ICT (INFORMATION AND COMMUNICATION TECHNOLOGY) IN TEACHING/LEARNING :

A FEW GUIDELINES FOR AN APPROACH BASED ON REASONING AND REASON

By Françoise Demaizière

English translation by Steven Lawrence

Presentation at the conference in Paris - France on 17 march 2011 entitled "Tice in teaching music: strong points and limitations" organized by Ariam Ile de France.

Summary

The transcript of the presentation appeared as an article in the Journal of AFPC-EVTA France (n° 18, published in October 2011); the English translation was financed by :

European Voice Teachers Association (EVTA)

Plate-forme Interrégionale d'échange et de coopération pour le développement culturel

Association Française de Professeurs de Chant - EVTA France (French association of singing teachers)

1. Forward

I shall start by stating that I am a specialist in English linguistics though I have for a long time cultivated an interest in what modern technologies can bring to language teaching and teaching in general. I have no knowledge of music nor of the way it is taught, not even as a student. Therefore I beg the audience to forgive me for my total ignorance in their subject of expertise. I hope my knowledge of various technologies will make up for this handicap. Let me make it clear that my approach won't be focused on technology itself. I am not impressed by fads or gadgets. If I had been, I would long ago have given up. In my time I have seen a great number of currents brought to the forefront with great enthusiasm only to be pilloried soon after and sometimes later rediscovered under a different name. I am totally impervious to such fashions.

2. Introduction – A few recurrent reactions

2.1 « ICT IS INEVITABLE »

Today it is commonplace to say that ICT is "inevitable", that it will catch up with you no matter what... Such reactions reveal fear or at least a certain degree of anxiety. It is certainly more positive (and realistic) to see it as stimulating and to include it in new teaching environments. Yet, there is no need to use it if you find it irrelevant. Reactions of avoidance have always been popular in the teaching profession when faced with innovations or orders from above. I am sure you have already circumvented instructions when it was useful to you. It seems that the best attitude is to remain level-headed and to assess the potential of what is on offer for the conscientious teacher.

2.2 « STUDENTS ARE BETTER AT IT THAN WE ARE »

The worry that students might be better at using ICT than teachers is not grounded. Students come to a teacher for his expertise in a given area, so why should he feel the need to be "better" than them when it comes to mastering a new technology? He is more of an expert in music, mathematics... and this is enough to make him a specialist. So why not use the opportunity to establish a new relationship with his pupils? I'll come back to this later.

2.3 « ICT IS ALREADY USED IN OTHER FIELDS, WE WILL SEEM TO BE BEHIND THE TIMES.»

Another commonplace argument. When I hear that the French education system makes widespread use of modern technologies, it can only make me smile. True, there is a lot of talk about it, but in practice, so much equipment and software just stays in the cupboard, doesn't work properly for want of technicians or remains in the hands of some rare users. According to various surveys, teachers make extensive use of ICT to prepare their classes but the truth is that very few really use it in the classroom or in innovative educational contexts.

2.4 « THERE IS NOTHING WRONG WITH OUR TEACHING AND ANYWAY YOU CAN'T REPLACE A TEACHER!»

I will venture to propose the idea that it is difficult for a teacher to be fully aware of what works or not in his teaching. Those who don't like it may well have dropped

out and will no longer attend his classes. It has also been proved that there is a great discrepancy between what a teacher may perceive in class and the extent to which his students actually learn anything or enjoy his teaching. Of course this remark applies to followers of new trends who blindly embrace the supposed qualities of those trends. The idea that a human presence is irreplaceable in class, often used to fend off new technologies, has been around since the first printing machines. Some would even say that a teacher who is afraid of being replaced by a machine actually deserves to be. Students who learn without a teacher are autodidacts. Teachers shouldn't worry about them. They are outside their area of expertise. On the other hand it seems a basic rule for a professional to consider what a new tool could bring to his teaching. True, the teacher is probably irreplaceable but his traditional way of teaching isn't and might gain a lot by evolving with time. For example, the latest current in the science of education, called socio-constructivism, underlines the importance of working together as well as the social links among learners. Does this apply to music? I can't answer, but I would like to ask music teachers to consider these questions.

3. Technologies: what are we exactly talking about?

3.1 (N)ICT, CICT, TICE...

I mentioned Information and Communication Technology (ICT). For a while, they were referred to as "new" technologies (NICT, and before that there was NET (new education technologies). Nowadays some talk about CICT, the first "C" standing for "current". Today's conference is called "Tice" (a French abbreviation for Information and Communication Technologies in Education), but the meaning of the "e" in Tice varies. Researchers, most of all in Education, use the term when talking about "educational technologies". I am not too fond of the term "educational" and rather avoid using it. I prefer opening up to the whole domain of pedagogy, in particular because I have noticed that especially secondary school teachers end up replacing the term "educational" with "teaching" *(="enseignement" in French, different from educational, in French "educatif")*. All that matters little, even if it does reflect certain undercurrents, a name is never more than a name. Only ask yourself which acronym to use if you want to be thought of as belonging to a specific community, which is, I believe more relevant to me than it is to you.

3.2 WHAT TECHNOLOGIES ARE WE TALKING ABOUT

ICT is now so common that it is difficult to know exactly what it refers to. A few years ago, ICT was a term exclusively restricted to the use of computers. Now that we also use nomadic learning, smart phones and tablet computers, the possibilities of using different media are even greater. For instance, I couldn't tell whether the sampler shown at one of your previous seminars is actually an ICT as such. I don't think it really matters that much.
If you listen to the French ministry of education, for example, you will see that the latest talk is about "the mobile classroom" (laptops placed on a trolley, what a revolutionary idea, but let's not forget the sellers of these goods), as well as distance learning (we're getting closer to pedagogy) and digital work stations (DWT, nothing really new but it enables teachers to say they use ICT without actually using it in class). Let's also mention interactive white boards (IWB), which delight many, especially retailers, but which could well be replaced by pads,

according to recent developments. The IWB is a good example of how teachers assure themselves that they are using a new technology while really reinforcing old practices (the teacher teaches while students listen) rather than evolving towards a teaching process that places the learner at the centre of pedagogy.

3.3 Information Technology...

ICT is a great tool to find information and few people would disagree with that. Yet it is vital to know who gives information to whom and how reliable this information is. Information may well turn into "communication" (in a more commercial meaning of the word), but this applies to all media today.
There are many web sites, mail lists, etc. for teachers nowadays, yet it appears that very few use ICT in class while they do tend to revert to it in order to find useful material for their teaching.

3.4 ... and Communication Technology

This aspect of ICT is in fact an enrichment to traditional frontal presentation methods (see IWB above). You often hear people talk about enriching existing methods of presentation (see the typology found in "Compétice"). At the other end of the scale are social media and their "horizontal" communication between peers. Examples are e-mails, forums, blogs, distance teaching methods or DWTs mentioned above. We live in a world of information and communication but do not make the mistake of confusing information, communication and the actual learning of the students who are recipients of the above-mentioned information and communication.

3.5 Technology for teaching or for learning?

As I have already suggested before, I prefer to think of ICT as a tool to help the learner rather than as a teaching help. It is up to everyone to choose their approach according to their individual views and their professional preferences. As for me, I live in an environment where people talk of learners rather than pupils, hence my approach. Of course acts are more important than labels.
The very first computers were used to improve "teaching", and only later did they gradually become useful in helping the actual learning process. In a moment, I will give an outline of the history of ICT. It is worth mentioning that the use of the term "technology" in association with teaching by far predates the advent of the first computers (or even the first "calculating machines" of the 1960s). Using a Taylorist approach, the goal was to find the most "efficient" means of teaching a subject.
The type of distance learning that offers online classes consisting in a series of pages to read, download, or print out, follows in the footprints of that kind of teaching tradition. In certain cases it would be more appropriate to talk about dispensing information rather than teaching.

For those methods to turn into a tool for learners, a certain number of changes would have to be brought about: the students would have to take initiatives, like expressing themselves before the teacher and not just answering questions. For instance, it might be possible for students to have privileged access to distance teaching websites, thus being able to exchange opinions without the intervention of

the teacher. They may also start a forum or blog for themselves rather than be part of a discussion initiated by a teacher.
You can easily imagine that the fathers of those new teaching methods, Célestin Freinet and others, did not need machines to bring about these changes. I would just like to remind teachers that the advent of ICT might provide a good opportunity to review some of their teaching habits.
As far as the use of new technologies is concerned, people have moved from mere teaching products, such as the educational software of the 60s and 70s to more interactive products and eventually to resources with multi-link databases. Today's abundant internet resources, for example, can be intended for teaching or not. If not, they are raw material that can be used in various teaching circumstances. There is of course the idea that you can do without any specific teaching environment. That brings us back to self-teaching, or the need to link informal learning (in our case within Web 2.0, for example) with a teaching institution and the formal teaching that goes with it.

3.6 SHOULD THE APPROACH BE BASED ON TOOLS OR ON TEACHING METHODS?

How do you get familiar with the use of ICT ? Some seem to think that one only needs to master the use of one or more tools. Just learn to use the tool, ideas about the teaching context in which to use it will come by themselves. When training for the usage of new software is provided by manufacturers or salesmen to that effect, the result is often disappointing, including when the person who is providing the training is a very enthusiastic teacher who doesn't understand why he can't communicate his enthusiasm to others. Quite often, the newly acquired product remains unused or is utilised in a way that is in keeping with the teachers' habitual teaching methods.
It is a good thing to keep in mind that an interesting idea for teaching doesn't always require the most expensive tool, whatever manufacturers or education managers may think when they like to spend a lot of money on new technology to give their institutions an image of modernity.
Skype, MSN Messenger, email or free software are sometimes more than enough and work better than a trendy and expensive product or tailor-made software from your in-house IT-specialist.
I therefore firmly advocate an approach based on teaching methods whereby a variety of possibilities, with examples, is shown, leaving people free to explore them in their own way. This approach will eventually help them to find out which specific technical know-how they will actually need.

3.7 A TOOL OR WAYS OF USING IT?

I would like to emphasize the fact that being able to use a great variety of tools isn't as vital as knowing what you can use them for. Only then do they become a valid teaching aid. Blogs for example can be either open to anyone or reserved to the group that created them. Sometimes anyone can suggest a topic to discuss but not always. Some blogs are very similar to forums and can therefore be really easy to set up. In certain instances, even a Facebook group can achieve the desired result.

4. Short historical panorama – In the begining: CAT (Computer Assisted Teaching)

4.1 The "teaching machine" for the individual

The 1960s and 70s were marked by Computer Assisted Teaching (CAT). The emphasis was on the individual. A student could do things in his own time, individually answer all the questions and do all the suggested activities. He could work privately and not have to suffer the presence of a teacher or his fellow students. CAT was all the more precious as groups could be numerous. That can still be the case today and it is even possible to work from anywhere and at whatever time is convenient. The flip side of the coin is that working from home requires considerably more discipline than working alongside others, for instance in a library. I will leave it to you to reflect on this aspect of things when it comes to music.

Individualised studying allows people to exploit different types of resources according to their interests and needs. It is of course easier to do that nowadays with the internet than it used to be in the days of CAT.

4.2 Repetitive, unrewarding work is for the machine, the rest is for the teacher

As early as in the days of CAT, teachers have tried to use machines to do repetitive tasks, thus separating the human factor from what could be left to the machines. The problem was that some tasks were done by machines even though the software in those days wasn't sophisticated enough. Such an approach sometimes led to utter nonsense in language teaching, for example. For the teaching of music, things may well be different.

4.3 Technology sheds a different light on ourselves and others

The introduction of a third party, namely a computer and software, often deeply changes the relation between teachers and students. They tend to feel on a more equal footing when dealing with ICT. A teacher might realize that a particular student shows a lot more motivation and competence than he did before, now daring to engage in a discussion.

As far as the teacher is concerned, he may adopt a different approach on what he teaches and realizes that some of his explanations weren't as straightforward as he thought. Writing educational software is an excellent way to question one's own teaching methods.

4.4 What should be retained from CAT?

From the era of CAT, I will retain a move towards individualisation, technology providing the student with more intimacy and anonymity, freeing the learner from potentially inhibiting onlookers and making the relation between teachers and students more positive. Here I would like to insist that you should never record the learner's actions or results without asking yourself if it is necessary and useful. Granting the student the anonymity that ICT can provide him will often be more productive. (I don't know if in the teaching of music, teachers feel, as they do in

many subjects, the same need to know everything that their students do.) Out of my long experience, I can tell you that teachers are always afraid of missing out on something their students have done (as if they knew what they say to each other in class !), and that students are very relieved not to be under the constant surveillance of their teacher. At the same time, they like showing their teacher what they have managed to do as well as the positive feedback they received from the computer. Let me insist on the fact that this positive relationship is just as important as being present should a problem arise, which constitutes another teacher's obsession: "what if they are on their own with a machine and there is a problem?". My answer to this is that should anyone really have a problem in a group, then they probably won't dare interrupt the others to ask for help anyway.

It is now time to examine the years that have followed CAT and which were characterized by a rejection of teaching in general, albeit of course more in theory than in practice. Many mechanical exercises have indeed survived until today.

5. The following period – the 70s and the 80s

5.1 CAT AND ITS RIGIDITY ARE PILLORIED

CAT has generally been associated with a behaviourist type of teaching, "programmed" teaching such as existed in 50s and 60s (with "programmed" books or "machines" that weren't computers yet). The 70s saw the dawn of a more "liberating" kind of teaching that rejected CAT's rigid didactic scripts. The emphasis is laid on the student taking the initiative and making his own choices. Technology no longer produces a ready made course asking students to do exercises, it is used to help with the teaching, rather than actually doing the teaching.

The first phase was the era of simulation: the learner is asked to do something and the programme shows the result of the learner's actions, with the hope that the learner is able to find out how something functions and gets some practice at the same time. The most sophisticated example is the well-known flight simulator. Not all areas of teaching lend themselves to information technology in the same way. Languages, for example, are quite "resistant", it is indeed very hard for a programme to simulate a conversation. I suppose there might be more possibilities in teaching music. As often, time showed that the expectations for students to discover underlying rules without the help of a teacher were exaggerated. So, more guidance was introduced to help students along. Rejecting all structure in the teaching process was all too frequent and, as so often (see below), things went from one extreme to another. It's for you to decide what part of this approach can be used in your domain.

The next phase saw the introduction of professional software, word processing, data bases and in particular spread sheets. Computers were used as tools rather than as tutors, like with CAT. Teachers felt more at ease with these new tools than when machines robbed them of their role as a guide at the time of "free simulation" or tutoring computers. They were in command again and took the initiative of fashioning the class. Once again, it was possible to observe both exaggerated enthusiasm, followed by disillusion and at the same time some good usage that is still relevant today.

5.2 Hypertext and browsing

In the mid-eighties, still well before the era of the internet, came the first hypertexts as well as an emphasis on browsing through data bases. The idea is that students will navigate in an ocean of data and thus create their own itinerary according to their interests and needs. To cut a long story short, unsurprisingly, hopes were sometimes badly dashed (it is easy to get ship-wrecked in an ocean of data), but on the other hand, sceptics weren't necessarily right in being so reluctant to give more initiative to the students. The problem here is the tenuous line between information and instruction.

5.3 What to remember from this second period ?

The focus shifts from the teacher and his "course" to the student, the learner. Teaching software is abandoned and software in aid of a teaching method is preferred. This change of focus reflects the intellectual currents of the time. What prevails is now a systemic approach (see the success of the notion of "macroscope" by J. de Rosnay, for those who remember his book). Of course, new theories don't always mean a great change in practice and many traditional exercises and ways of teaching continue to thrive.

6. The 90s and the following years

6.1 Distance

Distance education has existed since the 19th century but the arrival of internet in particular and the possibility to communicate easily through ICT gave a second lease of life to distance learning, electronic learning, virtual learning and the like.

Distance Learning (DL) can be online one-to-one tuition. Interaction is instantaneous. The teacher's role is hardly any different from being present in the classroom. DL can also imply a group working with one or more tutors, teachers, technicians... with a high level of interaction between students who are creating something with the help of a collaborative working platform, for example. Here, interaction is often not instantaneous. This allows time to reflect on one's interventions. The teacher's role is deeply modified. Whether he acts as the designer of the course or as a tutor, this modification is essential. Many (not to say all) distance learning projects are doomed to failure or have disappointing results because the teachers weren't able to adapt to their new role. The professional teacher's intervention is certainly vital, but it can happen otherwise than in face-to-face teaching and so the teacher has to adapt to the new teaching context.

Communication can be achieved through e-mails, blogs, forums, chats, etc. There is a large choice of tools and teaching methods. You can find a great number of different things behind the label Distance Learning, so it is useful to keep this in mind.

There are many different intermediary situations between distance learning without the actual presence of a teacher and traditional classroom learning. They are called hybrid training, partly with and partly without the presence of a teacher.

An often quoted typology (Compétice) distinguishes five possibilities: a teacher present in the classroom using multi-media tools, distance learning before and after the presence of a teacher, teacher partly absent, teacher mainly absent, close to no teacher presence at all.

6.2 Social media, Web 2.0

Let's now turn to a phenomenon that creates a lot of interest in our world today: social media, Web 2.0. Who hasn't heard of Facebook, Twitter or Wikipedia? Naturally, the teaching profession is interested in these new ways to communicate, in particular researchers in the field of socio-constructivism. Skinner was the main reference of programmed teaching inspired by behaviourism, then came constructivism with Piaget and now Vygotski and Bruner lead the way to socio-constructivism which lays emphasis on the importance of social contact in the learning process. I am of course referring to research in education and not to the official school syllabus or ministerial guidelines, which don't really see eye to eye with each other.

Web 2.0 allows the creation and exchange of content made by users, who are able to distribute, share and handle different sorts of contents, most often made publicly available. The three main characteristics of Web 2.0 are the exchange of information among peers, its content, created by its users, and its openness. Its borders may appear fuzzy at times, because many people are trying to get involved in Web 2.0, since it is so new and trendy. It's up to you to see if it is relevant for your teaching or not (yet). Nevertheless, we shouldn't neglect its openness to the environment, to the public space and to communities in the real world, as well as the possibility for the students to give free rein to their creativity. At the same time it is necessary to remain vigilant about the content offered to the students by their teacher.

6.3 What should we retain from recent developments ?

It seems that the focus now lies on learning skills as well as their social aspect and on the advantages of working together with one's peers and the setting up of a community. The relationship between the individual and the group is looked at differently. Contact with people outside the classroom and the teaching institution are integrated in the teaching activities. It's not news that there is of course a long way to go from the ideas of the researchers to actually applying those ideas in the classroom. Some people still continue to put their courses online unabashedly while ignoring the discussions that are taking place among other communities.

7. Enduring characteristics

I will conclude this brief outline of the subject with a few general remarks which will tie into the remarks I made at the beginning of this talk, because some things outlast all the trends and fads and will continue to do so.

7.1 Gadget fans

These are the people who believe in the latest technological novelties which they say will make all the difference and maybe even "change everything". They will tell

you about the unprecedented technological possibilities of a new tool that will allow you to be up to date (perhaps even without changing anything in your teaching habits...), but pedagogical aspects are often hardly mentioned.

In this category I would for instance include fans of IWBs, or of distance learning that makes use of mobile phones, fanatics of USB flash drives and more recently of the above mentioned tablet computers. You will also hear people tell you about the superiority of such and such gadget over its competitors. Let's not forget that a tool is not in itself a teaching method and that even though it is perfectly legitimate to be interested in new teaching tools, the technical aspects of a particular product are not to be confused with its impact on pedagogy.

You will almost certainly have to deal with different types of voice-recognition software and it will be really important to know how to compare them with other products that are perhaps less well marketed but which are ultimately just as good. Hence the importance of asking the right questions or of finding someone to help you do so.

7.2 Fans of "new" liberating teaching methods

These people fervently believe in the great abilities of the little prodigies they teach and are of the opinion that they thrive best left alone. Remember that the partisans of the new "liberating" teaching skills can be credited with many positive achievements. They include such people as Freinet for example, who has now become very popular since collaborative approaches have become fashionable in distance teaching. Yet it is important to keep a cool head and to remember that some visionaries, such as Seymour Papert and his once famous Logo, or Ted Nelson, inventor of the hypertext who waxed lyrical on the future of browsing, now make us smile or even laugh, even if in the process some students have been "pedagogically damaged", but certainly less so than by the more common excessive interventionism. All this amounts to a certain antithesis of pedagogy, without being the kind of rigid instructionism that some supporters of the French republican school would like to bring back.

7.3 « Sceptics who know only too well what pupils can't do »

As opposed to the "thinkers" and specialists that I have mentioned earlier, these people consist mainly of teachers, i.e. people with practical experience. Most of them distrust their students, believing that they know them all too well, that they are incapable of making their own decisions, that they need supervision, guidance, a framework and grades. They believe in the idea that students are lost without an omnipresent teacher. These teachers wish that their students would become more self-reliant but are forced to the conclusion that they just aren't. Moreover the syllabus is such that there is no time to waste by allowing them to wander off. In short they are afraid of losing command.
Personally, I would be hard-pressed to decide which of the above approaches is the worst. The technology freak annoys me and the liberalist approach shocks my common sense, but the all-controlling instructor sends a cold chill down my spine.

7.4 « ICT or how to dull powerful concepts – The example of self-training and openness »

Examining history, one can only be struck by the capacity that some technologies seem to have for dulling some remarkably strong concepts, making them almost

insipid. I will illustrate this phenomenon by talking about self-training and the idea of openness.

At the beginning, self-training was quite a radical current of thought laying the emphasis on the abilities of the students. The first specialists in self-training underlined the fact that their method was in stark contrast with traditional teaching habits. It was, to start with, a rejection of teaching and teachers altogether. Then during the 80s and 90s, what used to be CAT became self-training. The movement that resulted in the creation of multimedia resource centres where you go to work on your own with the guidance of a tutor constituted a link between the two currents. Today the term self-training has weakened a great deal to the point of becoming insignificant compared to its original conceptual power. Self-training designates any type of individual work done with the help of ICT. So why not include work that you do in a library with the help of real books? I don't quite know why, but the mere use of ICT seems to be enough to talk about self-training. It is no use fighting to preserve an original meaning that simply got lost. On the other hand, some of the lessons learnt in self-teaching and good tutoring, for example, should help us avoid making some well-identified mistakes.

For my second example, I will refer to the concept of "openness". At the beginning, it generally consisted in a kind of training that was open to anyone, regardless of school degrees and diplomas (i.e. universities where you could study without a secondary school diploma, like the famous Open University in Britain, the OU, which now stands for the epitome of distance learning). The OU underlines a shift from the idea of "open to everyone" to that of "openness through distance". Today every institution that offers distance learning will claim to be "open" in some way or other and the name Open Distance Learning (*in French: FOAD "Formation Ouverte à Distance"*) is now found everywhere. That's the way things are and it is better to come to terms with it. We'll have to find another way of differentiating on one side "open" teaching in the sense of giving the student room for their own initiative, an openness close to the initial meaning of self-teaching, and on the other side "open" distance learning in its present meaning, based on ICT. By the way, you can also find the idea of openness in the very principle of Web 2.0. Throughout the history of ICT the concepts of "open" and "closed" have been opposed and I won't have the time to go into any detail here.

8. Conclusion

I hope I managed to give the audience a brief outline of what the world of ICT can bring to the teacher, provided he or she steers clear of technology for technology's sake, stays cool-headed in the face of all the latest trends and remains his competent and professional self. I hope he will then be able to explore innovative ways of teaching, look at the contents of his teaching in a different way and establish a new, perhaps richer than expected, relationship with his students. The teacher still remains a specialist of his subject, but a specialist who opens up to what new tools can bring him in his day-to-day practice. Between two extremes, overindulging in technology and giving old practices new technological names, it is important to strike a reasonable yet stimulating balance. With these somewhat pompous but sincere words, I shall bring this talk to an end.