



Interpreting training and digital pen technology

Use of the Smartpen opens up new possibilities in interpreting training and practice.

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Introduction

The first time I heard about digital pen technology was in 2009, at Monash University, when the representative of the US manufacturer Livescribe was testing the Australian market for distribution. I immediately realised that the features of their Smartpen (the first model was called Pulse), initially invented to facilitate the work of secretaries taking minutes in meetings by simultaneously filming notes and recording speech, had a great potential for the training of future interpreters, especially in the area of note-taking and consecutive interpreting.

I started using this digital tool in the classroom at Monash University that same year, and presented its characteristics, along with some general pedagogical reflections and experiments, in June 2010, at the University of Trieste's conference on innovations in T&I. These ideas and experiments were then published in this university's publication, *The Interpreters' Newsletter*, in 2011, under the title: *Digital pen technology and consecutive interpreting: another dimension in note-taking training and assessment*. The main objective of the article was to present and suggest potential applications of the Smartpen for both training and research, with the longer-term view to facilitate the task of the interpreter and to possibly improve interpretations delivered in the consecutive mode. Both the presentation and the article were well-received worldwide, and the tool has since been regularly used for training and research purposes in several universities, but also by practitioners in the field. The following article presents a summary of the above-mentioned article as well as some of the possible applications of the Smartpen in interpreting training and practice.

The debate about the development of note-taking skills in the training of interpreters has always occupied an important place in the T&I industry as well as in the academic and education field. Despite the consensus that to provide a good consecutive interpretation it is recommended to have developed a good system of notes, nothing has been said about how to evaluate these systems during the training of future interpreters.

New technology

Recent advances in technology help us to examine empirical data in different digital forms. A new generation of digital pens, belonging to the category of mobile computing platforms, offer advanced processing power, audio and visual feedback, as well as memory for handwriting capture, audio

recording, and additional applications. These *Smartpens* consist of a microphone, a built-in speaker, 3D recording headsets, and an infrared camera. They are used to take notes – they have a normal ink cartridge and are held as ‘normal’ pens - and to capture data on a micro-chipped paper. Thanks to the built-in microphone and speaker and the infrared camera, an application synchronizes what is being filmed/recorded as handwriting with the audio recorded at the same moment.

Thanks to the *dot-paper* technology that enables interactive “live” capture using plain paper printed with microdots and a function called Paper Replay, the user of the pen can play back the speech from the notes taken on paper at any time. One simply needs to tap on a word on the page of the notebook to hear the part of the speech related to that same word or a phrase played directly from the pen.

The first generation of the Smartpen can be put on a cradle and connected to a computer through a normal USB port, so that both audio and video data can be uploaded and played on the computer. This allows users to backup, search, and replay notes from their computer. Users can also upload and convert notes to interactive Flash movies or PDF files. The latest model of the Smartpen is a wireless one which enables the user to immediately transfer what is being written down to any playback device (computer, tablet, iPad...).

Because such digital pens provide the means to easily capture handwriting and speech – video and audio – and speech/notes can be replayed simultaneously from the notebook or visualized on a computer, they provide a universal platform for improving note-taking learning among students, the ideal tool for classroom visual activities and immediate collective feedback where students can easily learn from others.

Is note-taking too personal a technique to be taught?

One major problem in the debate on whether to teach note-taking systematically or not lies in the difficulty to find a clear answer to the question about the system being too personal or not. As Ilg pinpoints, “The consensus among those who have taught note-taking in a systematic manner is that any system should be highly individual but based on common-sense rules of *efficiency* and *economy*” (Ilg, 1996, p.78). The system of notes developed by each interpreter is surely very personal, even if symbols and ways of noting ideas and links can be borrowed from existing modelled systems. The problem for trainers in encouraging their students to develop their own personal systems freely is often the impossibility to observe these systems *in the process of being developed* throughout the training, and therefore the incapacity to provide effective advice or remediation.

What future interpreters should be taught through any curriculum is that training in *consecutive interpreting for speeches* (considering *speech interpreting* different to *dialogue interpreting* inasmuch as notes are not required in dialogue interpreting, but both being consecutive interpreting exercises) requires the development of a personal note-taking system, but that this skill is only one of those proper to this mode. Indeed, there are too many variables in a speech interpretation to limit its quality to merely good notes. As all trainers know, interpreting training is not language teaching. Similarly, interpreting students must understand that consecutive interpreting is not limited to note-taking. Students must be continually reminded that notes are an essential ally for them to provide a good speech consecutive interpretation, but that they can also become their worst enemy, especially when they try to write the speech in its entirety. Such a task is simply impossible and useless as it generally entails the Nose-in-the-Notes-Syndrome during the interpretation, and an incoherent production, both contrary to and incompatible with the act of communication an interpreter is supposed to perform.

It is possible to teach - and therefore to learn – how to take good notes. But as for any skill to be taught, whatever the field, a clear pedagogical project with a clear progression, a clear evaluation strategy, and clear objectives must be designed. As Gentile alluded to as early as 1991, a good interpretation encapsulates many parameters that need to be broken down to be properly analysed and taught: “The difficulty [of teaching note-taking] lies in separating the teaching of a system from the task of interpretation” (Gentile, 1991, p.346).

Different components to be broken down in the curriculum

In the interpreting stream at Monash University, students are trained to develop a personal, efficient and economical system of notes progressively, over three semesters. However, following the same belief as many trainers of the field (Ilg, 1996; Ficchi, 1999), note-taking activities for speech interpreting are introduced following a few weeks of study, after other exercises have been practised: listening comprehension, analysis and oral production of speeches with a focus on coherence and a logical macro-structure; memory drills (visual and audio); written and oral paraphrasing and summarizing exercises, and also situations where students develop an aptitude to act and to perform (notably through dialogue interpreting situations). Then note-taking can be introduced on a progressive basis (from monolingual exercises to bilingual exercises) using different types of speeches. Indeed, as already discussed by the present author (Orlando, 2010), interpreting eloquence does not require the same technique as interpreting a descriptive speech, hence the need to use a variety of speeches: descriptive, argumentative, and affective (Seleskovitch, 1975).

Teaching and assessing note-taking

Rules of note-taking have been defined and modelled (Rozan, 1956; Seleskovitch, 1975; Ilg, 1980; Matyssek, 1989) so that instructors can design training tools to develop their students’ skills, or interpreters can develop a system by themselves. But not much has been done to find relevant ways of evaluating the progressive acquisition of such systems and of note-taking skills.

It is relevant to use the concepts of *product-oriented* and *process-oriented* assessment - often used in the translation assessment field - to deal with the subject of note-taking and interpretation assessment. When instructors want to assess an interpretation, it is generally the quality of the consecutive interpretation (based on criteria to evaluate the linguistic accuracy, as well as expression and presentation) and the final notes (the product) which allow them to give feedback and evaluate the performance. Such a *product* evaluation of the interpretation is generally made without being able to clearly distinguish the memorization qualities/deficiencies and the note-taking qualities/deficiencies of the interpreter.

The only possibility to evaluate the note-taking *process* (the significance of notes being taken ‘live’) is to find a way to capture simultaneously the notes and the speech. To do so, some instructors have used OHPs and transparent paper to observe and assess ‘live’ the notes being taken. The capture of the process has also been done by video-recording the interpreter at work and by comparing the recording with the speech from which notes were taken. It is worth mentioning as an example the large and invaluable empirical study on note-taking conducted by Doerte Andres (2002), where one could really follow the note-taking process of 14 students and 14 professional interpreters. Each of them was video recorded taking notes from a speech and then rendering it, and Andres painstakingly noted the exact second when each element was spoken in the original, appeared in the note-pad, and was spoken by the interpreter. The script of the original speech and that of the interpretation were put together on the same sheet of paper, with the notes in between to allow the visualisation of the links and the evaluation of qualities and defects.

It seems that no similar study has been made since. However, weekly and all over the world, instructors lead workshops on consecutive interpretation and note-taking techniques, where students' performances and notes are assessed. Unfortunately, the time and resources required prevent most trainers from repeating the colossal work done by Andres, and from analysing the quality of the interpretations in relation to the note-taking process. This results, in most training programs, in the incapacity and impossibility to provide well-considered and personalised remedial strategies to improve the students' skills, based on their personal learning.

A new dimension in training

A variety of approaches and technologies have been developed to help trainees take and review notes during the learning process. However, they all have shortcomings. For example, other technologies exist that permit the recording and rehearing of speeches/lectures in relation to notes, but the audio segments and notes are not synchronized. This synchronicity can exist with Tablet PCs with audio recording capability, but Tablet PCs are more expensive and less portable than a pen and a notepad.

Metacognition and review time in the learning process

It is my belief that teaching is an interactive formative activity where the student is a subject, not an object. Elaborating on Barthes' idea that the birth of a reader requires the death of the author, I tend to think that the symbolic death, the gradual disappearance of the instructor, and the gradual autonomy of the trainee should therefore always be aimed for, through a range of problem solving strategies and metacognitive activities.

In any program training future interpreters, no one would contest the benefit of evaluating students against various professional standards. However, as pointed out by Choi (2006), such evaluation also runs the risk of defeating the purpose of evaluation and assessment from a pedagogical standpoint, hence the importance for assessment to be studied also from the student's perspective. Self-assessment and metacognition play an important part when one wants to give students the possibility to reflect on their progress and become 'actors' in their own learning process. Therefore collective and individual assessment activities should be planned in any curriculum. As defined by Choi (Choi, 2006, p.277), "metacognition in learning can be described as the awareness of the learning process and the ability to adapt to challenges that occur during this process through effective strategies, thereby helping learners improve their learning capacity".

As far as the learning process of note-taking is concerned, research suggests that the use of text-to-speech technology and efficient and effective note-taking activities, coupled with review, can aid learning and understanding and enhance the comprehension, fluency, accuracy, speed, endurance, and concentration of individuals (Tran and Lawson, 2001; Lindstrom, 2007). Therefore, one can consider that if the taking of notes is too demanding on a student's working memory to permit the student to carry out generative processing in real time – and, in the case of interpreting students, leads to a poor performance - the needed generative processing of the content is still capable of occurring during the follow-up review of notes. Given the difficulties many students face when reading their own notes, the synchronous juxtaposition of text and audio provided by this digital pen technology should induce greater learning from the students reading, reviewing and self-evaluating their own notes during assessment activities. Moreover, during these self, peer or class assessment activities, such technology offers the possibility for students and instructors to work together closely and clearly observe and/or show what can be noted down or not, what notes are useful or not, what is detrimental to the restitution, etc. It allows all the participants to make an objective evaluation of what constitutes economic and effective notes.

Example of a pedagogical sequence

A pedagogical sequence using such technology to train future interpreters to take notes and assess them effectively (during self-assessment or peer-assessment activities) was introduced in Monash's program and could be modelled as follows. The sequence is set up on a pair-work basis: student 1 (the interpreter) + student 2 (the assessor) or instructor. Each participant would have a pen.

Step 1: The speech to be interpreted is played or read to student 1 (recorded by pen 1). Student 1 takes notes on dot notebook 1 (handwriting is filmed by pen 1).

Step 2: Student 1 stands up and interprets from notes (recorded by pen 2). Student 2 takes notes about the interpretation-performance on dot notebook 2 (handwriting is filmed by pen 2).

Step 3: The recorded and filmed information is uploaded from pen 1 and pen 2 onto a computer and played one after the other on the screen for comment and evaluation by both participants (or by the whole class group for collective assessment). First, the notes of the interpreter are observed being taken while the speech is played simultaneously for an evaluation of the note-taking process. Then the notes of the assessor are played simultaneously with the performance of the interpreter for a 'live' evaluation of the performance.

A variation of this activity can also be set up for self-assessment:

Step 1: The speech to be interpreted is played or read to the student (recorded by the pen). The student takes notes on the dot notebook (handwriting is filmed by the pen).

Step 2: Student interprets from notes (recorded by the pen).

Step 3: The recorded and filmed information is uploaded from the pen onto a computer and played on the screen for comment and evaluation by the student who can observe his/her notes being taken while the speech is played simultaneously and can observe what is relevant or not, and can then listen to his/her performance for further assessment related to the notes.

Combined technologies for optimal assessment

For a performance assessment based on accuracy of meaning but also on appropriate nonverbal expression and presentation, all the activities of our weekly workshops are filmed. The trainee's performance on video can thus be assessed on screen with software like ELAN (Eudico Linguistic Annotator), for example. ELAN is a professional tool used for the creation of complex annotations on video and audio resources. With ELAN a user can add an unlimited number of annotations to audio and/or video streams. An annotation can be a sentence, word or gloss, a comment, a translation or a description of any feature observed in the media. Annotations can be created on multiple layers which can be hierarchically interconnected. An annotation can either be time-aligned to the media or it can refer to other existing annotations. Such software and applications provide any assessor the possibility to annotate comments for the filmed performance of a student on the screen while the video is being played, and allow students to review their performance and visualise their mistakes by simply clicking on the assessor's comment.

The combined use of both technologies – the digital pen and the video annotator – in the classroom would allow the ideal performance assessment of speech interpreting because:

- The 'live' notes of the interpreters are simultaneously recorded with the source speech.
- The 'live' notes of the assessor are simultaneously recorded with the interpretation.
- The interpretation is video-recorded 'live'.

- The ‘live’ notes of the assessor are annotated and time-aligned on the video.

The treatment and review of all data on a weekly basis added to the assessment of the interpreter’s performance either by the instructor, by a peer, or on a self-assessment basis, would undoubtedly help identify patterns useful to define personal remedial strategies in the learning process.

Research and pedagogical outcomes

There is no doubt that digital pen technology has opened and will open new doors for research in Interpreting Studies, and more specifically in note-taking for consecutive interpreting. The collection and analysis of data in our program is at too early a stage to allow us to draw any serious conclusions yet, but patterns in the note-taking process have already emerged. Thanks to the simultaneous capture of the handwriting and of the speech, it is interesting to observe, for example, that when the speaker pauses for a few seconds, interpreters often go back to earlier notes to add or change elements with information from the previous part of the speech stored in their memory. Such a pattern cannot be observed when the process of note-taking is not captured and notes are only assessed as a final product.

Despite the lack of data analysis in this area, one can anticipate that at each stage of the students’ training, thanks to the visualization of their own - and other students’ - notes, patterns would emerge in the efficiency of note-taking. The audio-visual evaluation, either by an instructor, a peer or as a self-exercise, should impact on the student’s performance and note-taking skill development. Last but not least, such data will be highly useful to convince students that notes are not the ally they think they are and not the only point of focus in the learning process. It should help them to accept more easily, especially in the early stage of their training, that a good consecutive interpretation of a speech relies on memory capacity and the ability to provide a coherent, convincing and well-presented interpretation, more than the capacity to elaborate a relevant note system.

The use of this digital technology should also be considered by professionals who would like to self-assess their work and improve their note-taking technique. Professional associations in charge of Professional Development modules could also introduce such tools in their courses.

Beyond classical interpreting modes?

In 2007, Miriam Hamidi and Franz Pöchhacker reported an experimental study on a potential new mode of interpreting, *simultaneous consecutive interpreting* (or *SimConsec*), tried for the first time a few years before by Michele Ferrari, an interpreter at the European Commission SCIC, where a digital voice recorder is used to record the original speech which the interpreter then plays back into earphones and renders in the simultaneous mode.

The Smartpen certainly offers the possibility to investigate this area further. Among other researchers interested in the hybrid mode, Pöchhacker (University of Vienna) has already carried out a few studies on the topic. Indeed, thanks to the application which offers the possibility to record and replay instantly the speech from what is written on the dot paper - with the option of speeding up or slowing down the audio playback - and into the 3D recording earphones provided with such pens, it is not totally unrealistic to imagine future interpreters being trained to deliver interpretations in a new mode of interpreting, a *consecutive-simultaneous-interpretation-from-notes* where the professional would interpret the source speech both listening to the replayed speech *and* reading his/her notes. Such a practice would give more comfort to the professional (more time for listening and anticipation, less stress in taking notes), as well as potentially more accuracy.

I have also completed a pilot study with young graduates of our interpreting programme on the use

of the Smartpen and the results confirm what has been shown so far: the Consec-Simul mode allows for better accuracy but leads to poorer audience contact. Like other trainers, I believe this can be largely improved upon and developed through adapted training. Time will tell, but there is certainly room for new research in this area too.

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Other resources

For more information on the digital pen, visit www.livescribe.com

For more information on the ELAN software, visit www.lat-mpi.eu/tools/elan

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