# The Trade Fair: Introducing ESP Multimedia at a Technical University in Taiwan

Shu-Chiao Tsai[1] and B. Davis[2]

[1] National Kaohsiung University of Applied Science, Kaohsiung, R.O.C.

[2] College of Arts and Sciences / University of North Carolina at Charlotte, Charlotte, U.S.A.

***Abstract*—This discussion provides an overview of steps in developing and assessing ESP multimedia courseware at a technical university in Taiwan. The courseware is designed to expand language skills that foster Chinese learners of English as they develop communicative skills for international business. Student evaluations of the prototype for its Trade Fair component suggests that it is useful for situating the learning process and simulating social cues, which in turn supports building the communicative skills needed for the kinds of interaction demanded by tourism, travel, hospitality, and similar areas of international business.**

***Index Terms*—culture, multimedia courseware, Taiwan, trade fairs**

## I. INTRODUCTION

The task of creating media learning environments for English for Specific Purposes (ESP) has several components. The media must be rich enough to engage and sustain student interest and its contents must include pedagogical objectives for practicing English in authentic contexts. However, both task and media must be subsumed within a larger goal for our ESOL students in Taiwan and perhaps elsewhere: building leadership as well as communicative skills for use in international contexts. In what follows, we discuss the development and initial responses to an enriched media learning environment (MLE) designed to increase student fluency and confidence in using English in professional settings, here focused on specific aspects of business, international trade, and tourism [45]. Our goal is to contribute to the discussion of pedagogical issues contextualizing the design, development, implementation, and assessment of enriched learning environments to support ESP.

One benchmark of being a professional is knowing and using the professional lexicon. And there are other benchmark skills: knowing when to speak and on what topics, whom to write and how best to address the recipient; when to complain and when to apologize, and how to size up the communicative situation and the participant roles. In other words, today's student needs a range of skills in pragmatics – defined broadly as the *cognitive, social, and cultural study of language and communication* [34] – as well as in intercultural communication. Researchers such as Istvan Kesckes call this range of skills by a single term, *intercultural pragmatics* [23]. E-learning, including multimedia courseware, can facilitate learning these skills in an integrative fashion, at the learner's convenience. Ideally, student response must be obtained at every stage of courseware development. Spellman [41] suggests in his discussion of geography courseware, faculty may not always assess courseware after once implementing it, but students are the ones who will constantly assess their own interaction. As with Watts [48], whose recommendations for rich media we follow, we endorse the concept that courseware should be learner-centered, rather than technology-centered. The present discussion reports on our solicitation of responses from students' trialing a multimedia courseware, to see if the courseware might be sufficiently appealing and potentially motivating to warrant further development for full classroom implementation.

## II. BACKGROUND

The courseware has been designed to help Chinese learners of English as they develop communicative skills for international business. The targeted students are enrolled in intermediate and advanced Applied Foreign Languages (English) at technical universities in Taiwan. The courseware introduces a new domain within a foreign language course, to meet the Ministry of Education's goal of foreign language education for vocational education: students are to be provided with foreign language ability necessary to succeed in the job market, as well as with advanced professional knowledge. The Ministry's 2000 *Report on Foreign Language Curriculum Development for Vocational Education* [29] proposes that curriculum design at technical universities or universities of technology must be based on industry needs and must focus on making students skillful professionals in their area of specialty, which includes learning languages needed by that particular area. Such a goal can be attained with a Language for Specific Purposes approach. To date, however, Lai finds two general problems remaining [26]: there is a lack first, of qualified ESP teachers who have both pedagogical skills and real-work experience, and second, of curriculum and materials that reflect or meet job market needs. E-learning offers something which responds to these problems, as it can include a range of computer-supported interactions and text and graphic/animation presentations [28, 12, 2]. The e-learning industry is growing rapidly; indeed, Sung et al. [43] have suggested that the development of instruction-oriented software is one of the most important issues in promoting e-learning in Taiwan.

## III. APPROACHES AND METHODOLOGY

### A. Three emphases

Our task as courseware designers was to subsume the technology and focus on student learning. Accordingly, we identified three emphases:

1) Exploiting the richness of multimedia to simulate social cues for situating learning.
2) Identifying cultural expectations of students about learning and about interacting with other cultures.
3) Building communicative skills needed for the kinds of interaction demanded by tourism, travel, hospitality, and similar areas of international business.

By richness of multimedia, we mean that multimedia courseware presents text, audio, and graphics/animation as illustrating information, in ways that will give the student practice with the concepts and the discourse expectations associated with the domain or situation. This practice is part of *situated learning* in the sense discussed by Belcher [4] within the framework of sociocultural approaches as "speech genres (broadly defined to include written text) of specific discourse communities" (p. 170).

The Trade Fair multimedia courseware situates participants as belonging to a pre-professional group of learners who share a communicative goal. It can be incorporated within courses in Business English, Tourism, or Economics, and can be used to initiate conversations among students and instructors. Because instructors familiar with the subject matter may not be available in Taiwan, the courseware is designed to support autonomous learning and independent self-access, with expectations for expanded proficiency built into the multimedia prompts and courseware goals..

Next, the issue of cultural expectations about education can affect the design and the choice to use multimedia courseware. A learner-based design [48] and a constructivist viewpoint [11] assumes students will find an easier transition to the world of work if some of their learning experiences and learning environments are *situated* and their contexts made explicit as well as implicit [15]. In Taiwan, and particularly at our technical universities, a shift to a learner-based paradigm cannot happen overnight. Such an approach is in contrast to the dominant, still-used teaching-learning paradigm from which our students in Taiwan have typically come [27]. That instructional tradition has most often been discussed for Chinese students studying out of country. Jin and Cortazzi [24], for example, draw on Confucian learning heritages and mimetic language practices around writing Mandarin characters to exemplify the construct of a *culture of learning* which "frames what teachers and students expect to happen in classrooms."

The more familiar Chinese paradigm, loosely characterized as teacher-centered [25], and, within language studies, seen as 'form-focused' [38], grounds student expectations for ways information is to be delivered. Savignon and Wang suggest that a communicative, learner-centered approach to teaching English is beginning to be used in Taiwan. E-learning, which is generally held to be learner-centered [45], incorporates both a communicative and an integrative approach [6]. It is assumed that motivation is linked to learner-centered teaching and to learner-centered courseware. Motivation, comments Murray [30], is complex, a "multifaceted phenomenon closely linked to the identity of the learner." Interactional motivation could be accomplished for self-directed learners, he comments, by providing websites and discussion groups, or by building it into the software itself in some way [36].

TABLE I.
EXCERPTS FROM TWO TALK-ALOUDS: 'AMANDA' AND 'IKE'

| **IKE** |
|---|
| Opens the Tourism section, looks at several different cities, goes to sections on listening. He subvocalizes approval at each change of graphics.<br>*Travel for me is going to Taipei.*<br><br>RESEARCHER COMMENTS<br>The tourism section is the most game-like in appearance; to engage, however, the user must choose activities. |
| In turn, visits and uses oral cloze, unscramble, listening practice: wants to see if courseware could tutor pronunciation.<br>*Look, each section has its own function.*<br>*This could be used with young students for practice.*<br><br>RESEARCHER COMMENTS<br>Ike wants to teach conversation. He responds to the theme of 'trips' and begins to think of applications, though he is uneasy with keyboarding. |
| He takes his hands off the keyboard.<br>*When I was a freshman, this could have helped me.*<br><br>RESEARCHER COMMENTS<br>He speaks well but will have to catch up with newly-entering students on technology skills. |
| **AMANDA** |
| Opens Business Letters.<br>International Business – *good. I will try to do this job; I want to go to the US for the travel. I'm not shy. If I am going to a company, I can use this to prepare for my interviews.*<br><br>RESEARCHER COMMENTS<br>She begins almost immediately to decide how she could use the software for her own purposes beyond a class. |
| Trade Fair – *Lots of terms. Oh, market research process!*<br>Credit Application –*We can get other countries to trust us .*<br>Packing List – *I haven't seen this before but it organizes information for a business.*<br>Negotiation – *Oh, can you trade information?*<br>Export and Payment – *This must be the 'paper trail,' I know these are key words.*<br><br>RESEARCHER COMMENTS<br>She situates herself, talking aloud about who would use a section, why, and for what purpose. She sees that this section presents a set of processes and key words, and she can extrapolate additional processes. |

Third, the multimedia should support the complex issue of identifying and building skills for the desired types of interaction, here, the issue of self-direction, and sustain motivation. As a window on motivation and self-direction, we conducted talk-alouds with two students [20] at National Kaohsiung University of Applied Sciences, in May, 2007, and found each of the two student consultants using the same courseware for different purposes. 'Amanda,' a rising senior in Business, was technology-savvy; 'Ike,' a language major about to graduate, was not.

Each agreed to talk aloud while starting up the courseware and choosing an area to investigate. Chosen because they were students who regularly dropped by the language laboratory, the two of them also represented different skill sets and what seemed to be different degrees of learner autonomy. Their talk-alouds echo findings of other researchers: students will be motivated differently, will situate themselves differently, and many must learn or rehearse technology skills if they are to use courseware effectively. For example, Young [50] comments that many novice learners are unable to bridge "occasions, subjects and environments" and need some way to connect to an "experiential repertoire." Similar comments arise in many studies of e-learning [9].

The two talk-alouds also provided insight into how students might react to our third emphasis, building communicative skills needed for international business. Amanda has known since arriving on campus that she wants a career in international business. Her talk-aloud shows her inventory of how the courseware will support her future work and her current learning. Ike, who does not plan on business as a career, is interested in those features of the courseware that he can adapt to teaching pronunciation. Amanda can use the courseware to build skills she already knows she needs; going through the courseware makes Ike aware of what skills he will need to prepare himself to teach.

### *B. ESP Courseware for International Trade Fairs: overview of design*

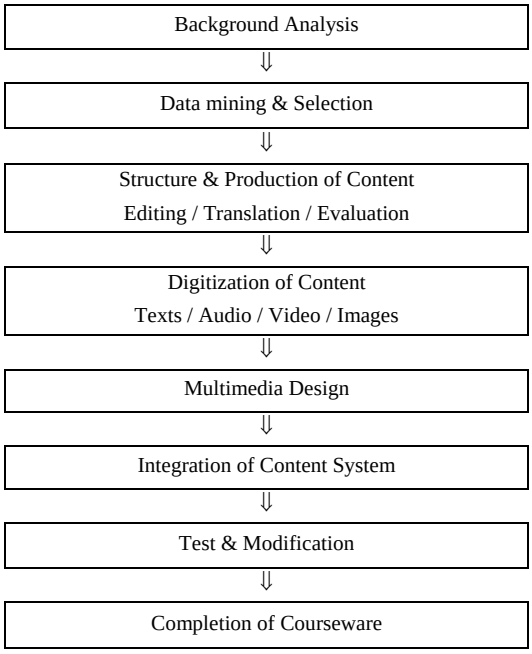
As Taiwan enters the World Trade Organization, increased opportunities for contact with foreign visitors for business or tourism will have to be met. Upgrading public knowledge of tourism English is important for that industry's development. In 2004-05, Tsai designed and implemented the first modules in three categories of courseware: semiconductor technology, international trade, and tourism and travel. The learning units in the courseware include relevant vocabulary, correct pronunciation, speaking, translation, listening, and questions for learners to use as they practice new skills. The material is presented in a package that draws on a Web-browser (Internet Explorer) for both web and CD capabilities. The content can thus be presented through a portable, stand-alone digital medium (CD-Rom), and can also be delivered via the Internet. The steps used to design and create the courseware in this project are shown below: [1, 17, 40, 46]

The Trade Fair material includes six components: requirements for participating in a trade fair; a virtual website of a trade fair; conversation practice; writing practice; links to websites of global trade fairs; and terminology. The design of the whole set of materials, comprising five skills for learning English (listening, speaking, reading, writing and translation), is emphasized via authentic text, audio, and visual communication by multimedia technology. Tschirner [47] explains, in his discussion of digital video in the classroom:

Multimedia applications help learners to gain broad access to oral communication both visually and auditorily. Authentic target language video materials provide rich input environments. Learners' control over these materials provides them with comprehensible input and allows them to focus both on meaning and form.

An on-line test system of language skill practice and a self-checking evaluation system for participation in a trade fair is also available so that learners can monitor their progress.

TABLE II.
STEPS IN CREATING COURSEWARE




The courseware can be used for academic courses or for on-the-job training. Each of its components gives baseline experience in an international business context that will, in the real world of work, assume that the person has some leadership skills. The learning is situated in an authentic context, emphasizes input processing and listening comprehension, and promotes cultural knowledge [47]. The content of the courseware is presented in both English and Chinese and endeavors to be both simple and consistent. The target audience of this courseware is students and other people with intermediate-level English proficiency who can, when needed, turn to their other language for support as they develop a bi- or multi-lingual, and multicultural, professional identity [5].

The courseware prototype was first trialed in 2005 by 51 seniors majoring in the four-year English program in the Applied Foreign Languages Department of Shu-Te University of Technology, located in Kaohsiung, Taiwan. Afterwards, a questionnaire elicited students' responses concerning the suitability of the courseware content, and its usability. Their responses identified areas of content that could have high motivation, and suggested usability concerns with speedy access to screens. Accordingly, between 2005 and 2007, the courseware was changed from flash-components to a java-based platform, to increase speed of access, and upgraded the graphics in those content areas showing potential for motivation.

## IV. RESULTS

### *A. ESP Courseware: The Trade Fair Component*

We have found to date no extended discussions of trade fairs specifically from the ESP viewpoint, although there are a growing number of discussions of English as lingua

franca for international meetings, such as Rogerson-Revell [37]. In Nickerson's review of English as the lingua franca of international business, she notes the emphasis on "one of four major communicative genres; negotiations, meetings, e-mail and business letters" [34] (p. 369). Trade fairs require participants to communicate in all four genres; in addition, they combine Business, Tourism, and Hospitality English. Blue and Harun [8] chart the verbal and non-verbal components of the guest or hospitality cycle for *arrival—familiarisation—engagement—departure*. Hospitality language involves "speakers and hearers … status protocols and role expectations (p. 77). Their detailed study of language used by hotels identifies as a problem a "lack of initiative" (p. 85) on the part of hotel staff, particularly receptionists, in dealing with foreign guests. We see this lack as being akin to the need for developing leadership skills as part of the new professional identity for students learning English.

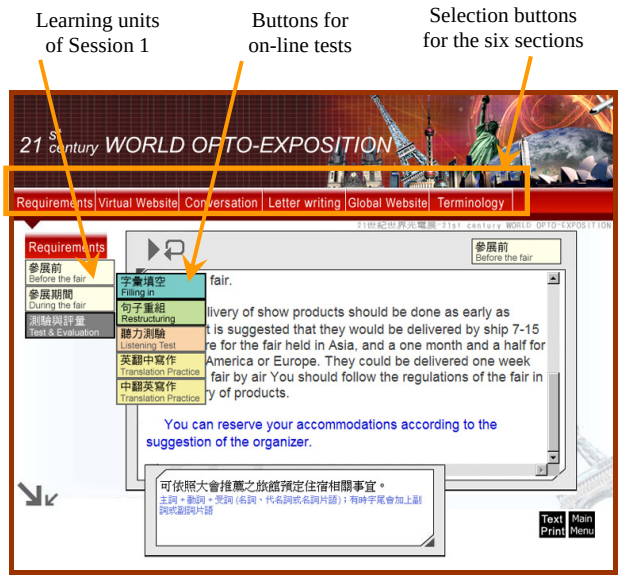



Figure 1. Main page of the courseware

The Trade Fair component includes six sections shown in Figure 1. They are designed to support the learner in becoming conversant with the rudiments of the communicative genres: (1)Requirements for Participation in a Trade Fair; (2) Virtual Website for a Trade Fair with On-line Practices and a Self-checking System; (3) Conversation Practice; (4)Letter Writing; (5)Hyper-linking of Global Websites of Trade Fairs and (6) Terminology. The conversation practices and letter writing exercises, which present the potential for a dialogue, offer social as well as genre cues. E-mail and faxes and business letters are changing in form as well as style: see, for example, the range of abstracts for the 2004 CERLIS conference on Genre Variation in Business Letters at http://dinamico.unibg.it/cerlis/page.aspx?p=111, or Nickerson [31]. A screen with a grey frame, shown in the center, is the learning window where all the learning activities will be conducted. For convenience, a "Text Print" button at screen bottom will allow teachers or learners to print all the courseware text to facilitate teaching or learning.

### *A.1 Trade Fair: Pre- and post-fair participation*

If learners are to develop leadership or initiative in guiding or helping foreign visitors, they must first learn to notice and identify the tasks and responsibilities required before and during a trade fair. The courseware begins, then, with such identification, and its layout hopes to accommodate both the long-standing instructional tradition of expectations around enumeration and memorization [27] (p. 46-48 and passim) of tasks and more recent pedagogical emphases on communicative function and genre. The attention here to details is an effort to suggest social cues. There are specific tasks to be completed by subordinates as well as managers before and during a trade fair: each task suggests different pragmatics and different hierarchies.

A listing of *Five Tasks* for pre-fair activity suggests different registers for speaking and writing: Registration; Booth rental, including selection, design and decoration of the booth and related facilities; Preparation of products for display; Accommodations reservations for staff; and Promotion. During the trade fair, *Three Responsibilities* stresses the importance of maintaining discussion and interaction. These include the Examination of daily results; Collection of information from visitors; and Evaluation of staff performance.

### *A.2 Trade Fair: Details of the Simulation Website*

Learners access the bilingual website for a simulated trade fair, called "21st century World Opto-Exposition", by clicking the button, "Virtual Website". On the main page of the website, the general information required for a trade fair is presented in the learning window, both in English and in Chinese. Some skills (pronunciation, reading, listening and translation) for learning English are presented for practice, as shown in Figure 2.


Figure 2. Main page of (Simulated) Trade Fair Website

The introductory screen offers two kinds of information to users. The function keys, which support the interactivity, present different aspects of what must go on behind the scenes in order for the host staff to mount a successful Fair. As outlined above, the functions represent activities completed before the Fair and during it. However, even if students have previously attended a fair, they will probably not be able to generate a full list of

activities without help. Each of the 11 function keys (*registration, information for visitors, application, change of venue/date, booth rental, facilities rental, setup/dismantling, security/liability, operation, breach of contract, accommodation*) will involve mastery of differing lexical items, and possibly, different registers. Registration directions, for example, may be written using imperatives as directives (*Send…sign…fill in…*); discussions of security/liability may use more technical vocabulary in full sentences with modal verbs (*You may…you cannot…We are not…*).

The labels on the function keys are English before being clicked and Chinese after clicking. The three paragraphs of text in the middle of the page are also offered in both Chinese and English. Paragraph 1 identifies products associated with a growing industry, first by acronym and then by the nominalizations behind the acronym; the words may not translate as easily. Paragraph 2 offers another set of less technical phrases or terms that highlight the events (*press conference, new product showcase, opening ceremony, speeches, industry workshop, technology seminars*), and these phrases are more likely to be recognized by intermediate readers of English. In an online vocabulary profiler, the acronyms and product names were 'off-list' words, while all of the terms defining the events, with one exception ('*ceremony*') were from the list of 1000 most frequent words [13, 21]. While paragraph 3 does not really need a visible, parallel translation, it does present Western print text conventions for dates and times.

After any paragraph of the English text is touched by the mouse, the color of the paragraph becomes blue, shown in Fig 2. The paragraph is being spoken in English as learners click the left button of the mouse. This allows learners to practice English reading skills, and helps improve the learners' pronunciation and listening ability. In addition, learners can use the recording system offered by Microsoft Office to record their pronunciation, which allows learners to practice their English speaking skills. After clicking the right button of the mouse, the Chinese translation and explanation of the paragraph will be given in a pop-up window. This will allow learners to practice writing and translation skills at an intermediate level, whether by reading them or listening to them, however many times the user desires. The initial (2005) cohort of student users reported that this feature increased their interest and motivation; in our 2007 assessment, we collected baseline data and pre- and post-courseware performance to see if using this section could, in fact, provide improvement in skills as well as in confidence and satisfaction.

The function keys linking navigation through registration, exhibitors' information, and online practice are found on the left side of the main page; these three areas incorporate different sub-genres of written content. While the areas open in different windows, the keys are consistent. The registration area provides registration dates and fees. The exhibitors' information includes the kinds of information, procedures, and requirements generally announced on the websites of trade fairs, such as participation application, venue and show dates, booth rental, facility rental, schedule of construction and dismantling, security, and liability, operation and breach of contract. Information related to hotel accommodations and flight schedules is also given. The site asks students to practice the different sorts of reading listed by Stvan [42]: *Intensive reading*, or slow and careful reading, word for word; *Extensive reading*: moving quickly, as in pleasure reading; *Skimming*: reading just for gist; and *Scanning*: looking for specific information (p. 89). Intensive reading must be used for scheduling accommodations, rentals, dates; skimming can be used in browsing events and, once familiar with the genre, contracts, in order to identify key areas for later close reading; scanning can be used for schedules and brochures. Figure 3 gives an example of a Practice screen designed to help students learn how to budget for a trade fair.

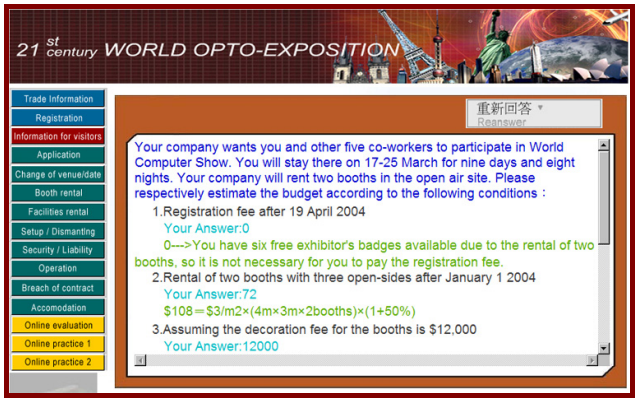



Figure 3. On-line practice with the self-checking system on the website [ Note: Correct answers are displayed in green ]

### *A.3 Trade Fair: Conversation Practice and Letter Writing*

These sections can be accessed by clicking the buttons "Conversation" and "Letter Writing". The most frequently encountered topics for conversations by exhibitors and visitor in trade fairs were chosen for learners to practice. In general, there are eight types of business letters that are often used for the preparation of international trade fairs, including letters of registration, flight and hotel accommodation, and invitation. It provides a total of sixteen different Chinese and English writing examples. The operational mode for language learning in this section is the same as that in the sections mentioned above.

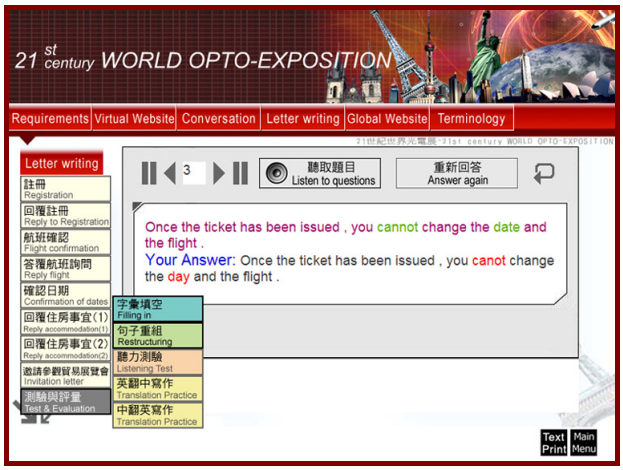



Figure 4. An example of the self-checking evaluation system for listening test: the incorrect part of learners' reply is shown in red, and its reference answer is in green.

In addition, an on-line evaluation system includes several language tests and practices, such as choosing vocabulary, sentence restructuring, listening tests, and bilingual translation writing (Chinese to English, and English to Chinese). When any test is selected, all the questions in the test are randomly chosen by the software system; this should provide a richer, and more flexible and diverse evaluation environment. In addition, these learning activities are combined with an instant self-checking system in order that learners can examine their progress immediately. An example of the self-checking evaluation system for listening test is given in Fig 4.

*A.4 Trade Fair: Hyper-linking and Terminology*

This section can be accessed by clicking the button "Global Websites." Several official websites of trade fairs, including Photonics, Computers, Electronics, Telecommunication, Toys, Machines, and Gifts, are hyperlinked; students can access these sites by simply clicking on their corresponding button. According to learners' individual learning needs or interests, this supplemental resource allows learners to move closer to a real situation where authentic material, practice, experience, beliefs and behaviors can be acquired. This design of hyper-linking through the Internet provides a learner-centered strategy which enables learners to learn whenever, wherever and whatever the learners want to learn according to their own objectives. In addition, it offers a learning environment with a high degree of freedom so that learners can choose appropriate learning content themselves. This value and benefit corresponds to the requirements of ESP, in which content and method are based on the learner's needs. Thus, the integration of Websites and expanded information technology into the courseware design would be a powerful tool that supports new approaches to ESP teaching and learning in Taiwan.

For EFL students in Taiwan, vocabulary is seen as a key factor in improving reading skills, and increasing vocabulary comprehension is seen as the most effective reading strategy [49], especially in ESP courses. Accordingly, all relevant terminology is given in both English and Chinese for greater ease and better understanding, and is listed alphabetically in English.

*B. Findings: Second Student Response to the Trial Courseware*

A second trial of the courseware was conducted in 2007 through questionnaires administered to 63 students taking courses in listening and writing at three different grades, or levels, in the Department of Applied Foreign Languages of the National Kaohsiung University of Applied Sciences in Kaohsiung, Taiwan. All valid responses were input and filed for statistical data analysis using SPSS. Before the trial, the students completed a TOEIC-like test, including two units (short conversation and quick response), to provide understanding of their English proficiency, especially in listening and reading. The background of the students is given in Table 3. The students were predominantly female, and roughly three-quarters tested at high or intermediate proficiency.

TABLE III.
BACKGROUND OF THE STUDENT

| item / grade | Gender | | Score Group | | |
|---|---|---|---|---|---|
| | male | female | high | intermediate | low |
| Sophomore | 1 | 27 | 8 | 10 | 10 |
| Junior | 5 | 18 | 4 | 13 | 6 |
| Senior | 3 | 9 | 6 | 4 | 2 |
| | 9 | 54 | 18 | 27 | 18 |

A Likert-scale questionnaire was administered to elicit student responses concerning the suitability of the courseware content and its usage, and their reflection on language learning as supported by the courseware. Each question in the questionnaire had five choices for answers, ranging from Very Satisfied (5), Satisfied (4), Average (3), Not Satisfied (2), to Disliked (1). The questions target the following elements: Question 1 concerns improvement for the target field, Questions 2-7 concern the suitability for practice of English skills including vocabulary, listening, speaking, reading, writing and translation (English to Chinese), Question 8 and 9 are respectively related to the relevance of the content and English, and Questions 10 and 11 respectively concern learning effectiveness through the on-line tests and their instant self-checking system. Questions 12 and 13 respectively correspond to motivation promotion through the bilingual and easy interface design of the courseware. Question 14 is related to recommendations of learners.

The returned questionnaires were analyzed through SPSS. The Cronbach alpha reliability for the questionnaires was 0.887, indicating that the collected data were highly reliable. The choices students selected for each question were averaged and the standard deviation was analyzed. The results of the questionnaire are displayed in Table 4. The analysis, doing the independent samples t-test and one-way ANOVA, focuses on the genders and grades of students, groups of the high/low English proficiency according to the TOEIC-like test (the highest 27% counts 18 for the high proficiency e group; the lowest 27% counts 18 for the low proficiency group), in order to understand if there is significant difference existing among the factors mentioned above. An acceptable significant level for each statistics was at .05 in this study.

Student responses to the new questionnaire have given us much to think about. As the satisfaction questionnaire administered by users can be considered to be their learning motivation or results [44], we highlight six issues:

1) The overall mean score was 4.00, which means that most students selected "Satisfied" as the answer to the questions. While this score indicates that students are satisfied with the courseware, it is more important to understand what seems to have pleased them.
2) The same high score (M=4.11) for Question 1 and 14 indicates that students thought the courseware was helpful to improve their understanding about International Trade Fairs so that they intend to recommend this courseware to their friends.
3) The higher scores for Questions 10 (M=4.25) and 13 (M=4.22) suggest that students feel the on-line tests

are helpful for learning and that a user-friendly environment design in learning systems can promote learning motivation and interest, which would lead to enhanced transfer of information and knowledge to learners and thereby add pedagogical value to the application.

TABLE IV.
QUESTIONNAIRE RESULTS: MEAN AND STANDARD DEVIATION OF EACH QUESTION

| Questions | Mean (STD) |
|---|---|
| 1. The courseware improves your cognition for international trade fairs. | 4.11 (0.599) |
| 2. The courseware is sufficiently helpful to improve vocabulary for international trade fairs. | 3.95 (0.580) |
| 3. The courseware is sufficiently helpful to improve listening skills for international trade fairs. | 4.14 (0.759) |
| 4. The courseware is sufficiently helpful to improve speaking skill for international trade fairs. | 3.24 (0.712) |
| 5. The courseware is sufficiently helpful to improve reading skills for international trade fairs. | 4.08 (0.655) |
| 6. The courseware is sufficiently helpful to improve writing skills for international trade fairs. | 3.48 (0.6185) |
| 7. The courseware is sufficiently helpful to improve translation skills for international trade fairs. | 3.94 (0.738) |
| 8. The knowledge of the courseware is relevant. | 4.13 (0.635) |
| 9. The English of the courseware content is relevant. | 4.13 (0.707) |
| 10. On-line tests are helpful for learning. | 4.25 (0.647) |
| 11. The instant self-checking and evaluation system enhances the effectiveness of self-learning. | 4.05 (0.682) |
| 12. The bilingual and multimedia design of the courseware decreases the learning barrier and promotes the learning interest and motivation. | 4.17 (0.636) |
| 13. The function keys improve navigation | 4.22 (0.634) |
| 14. You recommend this courseware to your friends | 4.11 (0.599) |
| Mean Score | 4.00 (0.435) |

4) Question 12 had a high score (4.17), which suggests the bilingual and multimedia design of the courseware can decrease the learning barrier of the students and promote learning interest and motivation. According to Gardner and Lambert [18], attitudes and motivation have strong relation to language achievement no matter how the learners' aptitude and intelligence may be. Having studied the variables that might affect 1200 FL learners' strategy use, Oxford and Nyikos [35] found that motivation had the most powerful influence on the choices of language learning strategies. Thus, strong motivation leads to positive attitudes, and consequently learners can learn well in the process of learning their target language. The original design of the courseware was focused on creating a user-friendly learning environment which could promote interest and motivation for sustaining learning, especially for learners with low English proficiency who intend to study ESP courses. Positive response here was gratifying.

5) The score 4.14 for Question 3 (concerning English Listening skill) was higher than the others related to language skills. This suggests that the audio component, which was recorded by an L1-English speaker, would give a favorable learning environment for students to practice English listening skills. The fullest collaboration for ESP teaching is often said to be one where a subject expert and a language teacher team-teach classes [14]. However, such teaming has not been feasible in vocational education in Taiwan for several reasons, such as lack of qualified teachers, difficulties of collaboration or relevant curriculum design. Thus, the ESP courseware incorporating L1 audio can be an auxiliary teaching tool to help Chinese students of English practice languages skills, as well as learning professional knowledge.

6) The scores 3.24 for Question 4 (concerning English speaking skills), 3.48 for Question 6 (concerning English writing skills) were a bit lower than the others, but still higher than the average , or 3. These scores suggest that the courseware needs to focus more strongly on the practice of speaking and writing skills. This can most easily be handled by developing related activities such as blogs as a potential solution to writing, and direct audio recording or podcasts as a possibility for oral practice as reviewed by Godwin-Jones [19] and Chinnery [10].

7)

When the high and low English proficiency groups are compared, the general mean of the high English proficient group is 3.94, and 3.92 for the low English proficient group. Further analyzed by different questions between two groups, it was found that the low English proficiency group gave higher scores for Question 4, 5 and 6 which are related to speaking, reading and writing skills, but the high English proficiency group was higher for questions related to the relevance of English and professional content, and on-line tests (Question 8, 9 and 10). This comparison reveals that the low English proficiency group is more focused on English practice skills, and the high English proficiency group is more focused on language and content comprehension.

An independent samples t-test was further conducted to examine if there was a significant difference in each question. As seen in Table 5, the t-test results suggested that there is only a significant difference in Question 8 ($F=13.32$, $p<0.05$) concerning the professional content relevance of the courseware. The score of the high English proficiency group ($M=4.11$) is larger than that of the low English proficiency group ($M=3.94$). It implies that the professional knowledge of the courseware is more difficult for learning by the low English proficiency group. That means a low English proficiency becomes a greater barrier for learners to study specific courses like ESP. If the gender group is compared, the general mean of the female group ($M=4.02$) is bigger than that of the male group ($M=3.86$). Further comparison between the two groups in each question shown in Table 6, it was found that there are 9 questions that the female group has a larger mean score than the male group. The result corresponds to many studies in which females were generally reported to be more active and positive in language learning than males [16, 32, 39]. Further analysis through the independent samples t-test shows that a significant difference exists in Questions 9 ($F=4.341$,

p<0.05) and 13 (F=2.849, p<0.05) which are respectively related to the English relevance and navigational operation of the courseware. The mean scores of the female group (M=4.15 and 4.26 for Question 9 and 13) are bigger than those of the male group (M=4.00 and 4.00 for Question 9 and 13). It means that the female group is more focused on English comprehension and the learning operation of the courseware than the male group. Again, this accords with studies demonstrating gender differences in language learning, i.e. that females tend to have greater interest and motivation in second language learning, and to have a wider range of use and more frequent use of learning strategies [3, 16].

When the grade group is compared, the general mean of the sophomore, junior and senior groups are respectively 3.96, 4.07 and 3.97. After the analysis through one-way ANOVA, there is only one significant difference existing among these three groups for Question 14 (F(2,60)=3.588, p<0.05). According to the Scheffe analysis, there was a significant difference existing for Question 14 between 3rd grade group and 4th grade group, but no significant difference was found between the other two comparisons: 2nd grade and 3rd grade, 2nd grade and 4th grade. As the mean scores of the three grades for Question 14 all are high, this finding suggests that the 3rd grade is most likely to recommend this courseware to their friends.

TABLE V.
T-TEST ANALYSIS FOR COMPARING PERFORMANCE BY ENGLISH PROFICIENCY

| | Proficiency | mean | STD | Levene test F |
|---|---|---|---|---|
| Q1 | Low | 4.06 | 0.416 | 2.275 |
| | High | 4.06 | 0.639 | |
| Q2 | Low | 3.89 | 0.583 | 0.028 |
| | High | 3.94 | 0.639 | |
| Q3 | Low | 4.06 | 0.725 | 0.344 |
| | High | 4.06 | 0.873 | |
| Q4 | Low | 3.28 | 0.575 | 0.007 |
| | High | 3.00 | 0.686 | |
| Q5 | Low | 4.11 | 0.832 | 2.175 |
| | High | 4.00 | 0.594 | |
| Q6 | Low | 3.56 | 0.616 | 3.594 |
| | High | 3.17 | 0.514 | |
| Q7 | Low | 3.89 | 0.583 | 3.022 |
| | High | 3.83 | 0.857 | |
| Q8 | Low | 3.94 | 0.416 | 13.320* |
| | High | 4.11 | 0.832 | |
| Q9 | Low | 3.94 | 0.725 | 1.754 |
| | High | 4.17 | 0.786 | |
| Q10 | Low | 4.06 | 0.639 | 0.044 |
| | High | 4.33 | 0.485 | |
| Q11 | Low | 4.06 | 0.539 | 1.497 |
| | High | 4.11 | 0.676 | |
| Q12 | Low | 4.06 | 0.539 | 0.861 |
| | High | 4.17 | 0.707 | |
| Q13 | Low | 4.17 | 0.514 | 2.754 |
| | High | 4.11 | 0.758 | |
| Q14 | Low | 4.11 | 0.583 | 0.470 |
| | High | 3.89 | 0.676 | |

*=p<.05

TABLE VI.
T-TEST ANALYSIS FOR COMPARING PERFORMANCE BY GENDER

| | Gender | mean | STD | Levene test F |
|---|---|---|---|---|
| Q1 | female | 4.11 | 0.604 | 0.047 |
| | male | 4.11 | 0.601 | |
| Q2 | female | 3.96 | 0.582 | 0.055 |
| | male | 3.89 | 0.601 | |
| Q3 | female | 4.20 | 0.711 | 1.012 |
| | male | 3.78 | 0.972 | |
| Q4 | female | 3.22 | 0.691 | 0.836 |
| | male | 3.33 | 0.866 | |
| Q5 | female | 4.07 | 0.640 | 1.080 |
| | male | 4.11 | 0.782 | |
| Q6 | female | 3.44 | 0.634 | 1.526 |
| | male | 3.67 | 0.500 | |
| Q7 | female | 4.02 | 0.687 | 1.920 |
| | male | 3.44 | 0.882 | |
| Q8 | female | 4.15 | 0.656 | 3.542 |
| | male | 4.00 | 0.500 | |
| Q9 | female | 4.15 | 0.737 | 4.341* |
| | male | 4.00 | 0.500 | |
| Q10 | female | 4.28 | 0.656 | 1.796 |
| | male | 4.11 | 0.601 | |
| Q11 | female | 4.09 | 0.652 | 2.260 |
| | male | 3.78 | 0.833 | |
| Q12 | female | 4.26 | 0.556 | 2.849 |
| | male | 3.67 | 0.866 | |
| Q13 | female | 4.26 | 0.650 | 6.541* |
| | male | 4.00 | 0.500 | |
| Q14 | female | 4.11 | 0.634 | 3.139 |
| | male | 4.11 | 0.333 | |

*=p<.05

TABLE VII.
ONE WAY ANOVA ANALYSIS FOR COMPARING PERFORMANCE BY GRADE

| | groups | mean | STD | ANOVA |
|---|---|---|---|---|
| | | | | F |
| Q1 | Sophomore | 4.00 | .667 | .930 |
| | Junior | 4.17 | .491 | |
| | Senior | 4.25 | .622 | |
| Q2 | Sophomore | 4.00 | .667 | .165 |
| | Junior | 3.91 | .515 | |
| | Senior | 3.92 | .515 | |
| Q3 | Sophomore | 4.04 | .838 | .555 |
| | Junior | 4.26 | .689 | |
| | Senior | 4.17 | .718 | |
| Q4 | Sophomore | 3.14 | .591 | .839 |
| | Junior | 3.39 | .891 | |
| | Senior | 3.17 | .577 | |
| Q5 | Sophomore | 4.07 | .539 | .004 |
| | Junior | 4.09 | .848 | |
| | Senior | 4.08 | .515 | |
| Q6 | Sophomore | 3.43 | .573 | .369 |
| | Junior | 3.57 | .662 | |
| | Senior | 3.42 | .669 | |
| Q7 | Sophomore | 3.96 | .637 | 1.929 |
| | Junior | 4.09 | .733 | |
| | Senior | 3.58 | .900 | |
| Q8 | Sophomore | 4.14 | .651 | .898 |
| | Junior | 4.22 | .600 | |
| | Senior | 3.92 | .669 | |
| Q9 | Sophomore | 4.07 | .766 | .152 |
| | Junior | 4.17 | .650 | |
| | Senior | 4.17 | .718 | |
| Q10 | Sophomore | 4.11 | .737 | 1.359 |
| | Junior | 4.35 | .573 | |
| | Senior | 4.42 | .515 | |
| Q11 | Sophomore | 4.07 | .716 | .397 |
| | Junior | 3.96 | .706 | |
| | Senior | 4.17 | .577 | |
| Q12 | Sophomore | 4.18 | .772 | .136 |
| | Junior | 4.13 | .548 | |
| | Senior | 4.25 | .452 | |
| Q13 | Sophomore | 4.14 | .705 | .711 |
| | Junior | 4.35 | .573 | |
| | Senior | 4.17 | .577 | |
| Q14 | Sophomore | 4.04 | .693 | 3.588* |
| | Junior | 4.35 | .487 | |
| | Senior | 3.83 | .389 | |

*=p<.05

## V. CONCLUSION: IMPLICATIONS

While scores for the prototype are reasonably high, they also reflect the limitations in assessing a prototype. However, we consider the scores warrant the further development of this courseware for classroom use. These scores also suggest that we will need to continue our process of student assessment if the courseware is to be a stimulus for a class that is focused on becoming a learning community. We envision, for example, expanding our use of talk-alouds [20]; and, like Raby [36] or Hsu [22], include journals and peer observations. Like Watts [48], we endorse an emphasis on learner-centered, rather than technology-focused, courseware. Table 8, below, adapts for display a number of his recommendations for rich multimedia learning environments that "draw upon a range of metacognitive and cognitive strategies related to processing and interpreting information, planning and organizing learning sequences, monitoring progress and evaluating outcomes" [48, 33] on developing strategic competence]. We have tried to meet these recommendations, and our current discussion highlights features of our courseware that specifically address them.

TABLE VIII.
FEATURES OF RICH MULTIMEDIA LEARNING ENVIRONMENTS

| Feature | Function |
|---|---|
| Orientation activities that are textual, aural and visual | Cue user to ways content will be presented; engage user skills |
| Advance organizers as menus | 'Anchor' users to old and new information |
| Decision points and Problems for Solving | Involve users with consequences of choices |
| Interactive tasks that may be textual, aural or visual and involve data manipulation | Maximize user aptitudes and learning styles; foster hands-on manipulation |
| Frequent review activities | Support users' metacognitive awareness of own learning |
| Visual and sound components for lexical activities | Provide context for forms; support clarification of meaning |

Adapted from Watts (1997)

Our use of the left-to-right layout which is a de facto standard for many informational web pages means that our selection buttons running down the left side of the page serve as menus, or the advance organizers recommended by Watts [48], linking activities that incorporate sound, picture, and text. We anticipate working directly with instructors implementing the courseware in classroom settings as part of their courses. This will allow us to incorporate a greater number of problems and solutions requiring decision points, which can be used in oral group discussion as well as for online reviews in, i.e., multiple-choice and cloze formats and longer writings in asynchronous conferences or student blogs [8].

As we continue to develop and assess ESP courseware, we expect its assessment to identify more features of complexity in both traditional and contemporary instructional paradigms, particularly as they affect teaching ESP. Belcher's 2004 review notes three major trends in teaching ESP: teaching from points of reference that are sociodiscursal, emphasizing genre theory or pedagogy; sociocultural, with emphasis on theories of situated learning, and sociopolitical, focused on critical pedagogy [4]. She comments that technology can foster the collection and archiving of data, and can generate

teaching materials from authentic situations. In this discussion, we have assumed the importance of situated learning, with some attention to genres within the domain of international business communications. Technical-vocational university students, particularly those looking to tourism and trade fairs for careers, generally enter higher education with less proficiency in language and discourse skills than their peers at institutions with an academic focus. They may have more anxiety or reticence about communication. E-learning, including rich multimedia, may be part of a solution. An examination of how the multimedia can scaffold learning seems to be called for.

Finally, rich multimedia for ESP must be rich in two senses: it must provide technology-supported entry points into the language of the chosen workplace setting, and it must foster the attitudinal skills that make it possible for learners to enter an international world of work. Courseware can aid in situating and simulating social cues which support building the communicative skills needed for the kinds of interaction demanded by tourism, travel, hospitality, and similar areas of international business. A focus on specific genres of talk and registers of discourse, replicated and extended by courseware that uses multiple modalities, can foster situated involvement and allow students to begin to manipulate talk and text in ways that go beyond the courseware's open door.

## REFERENCES


[1] Alessi, S. M. & Trollip, S. R. (2001). *Multimedia for Learning: Methods and Development*. Boston, Allyn and Bacon.

[2] Andrews, R., C. Haythornwaite, Eds. (2007). [Annotated Table of Contents] *Handbook of e-learning research*. London: Sage. Online June 2007 at http://people.lis.uiuc.edu/%7Ehaythorn/books/toc_handbook.html

[3] Bacon, S. M., & Finnemann, M. D. (1992). Sex differences in self-reported beliefs about foreign-language learning and authentic oral and written input. *Language Learning*, 42 (4), 471–495.

[4] Belcher, D. (2004). Trends in teaching English for Specific Purposes. *Annual Review of Applied Linguistics* 24, 165-86.

[5] Belz, J. (2003). Identity, deficiency, and first language use in foreign language education. In: *The sociolinguistics of foreign-language classrooms: Contributions of the native, the near-native, and the non-native speaker*, ed. C. Blyth. Boston, Heinle, 209-248.

[6] Blin, F. (2004). CALL and the development of learner autonomy: Towards an activity-theoretical perspective. *ReCALL* 16, 377-395.

[7] Blue, G. M. & Harun, M. (2003). Hospitality language as a professional skill. *English for Specific Purposes* 22, 73–91.

[8] Chen, C-F. (2006) [Blogs: course link in] Emily's English Learning Web. Available online July 2006 at http://www2.nkfust.edu.tw/~emchen /CALL/student_blog.htm.

[9] Chen, C-H. & Bradshaw, A. 2007. The effect of web-based question prompts on scaffolding knowledge integration and ill-structured problem solving. Journal of Research on Technology in Education 39, 359-75

[10] Chinnery, G. M. (2006). Going to the MALL: Mobile Assisted Language Learning. *Language Learning & Technology* 10, 9-16. Available online July 2006 http://llt.msu.edu/vol10num1/emerging.

[11] Clancey,W.J. (1995). A tutorial on situated learning. *Proceedings of the International Conference on Computers and Education (Taiwan)* Ed. Self, J. Charlottesville, VA, AACE, 49-70.

[12] Clark, R. & Mayer, R. (2003). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. San Francisco: Pfeiffer for John Wiley & Sons, Inc.

[13] Cobb,T. Web Vocabprofile [accessed August, 2006 from http://www.lextutor.ca/vp/ ], an adaptation of Heatley & Nation's (1994) Range.

[14] Dudley-Evans, T., & St John, M. (1998). *Developments in ESP: A multi-disciplinary approach.* Cambridge: Cambridge University Press.

[15] Eckert, P. & Wenger, E. (1994). From school to work: an apprenticeship in institutional identity. *Learning and Identity Series*, Institute for Research on Learning, Palo Alto, California. Retrieved August 2006 htttp://www.stanford.edu/~eckert/csofp.html.

[16] Ehrman, M. E., & Oxford, R L. (1989). Effects of gender differences, career choice, and psychological type on adult language learning strategies. *The Modern Language Journal*, 73(1), 1-13.

[17] Fan, Y-G. (1993). Listening: problems and solutions. Forum: *English Teaching* 31, 16-19.

[18] Gardner, R. C., & Lambert, W. E. (1972). *Attitudes and motivation in second language learning*. Rowley, MA: Newbury House Publishers.

[19] Godwin-Jones, R. (2005). Skype and podcasting: Disruptive technologies for language learning. *Language Learning and Technology* 9, 9-12. Available online July 2006 at http://llt.msu.edu/vol9num3/emerging/default.html.

[20] Gruba, P. (2006). Playing the videotext: a media literacy perspective on video-mediated L2 listening. *Language Learning and Technology* 10, 77-92. Available online July 2007 at http://llt.msu.edu/vol10num2/gruba/.

[21] Heatley, A. and Nation, P. (1994). Range. Victoria University of Wellington, NZ. [Computer program, available at http://www.vuw.ac.nz /lals/. ]

[22] Hsu, S-Y. (2005). Building language-learning environments to help technological university students develop English independent learning. *The JALT CALL Journal* 1, 51-66. Online July 2007 at http://jaltcall.org/journal.

[23] Kecskes, I. (2004). Lexical merging, conceptual blending, cultural crossing. *Intercultural Pragmatics* 1, 1–4.

[24] Jin, L. & Cortazzi, M. (2006). Changing practices in Chinese cultures of learning. *Language, Culture and Curriculum*, 19, 5-20.

[25] Ku, H.Y., Pan, C.C., Tsai, M.H., Tao, Y. & Cornell, R. (2003). The impact of instructional technology interventions on Asian pedagogy. *Educational Technology Research and Development* 52, 88-92.

[26] Lai, C. Y. (2005). *A study on applied English department students' needs for taking English for specific purposes courses and students' perceptions of an effective ESP teacher*. Master dissertation, Southern Taiwan University of Technology, unpublished.

[27] Li, X.P. (2004). A*n analysis of Chinese EFL learners' beliefs about the role of rote learning in vocabulary learning strategies*. PhD dissertation, University of Sunderland.

[28] Mayer, R., (2005). *The Cambridge handbook to multimedia learning*. Cambridge: Cambridge University Press.

[29] MOE [Ministry of Education, ROC]. (2000). *Final Report on Foreign Language Curriculum Development for Vocational Education* at http://bcc.yuntech.edu.tw/index1.html.

[30] Murray, G. (2004). Two stories of self-directed language learning. *Proceedings of the Independent Learning Conference*, U. Melbourne, September 2003. Online August 2007 at http://independentlearning.org/ILA/ila03/ila03_papers.htm?q=ila03/ila03_papers.htm.

[31] Nickerson, C. (2005). Editorial: English as a lingua franca in international business contexts. *English for Specific Purposes* 24, 367-80.

[32] Nyikos, M. (1990). Gender-related differences in adult language learning: Socialization and memory factors. *The Modern Language Journal*, 74(3), 273-287.

[33] O'Malley, J. M. & Chamot, A. (1990). *Learning strategies in second language acquisition*. Cambridge: Cambridge University Press.

[34] Ostman, J. & Verschuren, J. (2003). *Handbook of Pragmatics Online*. Amsterdam: John Benjamins. Available March 2008 http://www.benjamins.com/online/hop/22_02_desc_purpose.html

[35] Oxford, R. L., & Nyikos, M. (1989). Variables affecting choice of language learning strategies by university students. *The Modern Language Journal*, 73, 291-300.

[36] Raby, F. (2007). A triangular approach to motivation in Computer Assisted Autonomous Language Learning (CAALL). *ReCALL* 19, 181-201.

[37] Rogerson-Revell, P. (2007). Research note: Using English for international business: A European case study. *English for Specific Purposes*, 26(1), 103-120.

[38] Savignon, S. & Wang, C. (2003). Communicative language teaching in EFL contexts: Learner attitudes and perceptions. *International Review of Applied Linguistics* 41 (2003), 223–249.

[39] Sheorey, R. (1999). An examination of language learning strategy use in the setting of an indigenized variety of English. *System*, 27(1), 173-190.

[40] Sorden, Steve. (2005). A cognitive approach to instructional design for multimedia learning. *Informing Science* 8, 263-79. Online August 2007 at http://inform.nu/Articles/Vol8/v8p263-279Sorden34.pdf.

[41] Spellman, G. (2000). Evaluation of CAL in higher education Geography. *Journal of Computer Assisted Learning* 16, 72-82.

[42] Stvan, L. (2005). Inferring new vocabulary using online texts. *Computers in the Schools* 22: 85-96.

[43] Sung, Y. T., Chang, K. E and Hou, H. T (2005). Technology-Instruction Integration: Learning from America's Experience and Reflecting on Taiwan's Development (Chinese title). *Journal of Education Research* 51 (1), 31-62.

[44] Tough, A. (1982). *International Change*, Chicago: Follett.

[45] Tsai, S. C. (2005). *Courseware Development for English for Specific Purposes (ESP)*. Taipei: Crane Publishing.

[46] Tsai, S. C & Lee, J. (2005). Study on developing a multimedia digital material for tourism English. *Proceedings of the Fifth IEEE International Conference on Advanced Learning Technologies (ICALT'05)*, 1012-1016.

[47] Tschirner, E. (2001). Language acquisition in the classroom: the role of digital video. *Computer Assisted Language Learning* 14, 305-19.

[48] Watts, N. (1997). A learner-based design model for multimedia language learning. *System* 25, 1-8.

[49] Yi, C. C. (1994). Correlation Study between Using Frequency of Reading Strategy and Reading Level (Chinese Title). *Proceedings of the 11th International Conference on English Teaching and Learning in the Republic of China*, 165-192.

[50] Young, L. (2003). Bridging theory and practice: developing guidelines to facilitate the design of computer-based learning environments. *Canadian Journal of Learning and Technology* 29. http://www.cjlt.ca/content/vol29.3/cjlt29-3_art4.html

## AUTHORS

**Shu-Chiao Tsai** is at the department of Applied Foreign Languages of National Kaohsiung University of Applied Sciences, Kaohsiung 80778, Taiwan, R.O.C. (e-mail: achiao@ cc.kuas.edu.tw).

**B. Davis** is at University of North Carolina-Charlotte, Charlotte, NC 28223 USA (e-mail: bdavis@uncc.edu).

Manuscript received 18 March 2008. Publihed as submitted by the authors.