

The relationship between individual learning styles and learning strategies in electronic materials for practicing EFL listening.

(Relating to the TIRF 2004-2005 priority: “the demonstrable effects of the use of computer-based technology on students’ learning of English as a second or foreign language.”)

Doctoral Dissertation Grant

Cheng-Yi Kelly Chang
University of Newcastle upon Tyne, UK

Statement of the research problem

Research shows that if teachers can give students instruction relevant to their learning styles, the performances are usually better (Dunn and Price 1979; O'Brien 1989; Oxford and Ehrman 1993). When the learners’ learning styles are matched congenial with the instructional styles, their motivation, performances, and attainments will be enhanced (Brown 1994). Learning style theories and applications are widely investigated amongst educational and psychological researchers in the context of traditional classroom environments (Messick 1984; Willing 1993; Adey, Fairbrother et al. 1999); however, there is still little research on the adaptation to individual learning styles in an e-learning environment, especially for the domain of teaching and learning English as a Foreign Language (EFL).

Liu and Reed (1994) pointed out that “accommodating learners' different needs is one of the promises hypermedia technology is believed to hold.” Based on the idea that the individual learns and gains knowledge with their innate preferable learning styles, media technology certainly offers the possibility of customizing learning to individual needs and varying the teaching methods used and electronic materials can be designed in such a way that authorises learners control over learning period, speed and order of progression through electronic materials and also allows learners to apply various strategies to make use of media features such as audio, video, and texts to enhance English proficiency. Taking EFL electronic materials into account, there are many strategies which can be employed for enhancing EFL listening skill, the first skill we need to acquire when learning languages (Goodwyn 1992; Graham 1997).

Joy Reid had designed Perceptual Learning Style Preference Questionnaire (PLSPQ) to assess learning styles of English as Second Language (ESL) students (Reid 1984); the validity and the reliability of the PLSPQ were examined by Wintergerst, DeCapua et al (2001). With the factor analysis, the results were not compatibly classified into the groups which the PLSPQ was supposed to measure. In addition, 71 learning style models published between 1902 and 2002 have been evaluated by referring to over 800 chapters and articles relating to the field of post-16 learning styles and only 13 models were elicited from the database according to their particular focuses on validity, reliability and practical application and only one model, Cognitive Style Index, was matched against minimal criteria of internal consistency, test-retest reliability, construct validity and predictive validity (Coffield, Moseley et al. 2003).

Due to the immature development of in-depth research of learning styles and EFL learning in e-learning contexts, the researcher therefore propose research which aims to investigate whether the Cognitive Style Index, which identifies intuitive and analytical learning styles, can predict EFL listening performance, to relate learners' learning styles to their learning strategies when using electronic materials for practicing EFL listening and finally to differentiate the performances of the learners provided with electronic materials which suit their learning styles from those of the learners provided with materials which are not designed for any particular learning styles.

In addition to the primary aims mentioned above, there are secondary objectives:

1. To identify EFL learners' learning styles by employing the Cognitive Style Index measuring intuitive and analytical learning styles and then to analyze the correlation between the learning style and EFL listening performances.
2. To identify the strategies/techniques employed by the intuitive or analytical students in order to accommodate themselves to the EFL listening electronic materials.
3. To seek for the relationship between the intuitive and analytical learning styles and the strategies/techniques exploited by the EFL students.
4. To differentiate the performances of the learners provided with electronic materials which suit their learning styles from those of the learners provided with materials which are not designed for any particular learning styles.

And, the research questions are as below:

1. Can Cognitive Style Index that identifies learners as intuitive or analytical predicts learners' EFL listening performance?
2. What are the strategies/techniques employed by intuitive and analytical students in order to accommodate themselves to the electronic materials for practicing EFL listening?
3. How do the intuitive and analytical learning styles relate to learning strategies when using electronic materials for practicing EFL listening?
4. What are the differences in the intuitive and analytical students' performances when they are provided with electronic materials which suit their learning styles and do not suit their learning styles?

Literature review

Research of cognitive style started to be carried out since the mid-1940s. The researchers have distinguished cognitive styles into various dimensions which are basically categorised in wholist-analytic style dimension and verbal-imagery style dimension (Riding and Rayner 1998). The wholist-analytic model measures how individuals "organise information into wholes or parts" (Riding and Rayner 1998: 14); and the verbal-imagery model identifies the ways individuals present information "verbally or in mental pictures" (Riding and Rayner 1998: 14). Individual affection, behaviour and cognition are structured and organised by an individual cognitive style which reflects the way how people generalise approaches to learn (Riding and Rayner 1998). Knowing that each individual is cognitively different from another, educators and school psychologists still found themselves "caught between a theoretical understanding

of individual differences and the practical problem of dealing with such differences” (Gringerenko and Sternberg 1995) after the application of the ‘activity-centred approach’ which aimed to meet individual differences in classrooms (Riding and Rayner 1998).

A learning style indicates the way an individual set of differences of not only personal preferable instruction and learning activity but also of personal and intellectual psychology. Learning styles are also thought of as persistent learning strategies which are operated across all subject areas (Adey, Fairbrother et al. 1999). Learning styles are constant and congenial, and learning strategies, in contrast, are stylistically uncongenial and can be altered related to particular subject areas (Messick 1984). As far as language learning is concerned, learning styles are approaches to language learning, while strategies are specific skills which employed by learners for listening, reading, speaking and writing. Style differences are classified into being visual, auditory, or hands-on; being more abstract and intuitive versus being more concrete and thinking in step-by-step sequence; being more global versus being more particular; being more impulsive versus being more reflective (Cohen 2003). Unlike innate language learning styles, language learning strategies are used more consciously and with the explicit goals like improving their knowledge and understanding of a target language. Strategies associated with listening skills can be divided into six groups: memory (using imagery and keywords), cognitive (taking notes and summarizing), compensation (using linguistic clues and other clues), metacognitive (paying attention and self-monitoring), affective (using laughter and taking risks wisely) and social (cooperating with peers and developing culture understanding) (Oxford 1990).

The relationship between hypermedia-assisted instruction such as web-based learning and learners' different learning styles has recently being attracted by educators (Whittington and Campbell 1998; Collis, Peters et al. 2000; Sabry and aldwin 2003). The study of Sabry and Baldwin’s study (2003) measured learners’ preferences towards three types of web-based interactions: learner-tutor, learner-learner, and learner-information and has found out that learners of different learning styles do have different perceptions of different types of web-based interactions. Another research conducted by Liu and Reed (1994) examined various learning strategies employed by Field-independent (FI) people and Field-dependent (FD) people in a hypermedia assisted language learning setting and found out that different learning style students utilised different learning strategies for the same tasks. The results of the two studies indicated that the hypermedia technology has the potential to accommodate learners with different needs through its rich environment.

Methodology

Participants

Approximately 100 subjects will participate in Experiment 1. The subjects are foreign students who attend the pre-session courses in the summer of 2004 which provide language learners opportunities to practice and improve their English language skills for academic purposes. The reason for most of the students to attend the pre-session courses is to improve their English proficiency and get IELTS (International English Language Testing System) scores over 6.0 (which is labelled **Competent User**, see the **Interpretation of results** on the IELTS official website: <http://www.ilelts.org>) in

order to ensure themselves accepted by their schools in the University of Newcastle upon Tyne. 20 subjects from Experiment 1 will be elicited for Experiment 2 and Experiment 3 according to their learning styles identified by the Cognition Style Index. Among the 20 subjects, 10 are intuitive learners and 10 are analytical learners. All selected subjects will be paid £5 per hour (each subject is estimated to spend two hours for the experiments).

Instruments

Cognition Style Index

The Cognition Style Index (CSI) is a 38-item instrument for measuring the generic intuition-analysis dimension of cognitive style designed by Christopher Allinson and John Hayes based in the Business School of the Leeds University, UK.

Electronic materials for practicing EFL listening

EFL listening materials which are suitable for advanced level will be predetermined. They will later be designed into three electronic versions; Version 1 is for mixed learning styles, Version 2 is for intuitive learning style and Version 3 is for analytical learning style. The electronic materials are installed in computers with tracking codes which record learners' navigation in a separate log file; for example, the researcher can find out which activities the subjects have been explored, and how much time they have spent on each activity from the recorded document in the separate log file. The systematic tracking data can also facilitate the researcher to make comparison and relate the information to the intuitive and analytical learning styles.

Stimulated recall and retrospective interview

The technique of stimulated recall will be used for participants to reflect on the electronic materials that they have used according to the tracking log files (Nunan 1992) and introspective interview will be employed for participants to give comments on insight into aspects of their learning. Although retrospection has been criticised by a number of researchers such as Nisbett and Wilson (1977) who doubted the reliability of the data, the introspective interview will still be practiced because it is the more appropriate technique for the research purposes, compared to other research methods. Nunan (1992:115) addressed that "if we want to understand what people do, we need to know what they think." Taking learners' cognitive processes into consideration, the researcher therefore decided to use stimulated recall as well as retrospective interviews.

Ericsson and Simon stated that the reliability of the data can be ensured by being collected as soon as the experiment or the task has completed; the reliability can also be enhanced by eliciting sufficient information from the subjects (Nunan 1992). Preventing the participants' performances from being influenced by other variables, the researcher decides to interview the participants as soon as they have complete using the electronic materials and not to inform the participants that there are stimulated recall and retrospective interview after Experiment 2 and Experiment 3.

The procedure of the study

There are three experiments carried out for the proposed PhD research, followed by stimulated recall and retrospective interview. Experiment 1 exploits quantitative

method to answer the first question by distributing CSI questionnaires to the subjects and SPSS program will be employed to examine the data and the correlation between the learning styles and the listening performances. Both Experiment 2 and Experiment 3 are tailed with stimulated recalls and retrospective interviews in order to answer the second question and the third question, and the fourth question. In Experiment 2, students are required to use the electronic materials Version 1 in which the researcher can investigate the strategies/techniques employed by intuitive and analytical students in order to accommodate themselves to the electronic materials for practicing EFL listening. In Experiment 3, learners of intuition learning styles are asked to use electronic materials Version 2, and learners of analysis learning styles are required to use electronic materials Version 3. The researcher then generalise the data collected from the computer log file into patterns which will be later related to the subjects' learning styles and to their stimulated recall data and retrospective interview. Therefore, the research can investigate the relationship between the intuitive and analytical learning styles and learning strategies when using electronic materials for practicing EFL listening as well as the differences in the intuitive and analytical students' performances when they are provided with electronic materials which suit their learning styles and do not suit their learning styles.

Implications of the proposed research

An experiment has been carried out for investigating listening strategies while students were exchanging information via telephone with their pen pals. However, no distinction could be drawn between the strategy use of effective and less effective students (Graham 1997). This could happen to the proposed research. The data initially obtained from the experiments may be arbitrary. However, some patterns and learning strategies may be detected from the surface of the tracking data and triangulated by the data obtained from stimulated recalls and retrospective interviews.

Therefore, the implication of the proposed research can be in four dimensions:

1. Extending learning styles to the field of EFL: Since cognitive styles and learning styles are vital from both teachers' and students' perspectives, a reliable and valid instrument for predicting students' performances will be facilitative for instructions.
2. Improving electronic instructions: When using electronic materials, students might be deliberately be confronted with instructions which uncongenial to their cognitive styles (Messick 1976). The research which gives pictures of the relationship between the learning styles and learning behaviours may provides additional educational value.
3. Enhancing EFL learners' learning and thinking: By raising the awareness of EFL learners' cognitive styles as well as their learning strategies, the learners may learn to apply selective and appropriate strategies to meet the requirements of varied tasks.
4. Tuning the stylistic demands of e-learning environments: Students are often put into a double bind situation by mismatching wrong learning styles and by using materials inappropriate for their learning styles (Chickering 1976).