Second order learning gains from virtual, bilingual teaching

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1 Introduction

The interactions of teaching and learning have been undertaken for many centuries, and in latter times the study and analysis of these interactions has attracted much interest and attention. There are many theories and practices surrounding the subject of improving the learning experiences of people, in particular young people, and much of these focus on the aim for effective learning. Effective teaching, on the other hand, is itself an advanced skill. It is likely to involve the implementation of a balance of techniques and practices, applied within the environment of a one-to-one, or a one-to-many teacher learner relationship. Modern technology, in addition to modern understanding of peoples' needs and cultures, provides a new set of techniques and practices for the world to explore.

This paper aims to look at learning needs from the perspective of current day Europe, where increasing numbers of people have the confidence to approach their development and their citizenship through more than one language and through the use and exploitation of technology.

The study seeks to develop a teaching model that achieves both a learning gain of the second order for an individual learner in respect of specific learning outcomes and also an improvement in the learner's bilingual skill set whilst engaging in this process.

2 Virtual teaching

A wide range of teaching and learning concepts exists, considered within various educational contexts, each of which can be judged and often measured in terms of effectiveness. Various authors have attempted to categorise extending spectra of learning concepts in accordance with a taxonomy of learning achievements (Bloom, 1956; Krathwohl, 1964). A more pragmatic view of teaching might be to define the learning concepts as a collection of individual actions or experiences, categorised according to types of learner interactions.

For the purposes of this study, a set of teaching and learning concepts has been defined, which can be broadly categorised as the following:

- presentation to the learner of a quantum of information or facts on a respective skill or subject matter;
- testing the learner against a measure of retained learning;
- reinforcing learning with an additional dimension of support;
- providing the learner with reference points for further reading or consideration in relation to the subject matter in question;

- eliciting questions from the learner around the subject matter;
- encouraging the learner to interact with other learners in relation to the subject matter.

Each of these learning concepts is clearly important in its own right, but it is argued that a full, enriched learning experience will be achieved only if adequate measures of each are brought together in a complementary, integrated learning environment.

This set of concepts fits well with the traditionally held perceptions of an extending taxonomy of learning.

Through technology, a growing number of new, effective learning elements are being introduced, complementary to but different from the more traditional learning concepts. In the early days of Information Technology, these elements tended to be used as innovative, stand-alone techniques to engage the uninspired student. By today, a maturing collection of such elements can be composited to create a virtual teaching and learning environment, which should be of benefit to all students.

Increasingly, Higher Education Institutions are placing considerable faith in the development of virtual learning provision for their students, with large scale investment in both staff time and money (Brown, 2000). In addition, massive repositories of educational support materials are now available, including those managed by large corporations that exploit the immediacy and dynamism of the World Wide Web for delivery and updating (Blackboard, 2001).

From a simplified perspective, these virtual elements can be listed under the following broad categories:

- on-line documents;
- on-line assessments;
- electronic (dynamic) links;
- electronic learner-teacher communication facilities;
- electronic discussion groups (asynchronous);
- on-line classes (synchronous).

It can be seen that these elements match quite closely with the set of teaching and learning concepts listed above, and can be used to support them. Organised and planned carefully, these virtual elements can be used to deliver a learning experience that should be at least equivalent to that provided by traditional means. The emerging evidence points to the fact that, if the appropriate blend of virtual learning elements is added to the conventional learning mix, then this has a generally advantageous effect on student learning outcomes (Levin, 1999).

3 Bilingual teaching

Bilingualism is by now generally accepted as being, without any doubt, a contributor to the expansion of a human being's mental abilities (Dulay, Burt and Krashen, 1982). Introducing bilingual elements into education and teaching processes, therefore, would appear to be a natural strategy for improving learning.

Baker (1988) indicates that the ”balance theory”, which amplified the concerns that people had of using more than one language in educational development, has long since been dispelled and proven to be wholly unfounded. Cummins and Swain (1986) show many exemplars of good practice among educators of young bilingual people, and promote a number of interesting and useful tools to ensure that the benefits of bilingual learning are extended and developed.

Bilingual education has existed in various forms in different parts of the world for many years. It has been generally hailed, by educationalists, as being successful. However, the form of ”bilingualism” employed can vary, and often entails bursts of single-language teaching rather than the provision of truly bilingual learning experiences where both languages are used simultaneously.

Recently, attempts have been made to examine the different ways in which bilingualism can be applied to conduct and assist learning. Williams (2000) simplifies these into the following situations:

- where entire units or modules are delivered through one language alone, with complementary units or modules being delivered in another;
- where teaching sessions are undertaken in the two languages, simultaneously, with the teacher switching back and fore between the languages in accordance with the experience, skill and understanding of how and when this is effective;
- where teaching is organised in such a way that enables the two languages to be used in parallel strands, so that, for instance, one language is being used verbally for explanation or questioning whilst another language is used as the medium of supporting text or notation;
- where teaching and learning is delivered within a strategy of grouping the learners linguistically, such that the groups themselves interact in the language of their choice and where the teacher uses the language of that group to bridge with each of the other groups present in the session.

The choice of strategy employed in any learning situation will clearly be dependent upon circumstances and needs. However, it is argued that the quality of learning can improve more significantly where good practices are devised, combining these various categories. No single approach can be regarded as being perfect or indeed desirable. Successful practitioners now tend to be eclectic in their approach to methodology.

A distinction needs also to be made between having knowledge of two languages on the one hand, and bilingualism on the other. Bilingual skills in the modern age are of a higher order than the sum of the language skills acquired by individuals who speak two languages. These skills are needed for the world of employment, in addition to other spheres such as social interaction and, indeed, education.

The emerging bilingual skill set includes translation, translanguaging, language switching, designing or mapping out information bilingually, in addition to the utilisation of an increasing number of technological features within a bilingual setting.

One of the key skills in relation to producing better learning appears to be that of translanguaging (Baker, 2000) This entails receiving input in one language and, via cognitive or

other processes, producing an output in another language, and by doing so triggering a learning stimulus. An example of this would be learners conducting an interactive discussion in one language about an item of literature that is written in another. To read about a topic in one language, and then to discuss or write about it in another, means that the subject matter has to be properly digested and reconstructed. With English becoming the main source of world-wide information, this skill is becoming increasingly important in relation to most other languages.

A further development of this concept is where more than one source of input is applied in parallel (perhaps in different languages). The additional mental processing that takes place under these circumstances adds to the depth of understanding generated, the extent to which concepts are grasped and the degree to which taught subject material "sinks in".

This highlights the potential learning gain that can be sought by applying appropriate bilingual techniques to conventional learning scenarios.

4 Proposed model for delivering second order learning gains

A model approach to teaching has been developed that embraces the respective advantages of both virtual learning elements and those of bilingual translanguaging techniques. Together, these two supplementary dimensions of learning can add value to the experiences of learners, and in so doing provide them with a learning gain of the second order.

The model is best described incrementally. Learners are subjected to two distinctive stimuli, simultaneously. In their simplest form, these can be two items of text produced in the same language. One would probably be the primary object of the learning exercise, such as an item of literature, whilst the second could be some supporting or guiding notes, such as a list of criteria or characteristics to be observed. A variation might be the replacement of one of the written stimuli by a spoken voice (providing an explanation or answering questions).

Advancing the model, one of the two items is delivered in a different language, with the choice of languages dependent on the materials in question.

Finally, the model is further extended by introducing either or both stimuli through a virtual learning channel.

The model is sufficiently flexible to enable teachers to produce variable and hence more stimulating learning experiences for their learners. In each particular case, the choice of virtual characteristics and the degree and pattern of bilingualism engaged will reflect the teacher's expert opinion as to best practices. This is an area of expertise that is likely to evolve over a relatively short space of time.

5 Pilot study

A pilot study based on the above teaching model has been established, in order to verify the respective strengths and weaknesses of the approach, and in order to produce a measurement of learning gain derived from utilising the techniques described.

The methods of teaching and learning chosen for the pilot embrace those techniques described incrementally in the model.

Consideration as to the ideal type of learner groups to target for the experiment has not been easy to resolve. Numerous parameters abound, even within the limitations of Higher Education alone. Even wider opportunities for variation exist outside of this educational sector. The academic level or levels of learners must be defined carefully. The degree of fluency in each of the two languages under consideration must be also determined, assuming that too wide a range of linguistic ability would distort any meaningful results. Initially, the cohort of learners to be targeted in this respect are undergraduates who are competent readers and writers of the two languages in use.

The selection of the learning topic to be explored within this learning environment is also a key decision to the study. As a pilot study, it is important to be able to monitor and measure the learning progress as clearly as possible. The model would certainly appear to be suitable for examples of learning by rote, and for the delivery of factual information of most kinds. It also looks useful for the delivery of visual impact learning such as with maps and other diagrams. Furthermore, it could also be suitably engaged for more analytical and interpretative learning experiences, including the study of broad areas of literature. Exercises in text discourse and deconstruction would appear to be especially compatible with the model.

It is to one such exercise of speech deconstruction that this pilot study has been initially targeted. The learning outcome involves being able to employ a classical pattern of deconstruction skills in the analysis and treatment of propaganda. A toolkit of effective propaganda generators is used in order to deconstruct political speeches. This exercise enables the learner to grasp the various means of utilising language to get across political messages effectively. The toolkit comprises the following tools (exemplified):

(Discourse and propaganda)

5.1 Repetition

- Three-stage crescendo
- Contrastive pairs
- Metaphors and similes
- Euphemisms and dysphemisms
- Use of slogans
- Use of statistics
- Collectivity

Short political speeches by European leaders and others are considered, where learners can clearly grasp the underlying need by authors to get across a simple, convincing argument in order to win over the support of the readers.

In the bilingual manifestation of the exercise, the political speech and the aide memoir (the toolkit) are presented in different languages, in order that translanguaging can be effected.

The chosen methodology for measuring the progress of learners involves a combination of tests and a feedback questionnaire. The tests will elicit both quantitative and qualitative information in terms of learners' understanding. The questionnaire will be used in order to seek honest opinions from learners about their perceived learning experiences, and of their perceived learning gain (or otherwise) when exposed to the full dimensions of the teaching model.

6 Predictions and suggestions for further research

Early feedback from learners points to a successful study. The model and the methodology of the pilot are well supported, and there are good prospects that learning gains will be demonstrated.

A second order learning gain is therefore cautiously proclaimed from the use of this model approach. In addition to this primary achievement, it is becoming apparent that a higher order of bilingual skills development could also take place amongst the learners if the use of this approach were to be extended. This could lead to enhanced work opportunities for the participants. Additionally, it can lead to the cultural and educational advancement of bilingualism per se.

The benefits of exploiting virtual and bilingual teaching techniques can be translated from a local to a global perspective. This seems to be a powerful model that, if harnessed and developed properly, will make a real contribution to the advancement of knowledge.

Further research is needed in order to explore more closely the effects of varying numerous parameters and of experimenting with various types of learning experiences. The use of metrics to demonstrate learning gains would seem a useful next step. Further work is also required on the methodologies of testing. If the model becomes widely employed, it seems likely that there will be attempts at automating its methods of control and monitoring. In particular, it is likely that there will be a variation or an extension of the model to exploit emerging Managed Learning Environment (MLE) features.

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