

Using a Perceptual Measure to Evaluate Students' Acceptance of Digitally Created English Learning Content

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The use of connected computers as interactive tools in the creation and presentation of media-rich content for teaching is increasing rapidly. However, while it is technically possible to create or use digital materials, a number of issues must be explored before teachers can confidently reuse them. Teachers need to know whether the digitally created contents work effectively in their teaching. Institutions need to assure that those contents are of the highest standards and fit for their educational purpose. This paper outlines the process and procedures used in the development of an instrument to investigate students' perceptions of digital materials presented in an English language course at a college in Japan. It also describes how a perceptual measure can be used to evaluate whether the content presented meets the learners' needs.

1. Overview of the Digitally Created English Learning Content

The sophistication and ease of web browsers to display media-rich content and the advancing computer skills of students mean educational institutions are using the power of connected computers to supplement and enhance classroom activities, to provide learners with the ability to access information and to deliver learning activities (Clayton, 2006). At Matsue National College of Technology, Japan, English language teachers have been challenged to develop appropriate digital materials to deal with new information and communication technology rich ways of teaching and learning (Iwata & Fujii, 2001).

The content developed at Matsue was Web-based using a range of streamed video clips for review by English language students. The material could be accessed by any web browser and was designed using a task-based learning approach categorized as an '*Integrative CALL*' application (Warschauer & Healey, 1998). They are designed specifically to help English as Foreign Language (EFL) learners understand the social context of the conversation and to help them practice the language in authentic settings. A sample lesson page is shown in Fig. 1.

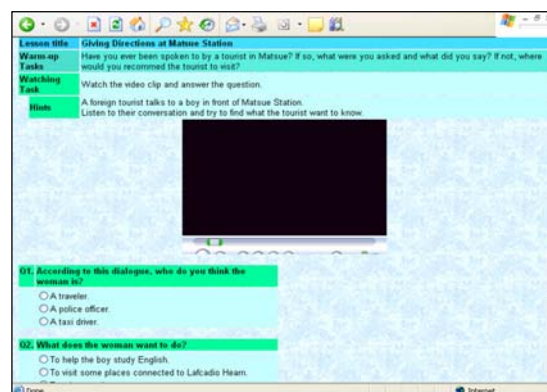


Fig.1. A Sample Lesson Page

Each lesson consists of four (4) tasks: Warm-up, Watching and 2 Follow-ups. The warm-up task aims to attract the students' attention and build an expectation of what they may experience in the video clips. The watching task reviews their comprehension. The follow-up tasks provide them with firstly, communicative activities relevant to the language topic and secondly, allowed them to practice the English structures learned in real life settings.

2. Learning Environment Research

The essence of a learning environment is the interaction that occurs between individuals, groups and the setting within which they operate. It is recognized that both teachers and learners hold views on the learning environment they operate within and these views will affect the way they participate in learning activities undertaken (Fraser, 2002). Through ongoing research, perceptual measures have been proved to be flexible, reliable, cost effective and versatile (Clayton, 2007) and the authors believed it feasible to develop a perceptual measure capable of successfully analyzing students perceptions of the content presented in web-based activities. It was envisaged the data generated from such an instrument would firstly help validate the instrument and secondly, inform English language teachers at Matsue of the effectiveness and appropriateness of the content presented to students.

3. Sample and Instrumentation

The sample comprised eighty-nine (89) 15 and 16 students at Matsue. Given the exploratory nature of the study and the limited number of participants, no attempts were made to structure the data based on gender, age or socio-economic status, although with further data the authors feel this may be a worthwhile area to explore.

The instrument used for this study was based on four scales, "computer competence", "active learning", "information design and appeal" and "reflection". Each scale consisted of 6 items. Each of the scales and items had been used in previous learning environment research and could be considered to be reliable (Clayton & Gower, 2006).

4. Data Collection and Results

A web-based form of the instrument was created, in both English and Japanese, using the question and quiz functionality of the open source learning management system Moodle. Before releasing the questionnaire to participants, access, readability and administration were tested at locations in New Zealand and Japan. The results were analysed in each scale.

4.1. Computer Competence

To participate fully in e-environments, it could be argued that learners have to be technologically literate, confident and competent in using a computer.

When analyzing the data as shown in Table 1, it was found more than a half of the participants were confident and competent in using computers, searching for information using the World Wide Web and using a web-browser. 60 % of them were capable of storing information on their computer. However, students' technical knowledge was rather weak with more than a half of the students feeling uncomfortable and incompetent when trying to reconnecting to the internet when disconnected and they did not know what to do when an error message occurs. On the surface it appears that the participants are not so confident and technologically capable of participating in the e-environment. This indicates that the provision of ongoing technical support could be regarded as a crucial service to enable continuing success of learners in digital environments.

Table 1. Computer Competence

Question Item	%
1. I am confident and competent using a computer.	53%
2. I am confident in using the World Wide Web to search for information.	57%
3. I am confident in using the web-browser tool bar (back, forward, home, and search).	52%
4. I am able to reconnect to the network if anything goes wrong.	48%
5. I know what to do if a computer 'error message' occurs during my learning.	46%
6. If necessary I can electronically store information on my computer or disk.	63%

4.2. Active learning

To remain motivated in digital environments, students should be encouraged to engage with the content presented.

When analyzing the data as shown in Table 2, it was found that about 60% students felt the feedback received from material helped them to identify areas of concern and they were also motivated by engaging with the content provided and mentioned the responses the activities helped them understand where they were having difficulty. A majority of the students felt it enhanced their learning and the responses provided during activities were meaningful to them. These findings indicate materials created for students with a high degree of interactivity and feedback will be appreciated and there is much room for improvement to give more effective and useful feedback to students in this content.

Table 2. Active Learning

Question Item	%
1. The feedback I receive from activities / quizzes helps me to identify those things I get wrong.	60%
2. The feedback from activities / quizzes helps me to locate where I am having difficulties.	58%
3. I am motivated by the responses I get from the activities / quizzes included in this course.	63%
4. The activities / quizzes provided in the course enhance my learning.	70%
5. The responses provided during the activities / quizzes are meaningful to me.	70%
6. The responses to the activities help me understand where I am having difficulty.	63%

4.3. Information design and appeal

It is argued that students will perform more productively in their preferred learning environment. Therefore, it was hypothesized that if students felt "comfortable" with course material presented, they would achieve at a higher standard.

When analyzing the data as shown in Table 3, it was found that a majority of the students felt the formatting of the text helped them to be able to read clearly and the backgrounds used in tables and pages enhanced the look of the material. More than 60% students indicated and they found the material was visually appealing and showed originality and creativity in the way it was structured. The use of video and graphics seems to have played a useful role in illustrating main points and aiding understanding and enhancing their learning. These findings indicate materials created for learners should utilize well designed, appealing graphics and videos extensively.

Table 3. Information Design and Appeal

Question Item	%
1. The choice of colors and style used in the text assisted my being able to read clearly.	68%
2. The backgrounds used in tables and pages enhance the look of the material.	72%
3. The material presented is visually appealing.	64%
4. The material shows originality and creativity in the layout.	65%
5. I find the videos used in the course are appropriate and helps me understand the topic.	70%
6. I find the graphics (photos, images and graphs) used are well designed and visually appealing.	71%

4.4. Reflection

It has been speculated that e-learning students need to be highly self-regulated and be responsible

for organizing and reflecting on their learning. They must become self-directed learners.

When analyzing the data as shown in Table 4, it was found that student's perceptions of online learning were quite positive. More than 80 % students found that using the internet for learning was stimulating. About two-thirds of students had few problems accessing material presented and they felt they were in control of their learning. It was significant that a majority of the students believed online learning could enhance the classroom environment and they felt they would learn more if this occurred and they were satisfied with their experience. These results may indicate that online activity sessions for these learners should be an integral part of learning activities offered.

Table 4. Reflection

Question Item	%
1. I find using the internet for learning is stimulating.	83%
2. I have no problems accessing and going through the materials on my own.	65%
3. I feel I am in control of my learning as I review the material provided.	68%
4. I feel the web based learning approach can substitute for, or enhance the normal classroom approach.	76%
5. I feel I learn more in the online environment.	71%
6. I am satisfied with my experience of using the internet and learning online.	73%

5. Discussion

This study found that student expectations of digital environments were high. They believed they would learn more in these virtual environments and they would be motivated by digital material and electronic activities. These findings appear to indicate that students want to engage with materials with a high degree of interactivity and feedback. This has implications for developers and institutions as materials created for learners need to utilize appropriate instructional design strategies and techniques.

However, the creation, development and publication of digital materials may not be sufficient to meet student needs. This study also indicates students' familiarity with computer hardware and software applications is critical to their perceived enjoyment of online activities. It could be argued the provision of ongoing, readily available technical support is critical in e-learning environments.

The authors are conscious there are limitations to this study as listed below;

- (1) The sample, based within one institution, and of limited size, is a sample of convenience and the data described here should not be regarded as representative of all current or potential students in English language courses at Matsue.
- (2) The instrument did not fully probe student online interactions with each other or their online interactions with their teachers.

6. Conclusions

This paper has described students' perceptions of the digitally created English learning content presented to students in English language course at Matsue. This exploratory study with 89 students indicates the digital material created can be used and further developed with confidence. The authors also believe the further development and refinement of perceptual measures exploring the deployment of pre-packaged digital material in networked learning environments would be valued tools.

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