Digital Pencil Sharpening
Technology Integration and Language Learning Autonomy

Shona Whyte

Abstract   This essay presents a constructivist theory of teaching and learning based on White-head's three-stage model of romantic, precision and generalisation experiences and supported by the writings of mathematics and music educators. This model is linked to current second language teaching methodology with particular reference to technology integration. Examples of classroom language teaching practice, including interactive whiteboard-mediated learning activities, show how this approach can enhance learning opportunities and learner autonomy. Teacher resistance to communicatively oriented technology integration and the persistence of traditional methodology – dubbed 'pencil sharpening' – is attributed to misapprehension of acquisitional facts and lack of models to support pedagogical transformation. A number of recent teacher education initiatives point the way to a programme of pedagogical change which can allow the integration of learning technologies to fulfil their potential for promoting language learning and supporting the autonomy of learners.

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1 Introduction

Foreign language (FL) teaching in much of Europe is under reform in many guises. Institutional changes in curricula, assessment and teacher education are making new demands on efficiency. The ongoing digital revolution adds pressure to exploit new and complex technologies in the classroom (computer assisted language learning, CALL). Constructivist methodologies like communicative language teaching (CLT) and task-based language teaching (TBLT) are pushing teachers towards learner-centred pedagogies. Learners themselves may welcome or mistrust new opportunities to take responsibility for learning: in the same hybrid English for Specific Purposes (ESP) course, where one student celebrated «one of the most positive experiences in English […] lessons were articulate and rich, and I've noticed a true teaching method, that brought me to feel involved in the

Table 1. Teacher perceptions of language teaching with technology

Disciplinary knowledge (language proficiency, SLA research)	Les natifs des fois on leur reproche de ne pas avoir la pédagogie et nous de ne pas avoir le niveau de langue. Tu vois par exemple pour tous ces petits trucs que tu disais ben tu t'es trompé t'as triché mais moi il faut que je l'apprenne avant ça tu comprends parce que moi ça me vient pas naturellement et ça ça m'énerve profondément [Generalist primary teacher, videoconferencing project].	Sometimes native speakers are criticised for not having pedagogy and [non-native primary teachers] for not having the language level. For example all the little things you were saying – you're wrong, you cheated – I have to learn that in advance you see. Because it doesn't come naturally to me and that really annoys me.
	Parce que les petits il faut que tu trouves la pédagogie [...]. Et pour aller encore plus loin – par exemple c'est la où justement ça pêche notre formation – moi [...] je le ferais en espagnol j'aurais aucun problème en anglais je ne peux pas - c'est faire tes cours en bilangue [Generalist primary teacher, videoconferencing project].	Because with kids you have to find the pedagogy [...]. And to go even further – and this is where our training falls short – myself, I could do it in Spanish, I would have no trouble, in English I can't – we should teach CLIL.
Pedagogical expertise	For my new year's resolution, teaching with the interactive white board, I decided to work differently. Because before I used the IWB with [the whole class], and most of the time I was in front of the kids. So, I would like to give them more autonomy [Special needs primary teacher, iTILT France].	
	In my class not every activity in every class involves intensive interaction with the board [...] because I realised two years ago after using the board for two months that the kids did eventually get used to it and it just became a normal part of the classroom setting [Lower secondary EFL teacher, iTILT France].	
Technological skills	Digital immigrants who came late to technology like myself, we may at some point speak digital language fluently. However we will always have a heavy accent which is immediately perceptible to a digital native such as the young people around us who manipulate this equipment with ease. So becoming familiar with the interactive whiteboard, not being able to switch it on, not being able to use it in class when I have wanted to has been a learning curve [Upper secondary EFL teacher, iTILT France].	
	I try to do my best but it's very dfificult for me to use [the IWB] very efficiently because [...] I don't have any time to give to construct my sequences with the [IWB] and I don't have any formation so it's a problem for me. To have this material without a person who gives me advice. It's a problem [Generalist primary teacher, iTILT France].	

lessons», another considered their «English class in high school was more interesting, because we used to read and study texts, we had grammar and vocabulary» (cf. Whyte 2013). This paper will argue that improvements in teacher education can improve classroom learning experiences, leading to increased learner autonomy and thus better language learning overall. Previous studies (Cutrim Schmid 2010; Whyte 2012) suggest that successful technology integration in language teaching involves disciplinary knowledge, pedagogical expertise and technological skills. Table 1 shows interview data from teachers involved in longitudinal interactive whiteboard (IWB) projects, including reference to proficiency, pedagogical affordances and technological fluency.

Because the problems of learning to teach FL with technology thus transcend its technical aspects, spilling over into questions of disciplinary and pedagogical knowledge which are relevant to the field of modern languages as a whole, this paper proposes to take the issue of technology training as a prism through which current paradigms of learning and teaching can be investigated. We begin by asking what is important in our discipline and how second language research findings might be applied to teaching. The affordances of the IWB are used to illustrate ways in which learning technologies can support acquisitionally sound pedagogy. The challenges of implementing research-based recommendations are then explored, including reasons for teachers' resistance to CLT and TBLT and examples of technology-supported practice. Finally opportunities for change in teacher education are examined, with conclusions on the potential of learning technologies to enhance language learning and learner autonomy.

2 A Romantic View of Teaching and Learning

The well-known adage «the mind is an instrument, you first sharpen it, and then use it» was regarded by the polymath educationalist Whitehead as «one of the most fatal, erroneous, and dangerous conceptions ever introduced into the theory of education. The mind is never passive […]. You cannot postpone its life until you have sharpened it. Whatever interest attaches to your subject-matter must be evoked here and now» (1932, pp. 8-9). Whitehead proposed a three-stage model of learning, according to which learners move from an initial 'romantic' view of the discipline through a 'precision' stage, where they develop analytical skills, to a phase of 'generalisation', when they can approximate some of the competences of the discipline. Music educator Duke (2008) views this model iteratively, with the stages overlapping in a learning spiral, but notes that teachers often focus on the precision stage, often the less important details of their discipline. For mathematics educator (Halmos 1985, p. 321) learning is

Table 2. Whitehead's learning cycle applied to second language teaching methods

	Whitehead's model (1917/1932)	Scholastic transmission	Communicative language teaching	Task-based language teaching
Romance	First apprehension; immediate cognisance of fact; a ferment already stirring in the mind (pp. 28-29).	Access to cultural knowledge.	«The engagement of learners in communication in order to allow them to develop their communicative competence [... or] ability to make meaning» (Savignon 2007, p. 209).	«The belief that [learners] can learn the language indirectly through communicating in it rather than directly through studying it» (Ellis 2006, p. 31).
Precision	The stage of grammar, the grammar of language and the grammar of science. It proceeds by forcing on the students' acceptance a given way of analysing the facts, bit by bit (p. 29).	Structural syllabus: development of grammatical competence.	Natural approach (Krashen, Terrell 1983): no precision stage.	Pre-task activities: instructional input, noticing.
		Audiolingual method: overlearning of linguistic patterns.	Interaction hypothesis (Gass 2003): communication breakdown, negotiation of meaning.	Post-task activities: reflection, focus on form, feedback.
		CER: development of linguistic (notional/functional) competencies.	Noticing hypothesis (Schmidt): identifying gaps between input and output.	
Generalisation	A return to romanticism with the added advantage of classified ideas and relevant technique. It is the fruition which has been the goal of the precise training (p. 30).	Accurate use of language to structure cultural knowledge.	«Encouraging the students to ask for information, to seek clarification, to use circumlocution and whatever other linguistic and non-linguistic resources they could muster to negotiate meaning, to stick to the communicative task at hand, [...] leading learners to take risks, to speak in other than memorized patterns» (Savignon 2007, p. 209).	«Planned learning activity with a primary focus on making meaning and engaging with real-world authentic language use with a defined communication-based learning outcome» (Reinders 2008).

«a battle and a wrench» which encourages procrastination: «Isn't there something I can (must?) do first? Shouldn't I sharpen my pencils perhaps? In fact I never use pencils, but pencil sharpening has become the code phrase for anything that helps to postpone the pain of concentrated creative attention».

Current second language teaching paradigms seem in some respects to take these notions into account. Table 2 shows how Whitehead's three-stage model can be applied to different approaches to second language teaching.

In what I am calling the scholastic transmission approach,[1] which has underpinned much FL teaching in Europe, the romantic goal is understanding the target culture, the means to this goal is precision work on linguistic structures or competencies, while the generalisation stage is characterised by an ability to discuss cultural knowledge without making grammatical errors. In CLT and TBLT, on the other hand, the romantic phase concerns the learner's desire to use the target language in communication, while the successful completion of communicative activities or tasks constitutes an outcome which places the learners in the generalisation stage, and helps maintain motivation through the challenges of the precision stage. In CLT precision work may be informed by different theories of acquisition: the Natural Approach (Krashen, Terrell 1983) denies the need for precision stages; the Interaction hypothesis (Gass 2003) emphasises output and interlocutor feedback, while the Noticing hypothesis (Schmidt 1990) calls for reflection on the gap between learner and target language samples. The TBLT framework explicitly builds precision stages into pre- and post-task phases of the task cycle. CLT and TBLT are thus founded on second language research findings which emphasise the importance for acquisition of sustained exposure to rich input, a focus on meaning and interaction, and the opportunity for reflection on language form in context, instead of the development of decontextualised explicit grammatical knowledge. The acquisitional goal is defined as the development of 'communicative competence' (Canale, Swain 1980), or the ability to use the language appropriately to communicate with others in real-world contexts. Table 3 provides a summary of the main implications of second language research as represented by four contemporary researchers whose introductory textbooks are commonly used in teacher education (Cook 1998; Ellis 2005; Lightbown 2000; Myles 2002).

The implications for instruction attributed to each author in the first column are distilled from synthetic, overview articles written with teachers

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1   In Table 2 approaches based on the Common European Reference Framework for Languages (CER) are included under the scholastic transmission umbrella, although this framework does not in theory conflict with CLT and TBLT; current implementations of the CER are discussed later in the paper.

Table 3. Implications of second language research findings for teaching and learning

	Second language research findings	Implications for second language classrooms	Learner autonomy
Interlanguage	Second language learning involves the subconscious development of interlanguage through predictable stages which generally stop short of total mastery for adults; conscious rule-learning does not automatically lead to accurate production (Lightbown 2000).	DON'T overemphasise the explicit learning of grammar rules or teach far beyond learners' current competence.	Understand that grammar is not everything in learning a second language.
	Variability is a key feature of interlanguage, in terms of what is transferred from L1, and individuals' ultimate attainment, which is related to both external factors like context and quantity of input, as well as internal variables such as motivation and aptitude (Myles 2000).	DO cater for differences in individual learner preferences and abilities.	Focus on your own interests and learning style; discover your own strengths and weaknesses.
	The systematic and individual nature of interlanguage development militates against grammar-based curricula and highlights the developmental importance of learner errors (Myles 2000).	DON'T expect all learners in a class to be ready to learn the same thing at the same time, or to progress at the same rate: don't prioritise teacher-fronted whole-class lock-step activities.	Don't compare yourself with peers and judge only by test scores.

Table 3. Implications of second language research findings for teaching and learning

Input	Instruction should provide extensive input focusing on meaning to allow sub-conscious interlanguage development; learners should be encouraged to seek additional learning opportunities outside class (Ellis 2005).	DO allow time for learning; encourage learners to seek out opportunities outside the classroom.	Create frequent, regular, motivating opportunities to practice the target language with other users where possible.
	Because of the complexity of language, second language development is extremely time-consuming; an hour a day will not lead to nativelike proficiency (Lightbown 2000).	DO provide rich, contextualised, extensive target language input.	
	It is easier for learners to understand the target language in context rather than in isolation; learners can also understand complex and accurate language which they are not yet able to produce (Cook 1998).	DON'T insist on accurate production of grammatical inflections at early stages of acquisition.	Don't worry about mistakes at first.
Output and interaction	Instruction should allow learners freedom to produce the target language spontaneously in interaction (Ellis 2005).	DO create frequent opportunities for learners to produce output and interact spontaneously.	Find opportunities to interact with other users of the language.
	UG theory suggests rich natural input is sufficient for acquisition, while cognitive and (socio-) constructivist models emphasise interaction, scaffolding and feedback; these approaches are not necessarily incompatible (Myles, 2000)	DO provide scaffolding for learners to produce language, as well as feedback on performance.	Reflect on your own performances; seek out feedback and learn from it.

Table 3. Implications of second language research findings for teaching and learning

Explicit instruction and feedback	Errors may be specific to a given L1 or general to all second language learners; they are an inevitable part of interlanguage development and do not respond to immediate explicit correction (Lightbown 2000).	DON'T attempt to correct all learner errors explicitly; and DON'T assess learners' progress only in terms of controlled production in decontextualised conditions.	Consider factors other than grammatical accuracy in gauging progress: communicative competence, fluency.
	Instruction should also involve controlled production, allowing learners to focus on form and develop explicit rule-based knowledge (Ellis 2005).	DO create opportunities for focus on form in meaningful contexts.	Learn grammar rules with reference to a specific context (e.g., communicative need in speaking/writing; comprehension problem in listening/reading).
	Teachers should focus on vocabulary, taught in context and with structural information; grammar instruction should be minimised, and focus on word order, not inflections (Cook 1998).	DO focus on meaning and teach vocabulary in context.	Spend more time learning words and how they are used in expressions than on grammar rules.
	Specific instruction in pronunciation is important for retention, and writing instruction is also necessary since L1 literacy skills are not automatically transferable (Cook 1998).	DON'T neglect pronunciation and writing skills, which require attention as well as listening and speaking.	Learn about pronunciation – phonemes, intonation. Practice writing too.
Culture	Teachers should promote an international use of the target language rather than focus on target-language speakers and culture, and must also allow for individual learner differences (Cook 1998).	DON'T focus exclusively on the culture and native speakers of the target language in the design of materials and activities.	Develop your own learning goals based on your own communicative needs or interests rather than native-speaker cultural norms.

and teacher educators in mind. Concrete recommendations for second language teachers in the second column highlight the intersection between interlanguage (IL) research and constructivist teaching. Emphasis is placed on the roles of input, output, interaction, and reflection in driving interlanguage development. Also stressed is the systematic nature of the built-in syllabus, which limits what can be learned at a given point in development, and renders moot much well-intentioned teacher correction during precision activities. IL research suggests an incompressible minimum time for acquisition, particularly important in FL environments where input is largely restricted to the classroom. In addition to these research findings, the second language classroom has recently been influenced by more general research into constructivist and socio-constructivist models of learning, making intercultural communication the learning goal, rather than the target language culture. Accommodating learner differences allows teachers to maintain romantic motivation by offering learners choice in topics or activities, while scaffolding and feedback provide alternatives to direct grammar instruction and explicit error correction, which allow the teacher to provide some generalisation experiences for learners without entirely neglecting the precision stages.

Incorporating these notions into CALL teaching, acquisitionally relevant classroom activities can be matched with the particular affordances of various learning technologies. The IWB, which allows the manipulation of a computer via a large touch-sensitive display, is becoming more and more widespread in today's classrooms. However, this tool can be associated with teacher-fronted whole-class activities which do not necessarily promote second language acquisition (Cutrim Schmid 2010; Cutrim Schmid, Whyte 2012). Using the IWB as an example, Table 4 maps the language resources and activities for input, output/interaction and reflection in the first three columns to the affordances of the IWB in column 4; the teaching and learning advantages of using the IWB are spelled out in the last column.

The IWB allows teachers to follow the teaching recommendations listed in Table 3 to offer rich and varied target language input. Used at a minimal level, it saves instructional time by functioning as a digital hub for different multimedia resources used as input, and allowing the storage and retrieval of work carried out in class or outside. But the IWB can also support learner production and interaction in more sophisticated ways, allowing teachers to relinquish their magisterial position in the front of the class and devolve control of activities and learning to the learners themselves (Cutrim Schmid, van Hazebrouck 2010). A majority of teaching examples described in this paper are drawn from the European project iTILT (interactive Technologies in Language Teaching; http://itilt.eu) designed to support just such communicative approaches to language teaching and learning with the IWB.

Table 4. Applications of research findings with interactive technologies

	Resource type	Activity	IWB affordance	Teaching/learning advantage
Input	Audio, video, animation from computer, CD/DVD, Internet.	Listening comprehension.	Resources can be generated by teacher and/or learners, prepared in advance or developed in class.	Provides rich, contextualised input.
	Text from textbook, worksheet, authentic source.	Reading comprehension.	IWB tools (highlight, spotlight, reveal) can focus attention.	Can allow learner choice and encourage spontaneous interaction.
	Visual input: photos, clipart, maps.	Brainstorming.	Display can be annotated during class and saved for review after class or further work.	Saving resources for reuse in and outside class allows more time for learning and saves class time.
	Online references: dictionaries, encyclopedias.	Vocabulary acquisition.	Resources can be accessed by teacher, individual learner, group, or whole class.	Learner autonomy, learning strategies.
Output and interaction	Visual support for pair and group work: task instructions, key words.	Pair and group discussion, rôleplays.	Task instructions and support can be prepared by teacher or learners, in advance or in class.	Scaffolding for language production.
	Shared Internet browser.	Finding or checking vocabulary or other information.	Accessed by teacher, individual learner, group, or whole class.	Scaffolding, learner autonomy.
	Display of electronic resources to support presentations.	Learner presentations, reports on collaborative activities.	Performance opportunity, goal for task.	Opportunity for output in form and on topic of learners' choice, avoiding lockstep teaching.
	Sharing of asynchronous computer-mediated communication (e-mail, forum).	Reading/writing skills.	Feedback can be offered by learners and/or teacher.	Focus on form in meaningful context.
	Videoconferencing with distant interlocutors.	Spontaneous oral interaction.	Task support can be displayed beside video.	Scaffolding for language production.

Table 4. Applications of research findings with interactive technologies

Feedback	Written assignments, produced in electronic format or scanned, either in class or as homework.	Writing skills.	A performance opportunity, goal for task.	Allows feedback on performance other than error correction; develops explicit knowledge of grammar.
	· spoken productions, audio- or video-recorded	Oral production.	Feedback can be offered by learners and/or teacher.	Focus on form in a meaningful context.
			IWB tools (annotate) can focus attention and aid comprehension.	Saves class time, provides goal for homework tasks.
			Learner productions created in class or outside can be grouped and stored.	Allows assessment in context.

The foregoing discussion suggests that the pedagogical implications of current models of language learning and teaching are quite clear. Even if the theoretical underpinnings of the various principles of teaching and learning sketched in Table 3 are not always well understood by teachers, their consequences for the classroom are. Indeed, many studies of teacher behaviour and teacher cognition (Borg 2006) show that language teachers are aware of the advantages of communicative and task-based methods, but face numerous obstacles to implementation. The next section explores some causes of teachers' resistance to current CALL paradigms.

3 Challenges in Communicative Language Teaching and Learning

Classroom implementation of CLT and TBLT approaches in line with second language research is hindered by teachers' pedagogical objectives, their views on language learning processes, and by institutional contexts. All these factors may lead to overemphasis of precision stages and restriction of learner autonomy, as is shown in the following sections.

3.1   Goals for Teaching and Learning Languages

Cultural goals are clearly at odds with the main objectives of a CLT or TBLT syllabus. European state school teachers and programmes typically emphasise knowledge of the target language culture as a learning objective in its own right, and as a sweetener for a predominant focus on vocabulary learning and grammar rules. For older and more advanced learners of English this can mean studying the US civil rights movement or the Gothic literary tradition, while for younger learners, culture can boil down to British school uniforms, double-decker buses and the full English breakfast. There is no inescapable link with language learning: these topics can be studied independently of the target language, and developing linguistic proficiency does not automatically equip learners to tackle them, or provide a generalisation experience which helps them gain communicative competence in the target language. Indeed, linguists interested in the cultural aspects of language learning (Cook 2009; Kramsch 2009) highlight the importance of creating space for a learners' culture, defined not with reference to the target language (or indeed the mother tongue) but rather in terms of the learners' own experiences as second language users of the language being learned. However, the two approaches are not incompatible, as the example of a teaching unit for young adult EFL learners based on contemporary US fiction shows.

Example 1	**Helping learners to relate target language literature to their own contexts.**
Resource type	IWB file.
Topic	Teaching unit on reading: *Life is funny* by E.R. Frank.[2]
	Notebook file (http://www.itilt.eu/sites/default/files/u3/teaching%20materials/EN/WP2_2%20IWB%20teaching%20material%20READ%20ENGLISH.notebook).
	PDF (http://www.itilt.eu/sites/default/files/u3/teaching%20materials/EN/WP2_2%20IWB%20teaching%20material%20READ%20ENGLISH.pdf).
Language & level	Secondary EFL.
Analysis	This teaching unit includes a series of activities designed to support learners in their reading of teenage fiction. The IWB file provides authentic resources, including an online map to situate the novel, and a video of a celebrity interview on a related topic. It also contains

2 This resource, developed for the iTILT project by Sanderin van Hazebrouck, is a teaching unit including learning activities with explanatory information for teachers and trainers. An overall impression can be gained from the PDF version, but to access the interactive features, including commentary for teachers, the reader will need a copy of the Notebook software for the SMART board. A free trial version can be downloaded from http://smarttech.com.

visual input for brainstorming and mindmapping to support compre-
hension and facilitate discussion, and shows how annotation tools
such as highlighting, underlining, and writing can be used to provide
feedback on learners' written productions.
These activities support learners in their reading of the novel, and
culminate in a final task in which learners create photo stories to
present to the class via the IWB. This teaching unit thus uses IWB
affordances to scaffold a challenging task which might well seem
beyond the current competence of teenage learners in the absence
of such support. In so doing, it frames learning activities in relation
to learners' own experiences rather than in terms of the target lan-
guage culture.

Another reason cited by teachers for teaching English or Spanish in scho-
ols is their status as international languages. However, trained in the
language-as-culture model described above, and without an understanding
of the cognitive underpinnings of language acquisition, teachers are used
to regarding linguistic and communicative competence as secondary con-
siderations, part of the precision stage, on the road to mastery of cultural
knowledge. So it is difficult for them to subscribe wholeheartedly to a
communicative agenda with communicative competence as both means
and goal of teaching and learning. Once the transition from the scholastic
transmission model to a CLT or TBLT approach has been made, however,
technology can support the promotion of learner autonomy in a number
of ways, as Example 2 illustrates.

Example 2	**Developing communicative competence in authentic tasks.**
Resource type	IWB practice report, iTILT project.[3]
Topic	Giving directions and describing routes on a map (http://www.itilt. eu/iwb-practice?id=405).
Language & level	Vocational Spanish, Germany.
Analysis	This classroom clip shows learners using a city map accessed via Internet to describe routes and give directions, an authentic task for these students of tourism. The IWB supports learner autonomy for both the learner at the IWB and those watching: using the map helps the speaker to reconstruct sentences prepared as homework and also aids the listeners in comprehending and checking the veracity of what they hear. The teacher sees the value of the IWB in supporting comprehension

3 A 'practice report' is a webpage containing a short video clip of classroom interaction
with a description, participant commentary and any additional materials (Whyte et al. 2013)
designed to support teacher education.

among learners: «When a student simply reads aloud, [other weaker learners] have no idea what's being said. But when it's shown again on the IWB at the same time, 'the third street on the right', then they know 'OK, it really is the third street on the right' because they can see the actual map too». One learner agrees: «We can just see where things are».

This section has suggested that the first obstacle to CLT lies in the definition of the object of study and teaching goals; teacher resistance to communicative goals has further consequences for the classroom.

3.2   The Process of Learning a Second Language

Duke (2008) suggests that music educators tend to emphasise precision, teaching learners that «error has much greater weight than it ought to have», and that «it's more valued to play really demanding repertoire not quite great, than to play undemanding repertoire beautifully». In language education this translates to prioritising accuracy and complexity over fluency. Example 3 shows a common routine used with EFL beginners involving topics which are familiar from other curricular areas, in this case the date.

Example 3	**Routines for young beginners.**
Resource type	IWB practice report.
Topic	Dates: Writing the date (http://www.itilt.eu/iwb-practice?id=261).
Language & level	Primary EFL.
Analysis	At the beginning of the day's lesson, the teacher brings a learner to the IWB to write the date and invites other learners to repeat the following sentences: Today it's Monday December 5th 2011; Tomorrow it will be Tuesday December 6th 2011.

Teachers consider such routines to be well within learners' capacities, since the information conveyed is well known, the learners are provided with clear teacher models and the opportunity to listen, repeat and receive corrective feedback, throughout the school year. Thus teachers feel justified in insisting on high levels of grammatical accuracy from their pupils. However, this activity runs counter to many second language research-based recommendations (Table 3). Input is impoverished and decontextualized (the learners hear only the teacher and other learners), and the utterances are produced in isolation without communicative purpose (the answers do not constitute new information). While the propositional content is

simple, the grammatical structures are not: research into developmental sequences shows that neither the copula 'be' nor the modal 'will' occur spontaneously in early IL syntax (Meisel, Clahsen, Pienemann 1981) and it is generally agreed that there is no acquisitional benefit to focusing on grammatical inflections at early stages (Cook 1998), particularly here given the polysemy of the 's' morpheme. Lastly the whole class focuses on the same activity, offering learners no choice, and reducing output opportunities. In sum, although teachers intend this kind of activity as a simple warm-up routine, it is actually very demanding insofar as learners are required to reproduce accurately language sequences which are far beyond their current linguistic competence and which are not embedded in a communicative context. This activity teaches learners that language mastery consists in memorising complex strings of sounds, and that accuracy is important: the precision stage.

Yet educators agree on the importance of generalisation: learners «have got to be made to feel that they are studying something, and are not merely executing intellectual minuets» (Whitehead 1932, p. 15). They need to be active: «for a student of mathematics to hear someone talk about mathematics does hardly any more good than for a student of swimming to hear someone talk about swimming» (Halmos 1975, p. 476). Generalisation experiences also allow learners to glimpse «broad underlying principles that are both intellectually interesting and functionally valuable» and entertain «ideas that allow you to understand other things that someone's not taught you about explicitly» (Duke 2008). So what is 'intellectually interesting' and 'functionally valuable' about learning a foreign language? I submit that being able to understand something of a sentiment expressed in a new language and expressing an approximation of our own ideas are interesting and challenging learning goals, particularly if our interlocutors do not share our first language. And if learners are helped to do this from the earliest stages of learning, they acquire any number of functionally valuable insights regarding the acceptance of uncertainty and ambiguity, making intelligent guesses, putting knowledge into practice, compensating for problems in comprehension and expression, and negotiating strategies, to name but a few the competences required for and developed by using a foreign language in communication. In addition, these experiences provide opportunities for comprehensible input, output and interaction which enable interlanguage development. We cannot hope to teach a language in its entirety, but experiences which allow learners to attempt to decode and encode messages in communicative contexts and to develop the skills required for such tasks also fit them for future unscripted interactions on new topics, with new interlocutors, in new situations, for new purposes.

Teachers often consider that their learners are not ready or able to embark on 'real' communication, believing instead that they must first memorise and practice vocabulary or grammar before attempting to use the

language either for comprehension or production (Whyte 2011). Example 4 serves as a counter-example to show how young learners can participate in generalisation activities at very early stages of learning.

Example 4	**Using drawing to support sustained oral production with young beginners.**
Resource type	Classroom illustration, e-learning resource in language education.
Topic	Story retell: Two Monsters by David McKee (http://unt.unice.fr/ uoh/learn_teach_FL/affiche_theorie.php?id_activite=99&connexi on=&lang=eng&id_theorie=*&id_categorie=).
Language & level	Primary EFL, France.
Analysis	In this teaching unit based on a storybook, the learners' final task involved the drawing of a number of episodes from the story to provide support for an oral retelling. Teaching activities during the previous sessions involved listening exercises, the memorisation of language chunks, and collaborative retellings which were audio-recorded and replayed. The videos show the learners retrieving and reconstructing these language elements to fit their chosen interpretation of the story, using their illustrations for support, and with some scaffolding by the teacher.

Thus activities which teachers typically consider simple are often quite the reverse, because of the complexity of the linguistic structures involved and because of teachers' insistence on accurate, error-free reproduction. Conversely, activities typically thought beyond learners' capabilities, such as comprehension tasks involving language beyond their current productive competence, or production tasks requiring spontaneous interaction, can actually prove to be within the reach of these same learners, when appropriate scaffolding is offered, and demands for accuracy relaxed (see Table 3). Such generalisation activities are likely to be more rewarding in the short term, provide increased motivation to persist with precision learning, and ultimately bring learners closer to the longer term goal of language proficiency.

3.3 Obstacles to the Implementation of Communicative Approaches

The sheer complexity of implementing CLT and TBLT approaches further deter teachers. Many have doubts about their own FL proficiency and feel ill-equipped to use the language spontaneously in class. In Example 5, both the teacher and learners show high levels of proficiency which allow all participants to contribute to ongoing learning activities in flexible and constructive ways and foster learner autonomy.

Example 5	**Extending learner autonomy with advanced adult learners.**
Resource type	IWB practice report.
Topic	Brainstorming about a sales pitch – adding and saving a page (http://www.itilt.eu/iwb-practice?id=489).
Language & level	University EFL, Netherlands.
Analysis	This classroom clip shows the teacher access a video on internet via a link in her IWB file, then insert a new page to accommodate her notes of unexpectedly extensive learner contributions to discussion. She can then save and share the class file with learners after class allowing them to review the teaching materials and their own work. The IWB thus allows efficient access to authentic input, and supports learners' oral production. It also allows the teacher to promote learner autonomy by accommodating unanticipated contributions during the activity, literally giving space for learner initiative, as well as by sharing the post-session materials for independent review and/or subsequent learning tasks.

For teachers at lower proficiency levels, however, the situation is quite different. Generalist primary teachers may have had limited language learning opportunities, while secondary teachers may have more literary and cultural knowledge than oral proficiency. They lack what Bandura (1994) terms 'mastery experiences' in the foreign language. In social cognitive theory, which underpins many modern constructivist models of teaching, successful performance feeds confidence in our competence, or 'self-efficacy beliefs', which in turn make future successes more likely in a virtuous learning spiral. Language teachers who were not encouraged to speak spontaneously as learners, or were frequently corrected when they did, can be said to lack mastery experiences in using the target language. They are likely to hold low self-efficacy beliefs for using the language, leading them to avoid class activities which require them or their learners to produce unplanned language. Instead, they feel more confident in controlled, precision learning activities where the language forms to be used are determined in advance. This priority accorded to the development of explicit linguistic knowledge might be seen as «pencil sharpening» (Halmos 1985), or a form of procrastination to avoid challenging communicative situations.

Having as language learners experienced classes based on teacher-fronted, whole-class lockstep grammar instruction, such teachers also have difficulty imagining the changes required in terms of learning objectives, materials design, classroom organisation, and teacher and learner roles, if they are to put CLT and TBLT methods into practice effectively. Teachers need to see examples of good practice and receive support in changing their own practice, a problem addressed in the iTILT project with the pro-

duction of teaching materials including commentary on pedagogical and technical aspects of the proposed activities. Example 6 shows a teaching unit for young beginners in French.

Example 6	**Teaching unit on vocabulary.**
Resource type	IWB file.
Topic	Teaching unit on Vocabulary: *La surprise de Handa* by Eileen Browne.
	Notebook file (www.itilt.eu/sites/default/files/u3/teaching%20 materials/FR/WP2_2%20IWB%20teaching%20materials%20 VOC%20FRENCH.notebook).
	PDF (http://www.itilt.eu/sites/default/files/u3/teaching%20 materials/FR/WP2_2%20IWB%20teaching%20materials%20 VOC%20FRENCH.pdf).
Language & level	Primary French.
Analysis	This teaching unit offers activities to support young beginners' learning of vocabulary in the areas of fruit and animals, based on a picture story set in an African village. The IWB pages include short audio tracks recorded and embedded by the teacher, links to authentic video resources, and a number of learning activities involving the dragging of images from one area of the page to another to support memorisation and to encourage noticing of gender marking by the definite article in French. The final task is a story retell, where learners make their own vocabulary selections to tell their own version of *La surprise de Handa*. The IWB supports this challenging oral task by allowing learners to drag images into a table to form a rebus to help them to construct successive parts of the story and their audience to understand their production.

Finally, teachers are deterred from implementing authentic communicative activities in class due to institutional constraints which overwhelmingly favour the teaching of testable precision skills. The arrival of the CEFR for many teachers has coincided with an increase in their assessment workload without accompanying support for their teaching practice (Jones, Saville 2009). Teachers are also under pressure to prepare learners for future programmes. Primary FL teachers want to avoid sending their pupils to secondary unprepared, their secondary colleagues worry about upper secondary and university courses, while those teaching first year undergraduates are already projecting their learners several years into the future, when a small minority may decide to prepare for teaching exams. Each is sharpening pencils for the next teacher. In addition to the inhibiting effects of their learners' vertical progression as they advance up their educational ladders, teachers are mindful of the horizontal constraints imposed by their colleagues who

teach on the other side of the classroom wall. Where the predominant class format is the teacher-fronted lecture, with whole-class activities and formal assessments which test retention of discrete information, it can be difficult to introduce radically different activities which run counter to the prevailing system.

In summary, implementation of communicative CALL in state schools in Europe is impeded by a number of difficulties. For many teachers with limited communicative competence and no exposure as learners to communicative methods, CLT marks a radical departure in their linguistic and pedagogical lives. In order to be convinced of its advantages, teachers therefore need some theoretical background. Its absence leaves teachers with misconceptions about language acquisition and their learners' capabilities, leading them to overemphasise learning activities which are unlikely to lead to the development of communicative competence, while avoiding or neglecting potentially more effective ones. The situation is compounded by institutional constraints which do not facilitate innovation or learner autonomy, and in such conditions, the question of integrating CALL into classroom practice is often quite simply a bridge too far.

4 Opportunities for Change in Teacher Education

How can teacher educators address some of these issues and improve conditions for language teachers and thus their learners? In his overview of recent developments in computer-assisted language learning (CALL), Hubbard (2008) documents a general neglect of CALL training, while stressing the key role played by teachers in CALL:

> language teachers are the pivotal players: they select the tools to support their teaching and determine what CALL applications language learners are exposed to and how learners use them [Hubbard 2008, p. 176].

Hubbard calls for training grounded in research to help teachers adopt and adapt the new technologies and methodologies they encounter throughout their careers. How can this combination of technological and methodological issues best be tackled? In a study of generalist primary teachers using videoconferencing technology for EFL, Whyte identifies the following chicken-and-egg conundrum:

> Teachers can and do self-train with new technology, but cannot identify the affordances of the new tools unless they receive help in identifying effective language learning practices. Conversely, it is difficult for trainers to discover and pass on such useful practices without having par-

ticipated in specifically directed technology training themselves in the first place [Whyte 2011, p. 291].

Hoven (2007) describes one solution in the form of a hybrid CALL course where language teachers at an Australian university learned to use various tools by collaboratively exploring their affordances for the FL classroom. Hoven concluded that this approach fostered both teacher and learner autonomy:

> The experiential modelling approach to familiarizing practicing teachers with technology discussed here seems to be a positive step towards engendering the competence and confidence in teachers to use new technologies with their learners to help their learners, in turn, to maximize their language learning [Hoven 2007, p. 152]

A number of European projects provide other examples of fruitful collaboration between teachers, trainers and researchers to identify acquisitionally useful affordances of learning technologies: MiCALL for intercultural competence in computer-mediated communication (Dooly 2008), NIFLAR for synchronous computer-mediated interaction using virtual world technology (Jauregi et al. 2011), and iTILT for communicative competence supported by IWBs (Whyte et al. 2011; Whyte et al. 2013). Such projects often stimulate pedagogical reflection as well as exploration of learning technologies themselves, allowing the combination of methodological and technological issues recommended by Hubbard (2008). Change in teacher education may, of course, be expected to feed into classroom change both directly and indirectly as teachers learn the acquisitional value of allowing learners more independence in learning activities, and become more autonomous in their own continuing professional development endeavours.

5 Conclusion

This paper has looked at the question of learner autonomy via CALL from the perspective not of learners themselves, but rather of the language teacher. It has argued that a romantic view of FL learning – Whitehead's «ferment already stirring in the mind» – is important in motivating learners and that communicative competence can and should constitute a major objective of FL teaching and learning. It shows that learner autonomy is essential for the development of communicative competence, appealing to second language research showing the idiosyncratic nature of interlanguage development, the importance of rich, extensive input both inside and outside the classroom, and value of meaning-focused activities. However, this communicative goal and the means to achieve it are not always ac-

cepted or implemented in the second language classroom. Teachers often devote more time to precision activities than is warranted. This may be because they believe those to be the most important. It may be because they are unaware of or lack confidence in their abilities to conceive and implement alternatives. It may also be that institutional contexts are not propitious. Overemphasis on decontextualised precision activities is likened to Halmos' use of the code phrase «pencil sharpening» to refer to ineffectual preparatory busywork which postpones both the pain of true precision work and the pleasure of the generalisation stage. At this stage, which Whitehead calls 'fruition', and which appears similar to Bandura's mastery experience, learners have developed a measure of autonomy in the form of communicative competence which both equips and motivates them for further learning.

In today's world there is not much call for pencils, sharpened or not, and we can use this as a metaphor both for autonomy in language learning and for technology integration. Learners need to be able to communicate in a foreign language, not conjugate irregular verbs by rote. Teachers can help them do so by using interactive technologies to transform pedagogy. This paper has shown examples of classroom practice using technology to encourage learner autonomy, as well as illustrations of teacher education initiatives to support teachers in using technologies to change practice. Projects involving experiential modelling and sustained, direct collaboration between teachers and researchers offer promising models for FL teacher education, using technology directly in the classroom, and to disseminate knowledge about teaching practice in vivid and accessible forms. With such exciting opportunities available, it would be a pity to continue endlessly sharpening pencils no-one will use.

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