The Impact of Learning Style Dimensions on Computer-Based Key Language Competences Testing
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Abstract

Computer-Based key language testing is a method of administering tests in which the responses are electronically recorded, assessed, or both. There exist general advantages of Computer-Based Assessment systems over traditional Pen-and-Paper Testing such as, for example: increased delivery, administration and scoring efficiency; improved test security, consistency and reliability; faster and more controlled test revision process with shorter response time; faster decision-making as the result of immediate scoring and reporting; fewer response entry and recognition errors; fewer comprehension errors caused by the testing process; new advanced and flexible item types. When considering how to improve university students’ CB language test performance, we have decided to implement the Felder’s Learning Styles into the university language courses. In the paper there are presented the most used foreign languages assessments and a learning style classification scheme used in digital environment at university language courses.

Keywords: Computer-Based Testing, Cb Testing Formats, Language Competences, Learning Styles;

1. Introduction

Information Technology has moved on rapidly, and vast improvements in internet connectivity worldwide, in addition to increases in connection speeds, have made it possible to deliver a significantly broader range of content over the internet. Recently, the use of technology in assessment has expanded considerably from the growth of Computer-Based Testing (CB testing shortly) to the introduction of onscreen marking, online results and online results verification.

Technology applied to testing in the form of offering candidates tests via computer aims to make assessment more appealing, efficient and serviceable and brings with it many advantages, including a positive impact on those who enjoy using computers, ease of administration, speed and reliability of marking, greater security, better motivation to some candidates and arguably a more friendly interface than paper-based tests. (Challhoub-Deville, 2001)

In this paper we deal with foreign language tests, describe their format and the language competences tested with a special view on the learning style dimensions. Our aim is to introduce the most used foreign language assessments and highlight the advantages of CB testing with full respect to individual learning style dimensions of university students.
2. Foreign language assessments

In this section we introduce and compare the Cambridge ESOL and TOEFL tests, commonly used and required foreign language assessments on academic level. We present the used language competences with activities and their purpose alongside the formats.

2.1. Cambridge ESOL and TOEFL formats of tests

In traditional paper based tests, prepared to test knowledge in foreign languages, several types of question have been used, including those that give a chance to solve tasks in an enjoyable way.

Let us introduce a list of the formats used in the Cambridge ESOL and TOEFL tests, and their short descriptions at first (see Handbook, 2012; ERIF, 2012).

Gapped text: Students are presented with a question containing blanks and must provide the missing word or text.

Gapped sentences: Questions are made up of three discrete sentences. Each sentence contains one gap. The gapped word is common to the three sentences. Students must write one word which is appropriate in all three sentences. Jumbled Sentence: Students are presented with a question containing blanks for which they must provide the missing text by selected word or phrase from drop-down lists.

Multiple Matching: Students are presented with two lists and must match terms in one list with terms or definitions in the other list.

Multiple Choice: Students are presented with a list of answers and must select one or more answers as correct.

Multiple-choice cloze: a text which contains 12 gaps (plus one gap as an example). Each gap represents a missing word or phrase. The text is followed by 12 sets of four words or phrases, each set corresponding to a gap. Candidates have to choose which one of the four words or phrases in the set fills the gap correctly.

Sentence completion: Students must answer the question by entering multiple sentences.

Word formation: A text is containing 10 gaps. Each gap corresponds to a word. The stems of the missing words are given beside the text and must be changed to form the missing word.

Open cloze: Students are required to fill the gaps in the text. As there are no sets of words from which to choose the answers, students have to think of a word which will fill the gap correctly.

Key word transformation: Eight separate items, each with a lead-in sentence and a gapped second sentence to be completed in three to six words, one of which is a given ‘key word’.

Here we describe in more detailed two advanced level tests for academic purposes.

2.1.1. Cambridge English: Advanced

Cambridge English: Advanced is also known as Certificate in Advanced English is the leading English exam for professional and academic purposes. (see Tab. 1) Each of the five test components provides a unique contribution to a profile of overall communicative language ability that defines what a candidate can do at this level.
As one can see from the above tables, both exams measure the ability of a candidate/student to communicate in English across all four language competences – listening, reading, writing and speaking. Let us conclude, that while Cambridge ESOL exams test all four language competences separately, using specially designed formats, the TOEFL test combines more than one skill and requires a) read, listen, and then speak in response to a question, b) listen and then speak in response to a question, c) read, listen, and then write in response to a question. Based on the long term experience and examination test results taken from accredited university language examination centre we can say that key benefits of tests which integrate multiple skills are not only impressive test scores but such designed tests also build practical and essential communication skills.
Table 2. TOEFL

<table>
<thead>
<tr>
<th>COMPETENCE</th>
<th>ACTIVITY</th>
<th>FORMAT</th>
<th>PURPOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>READING</td>
<td>reading of 4 passages from academic texts and answering questions</td>
<td>reading to find information basic comprehension reading to learn</td>
<td>effectively scanning text for key facts understanding the general topic understanding vocabulary in context</td>
</tr>
<tr>
<td>LISTENING</td>
<td>listen to lectures or classroom discussions and conversations, then answer questions</td>
<td>Multiple-choice Jumbled Sentence Multiple Matching</td>
<td>listening for basic comprehension listening for pragmatic understanding connecting and synthesizing information</td>
</tr>
<tr>
<td>SPEAKING</td>
<td>express an opinion on a familiar topic speak based on reading and listening tasks</td>
<td>6 tasks: 2 independent 4 integrated</td>
<td>expressing and defending a personal choice from a given category summarize briefly the information from the listening and reading material</td>
</tr>
<tr>
<td>WRITING</td>
<td>writing essay: responses based on reading and listening tasks support an opinion in writing</td>
<td>Part 1. integrated writing task read/listen/write - 230-300 words Part 2. independent writing minimum of 300 words</td>
<td>presenting ideas in a clear, well-organized manner identify one main idea and some major points that support it</td>
</tr>
</tbody>
</table>

3. Learning style dimensions in digital environment and assessment

When considering how to improve the university student’s CB language test performance, we have decided to implement the Felder’s Learning Styles into the language courses at University since winter term 2012. Dede (2005) described the learning style of digital natives as characterized by fluency in multiple media, valuing each for the types of communication, activities, experiences, and expressions it empowers; learning based on collectively seeking, sieving, and synthesizing experiences rather than individually locating and absorbing information from a single best source; active learning based on experience that includes frequent opportunities for reflection; expression through non-linear associational webs of representations rather than linear stories; and co-design of learning experiences personalized to individual needs and preferences. (p. 10)

3.1 Learning Style Classification Scheme

A review of the literature identified 71 theoretical approaches to learning style, many associated with tests of individual differences in style (Coffield, Moseley, Hall, & Ecclestone, 2004). The Index of Learning Styles (ILS) developed by Felder and Silverman (1988) specifically for university students has established reliability and validity (Felder & Spurlin, 2005) particularly for education students (Johnson, 2007b). The ILS classifies students along five dichotomous learning style dimensions:
1. **active** (e.g., learns by doing and enjoys working with others) versus **reflective** (e.g., learns by thinking and prefers working alone)
2. **sensing** (e.g., practical, concrete thinker, oriented toward facts) versus **intuitive** (e.g., innovative, abstract thinker, oriented toward theory)
3. **visual** (e.g., prefers to learn with pictures, diagrams, and charts) versus **verbal** (e.g., prefers written and spoken explanations)
4. **sequential** (e.g., linear thinking, learns in small steps) versus **global** (e.g., holistic thinking, learns in leaps)
5. **inductive** (e.g. proceeds from particulars, observations, measurements, data to generalities — rules, laws, theories) versus **deductive** (e.g. starts with axioms, principles or rules, deduces consequences and formulates applications)

The question is, to what extent are learning styles modified by a digital environment, especially in the process of CB key language competences testing. The launch of the Blackboard Learning System in January 2012 at the Faculty of Informatics and Management, University of Hradec Kralove, Czech Republic, supported our attempts to develop online courses as well as language assessment. The interaction between the learning style dimensions and CB testing formats will be the subject of our following research. see Figure 1. CB testing formats and LS dimensions.

Our hypothesis is that when creating balanced CB key language competences test it is highly important to take into account not only all advantages and disadvantages of CB testing but also to respect and be familiar with the way in which students acquire, retain and retrieve information, collectively termed the individual’s learning style.

4. **Results and discussion**

Many experts agree on the overall added value and advantages of e-testing in large scale assessments. It is also predicted that creative CB testing, in particular, will play an increasingly important role not only in learning but also in assessment. However, there is still a question as to how fast and to what extent CB testing will be implemented into teaching and learning methods. Moreover, there are some obstacles which candidates have to overcome as surprisingly enough some testing methods seem to be more difficult for candidates in the computer-based version as e.g. reading comprehension. Students prefer to see the task in its entirety, rather than only certain parts with the relevant questions on the screen at any given time. This inability to self-navigate the test leaves some students feeling lost, and, consequently, hesitant to take CB tests.

This is why while we can agree that the presented “Learning Style Classification Scheme is, by no means comprehensive and the dimensions have not been shown to be fully independent and validated instruments to assess individual preferences” (Felder, 1995), we consider this approach very helpful in the field of CB testing and assessment, especially when creating balanced tests which should ideally address both poles of each of the five given dichotomous learning style dimensions.

5. **Conclusion**

Several most important aspects of CB testing were presented in the paper.

The development in computer-based testing is responding to students who are increasingly more comfortable working with a keyboard than paper and pen. Based on our experience with foreign language testing as a university language centre we can say that to be able to deliver balanced CB language tests, and at the same time enjoy the user-friendly interface, we should follow the principles of the individual’s learning style.

**References**


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