational benefits) even though the two approaches were basically similar with the same movie and the same concept of repetition and scaffolded explanations.

With regards to the views expressed, about two thirds of the PwPg students felt that some skill or focus was missing; they were especially concerned about the absence of grammar and exam practices. This focus on specific sub-skills and the exam rather than the instructional approach as a whole could of course be due to what teachers in the PwPg condition had said unintentionally to their students. The PwPg teachers might have had doubts about the (PowerPoint based) instructional approach because they themselves were not familiar with this holistic approach to language development which did not explicitly prepare students for the exam. Moreover, the teachers might have repeated some steps more than once (see above for details of steps). At the same time, the PwPg students also pointed out the specific skills that were amply dealt with in the computer program such as listening, speaking, pronunciation, and vocabulary; points that the CBg participants did not even bring up. The CBg students only mentioned that they missed speaking skills. This makes sense, and we need to see if this can be addressed in the computer program or rather with the aid of the computer program.

While the PwPg group pointed out specific skills that were or were not addressed, the CBg participants found the course engaging, useful, and learner friendly especially because they could work at their own pace and recommended that *the self-instructional material-centred multimedia computer program* be continued. About 18% pointed out the advantage of working at one's own pace. The fact that the CBg participants commented more on the computer program as a whole and less on specific skills could be because their focus was not on the specific skills. However, if the comments made by 20% of the CBg participants with regard to the repetitive nature of the instructional approach and the 18% that mentioned self-paced learning are taken into account, it could be concluded that self-paced learning allows the student to focus on what she/he needs at a particular time at her/his own speed and not on what the teacher delivers/presents to the class. The fact that they were more positive also indicates that they may have been highly motivated, and this in turn could have impacted their learning outcomes.

Finally, the CBg group mentioned a few things that are especially relevant for the *self-instructional material-centred multimedia computer program* itself. A very low number pointed out that they wished to have their answers checked or a translation provided, and four participants mentioned that they also wanted a teacher. This method constitutes quite a change for the Sri Lankan students, away from the teacher-centred large classroom situations they had so got used to. This may well be what is reflected in these answers.

Conclusion/Implications

The research reported attempted to seek answers to issues faced by tertiary level second language learners learning the language in heterogeneous classrooms. A *self-instructional material-centred multimedia computer program* was proposed as a potential solution on the assumption that it would simulate a teacher-directed classroom learning environment, deal with heterogeneous large classes through individualised self-paced learning, and be instrumental in improving the English language proficiency of undergraduates.

Considering that the CBg participants perceive the self-paced computer based teaching positively suggests that the *self-instructional material-centred multimedia computer program* should be continued but adapted to meet the requests of the participants while giving them more time and space to get used to a radically different approach to learning/teaching English as a Second/foreign language. For example, the program itself could be expanded with pronunciation,

oral practice, and small group discussions based on the actual dialogues in the movie--they may repeat utterances (for pronunciation practice) or engage in actual conversations with the characters either online or offline. In line with the individual self-paced learning route set by the program, however, it remains important that students are not forced to produce output before they are ready to do so. The program should thus allow provisions for both the students who are ready to produce and those who need to focus on the input for a longer period of time.

This paper acknowledges the efficacy of a dynamic usage-based *self-instructional material-centred multimedia computer program* in overcoming learner anxiety in a heterogeneous teacher-fronted language class. The computer program provides individualised self-paced learning support to the learners through multiple exposures to comprehensible input and scaffolding (both instructional and visual scaffolding) through (general) questions at the beginning, explanation and paraphrasing of chunks (through the recorded voice of a teacher), pictures/illustrations, movie segments (both audio and video), multiple exposure to the segments, captions (onscreen text in the same language as audio), and review questions at the end of each module or scene. However, the generalizability of the results obtained is limited as the study was confined to the Faculty of Management Studies and Commerce, University of Sri Jayewardenepura. Additional research in other Faculties in the University of Sri Jayewardenepura and in other universities in the country and region could more accurately assess the efficacy.

References

Bernard, H. R. (1996). Qualitative data, quantitative analysis. *Field Methods, 8*(1), 9-11.

Birdsong, D. (2004). Second language acquisition and ultimate attainment. In A. Davies & C. Elder (Eds.), *The handbook of applied linguistics* (pp. 82-105).

Chapelle, C. (2001). *Computer applications in second language acquisition*. Cambridge: Cambridge University Press.

Clark, D. (2004). *Learning and Memory*. Retrieved June 21, 2012, from http://nwlink.com/~donclark/hrd/learning/memory.html

CourseLab, http://www.courselab.com

Crystal, D. 2003. *English as a Global Language* (2nd ed.). Cambridge: Cambridge University Press.

Dalton, D. W., Hannafin, M. J., & Hooper, S. (1989). Effects of individual and cooperative computer-assisted instruction on student performance and attitudes. *Educational Technology Research and Development, 37*(2), 15–24.

Dickson, S. V., Chard, D. J., & Simmons, D. C. (1993). An integrated reading/writing curriculum: A focus on scaffolding. *LD Forum, 18*(4), 12-16.

Dobrovolny, J. (2006). How adults learn from self-paced, technology-based corporate training: New focus for learners, new focus for designers. *Distance education, 27*(2), 155-170.

Ellis, N. C. (2002). Frequency effects in language processing. *Studies in second language acquisition, 24*(02), 143-188.

Fletcher, J. D. (1996). Does this stuff work? Some findings from applications of technology to education and training. *Paper presented at the Teacher Education and the Use of Technology-Based Learning Systems Conference*, Warrenton, VA.

Gass, S. M. (2013). *Input interaction and the second language learner*. London: Routledge.

Godwin-Jones, R. (2007). Emerging technologies tools and trends in self-paced language instruction. *Language Learning & Technology, 11*(2), 10–17.

Herrell, A., & Jordan, M. (2004). *Fifty strategies for teaching English language learners*. (2nd ed.). Columbus, OH: Pearson.

Hong, N. T. P. (2013). *A dynamic usage-based approach to second language teaching.* Unpublished doctoral dissertation, Rijksuniversiteit Groningen, Groningen.

Huckin,T. (2003).Specificity in LSP. *Iberica 5*, 3-17.

Irshad, F. M. (2015). *Second language development through the lens of a dynamic usage-based approach*. Unpublished doctoral dissertation, University of Groningen, Groningen.

Jin, Y., de Bot, K., & Keijzer, M. (2015). The anxiety-proficiency relationship and the stability of anxiety: The case of Chinese university learners of English and Japanese. *Studies in Second Language Learning and Teaching, 5*(1), 41-63.

Karunaratne, I.M. (2009). *Teaching of English: A sociological study*. New Delhi: APH Publishing Corporation.

Krashen, S.D. (1981). *Second Language Acquisition and Second Language Learning*. Oxford: Pergamon.

Krashen, S. (1982). *Principles and practice in second language acquisition*. Oxford: Pergamon.

Krashen, S. D. (2003). *Explorations in language acquisition and use* (pp. 1-27). Portsmouth, NH: Heinemann.

Krashen, S. (2013). Rosetta Stone: Does not provide compelling input, research reports at best suggestive, conflicting reports on users' attitudes. *The International Journal of Foreign Language Teaching, 8*(1), 2-5.

Lafford, B. (2004). Review of Tell Me More Spanish. *Language Learning and Technology, 8*(3), 21-34.

Langacker, R. W. (1987). *Foundations of Cognitive Grammar: Vol. 1. Theoretical Prerequisites*. Stanford, CA: Stanford University Press.

Langacker, R.W. (2008). Cognitive grammar as a basis for language instruction. In P. Robinson & N. Ellis (Eds.), *Handbook of cognitive linguistics and second language acquisition* (pp. 66-88). New York: Routledge.

Lao, C. & Krashen, S. (2008). Heritage language development: Exhortation or good stories? *International Journal of Foreign Language Teaching 4* (2), 17-18.

MacIntyre, P. D., & Gardner, R. C. (1994). The subtle effects of language anxiety on cognitive processing in the second language. *Language learning, 44*(2), 283-305.

Mastin, L,. (2010) *Sensory Memory.* Retrieved June 21, 2012, from http://www.human-memory.net/types_sensory.html

Nielson, K. B. (2011). Self-study with language learning software in the workplace: What happens. *Language Learning & Technology, 15*(3), 110-129.

Nuttall, C. (2005). *Teaching reading skills in a foreign language* (2nd ed.). Oxford: Heinemann.

Perera, M. (2010). *Coping with student heterogeneity in the English Language Classroom. A Collaborative Action Research.* National Education Commission. [online] http://www.nec.gov.lk/web/images/pdf/research/general/plroblems in teaching English full report.

Raheem, R. (2004). English Language teaching in Sri Lanka: future perfect? In R. Raheem & A. Hamlyn (Eds.), *Innovation in English language teaching*. Selected papers from the 2nd SLELTA International Conference (pp. 29-44). Colombo: British Council.

Rimrott, A. (2010). *Computer-assisted vocabulary learning: Multimedia annotations, word concreteness and individualized instruction*. Unpublished dissertation, Simon Fraser University, Burnaby, BC, Canada.

Skehan, P. (1998). *A cognitive approach to language learning*. Oxford: Oxford University Press.

Soyemi, J., Ogunyinka, O. I., & Soyemi, O. B. (2011). Integrating self-paced e-learning with conventional classroom learning in Nigeria educational system. *Proceedings of the 1st International Technology, Education and Environment Conference* (pp. 700-707). African Society for Scientific Research (ASSR).

Strauss, A., & Corbin, J. M. (1990). *Basics of qualitative research: Grounded theory procedures and techniques*. Newbury Park, CA: Sage Publications, Inc.

Tomlinson, B. & Masuhara, H. (Eds.). (2010). *Research for materials development in language learning.* London: Continuum.

Vacca, J. (2008). Using scaffolding techniques to teach a social studies lesson about Buddha to sixth graders. *Journal of Adolescent and Adult Literacy, 51*(8), 652–658.

Van Patten, B. (ed.). (2004). *Processing Instruction: Theory, Research, and Commentary*. Mahwah, NJ: Erlbaum.

Van Patten, B., & Benati, A. (2010). *Key terms in second language acquisition*. London: Continuum.

Verspoor, M. & Hong, N. (2013). A dynamic usage-based approach to Communicative Language Teaching. *European Journal of Applied Linguistics, 1*(1), pp. 1-177.

Wallace, C. (1992). Reading. Oxford: Oxford University Press.

Yi Liu, P. (2012). *CALL programme for DUB approach*. Unpublished master's thesis, University of Groningen. Groningen.

Zyzik, E. (2009). The role of input revisited: Nativist versus usage-based models. *L2 Journal, 1*, pp. 42–61.