

# Learning Languages from Interactive Television: Language Learners reflect on Techniques and Technologies

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Interactive television (iTV) is a new media technology that has great potential for supporting language learning particularly for independent adult learners. However, in order for it to succeed it needs to fit in with these learners' approaches to language learning. While there is an extensive literature on many other aspects of language learning and teaching particularly in classroom settings, we know surprisingly little about the independent language learner's attitudes and approaches to learning and to technologies for supporting it. We report on a study of adult learners undertaken as part of a project to develop iTV services for language learning.

## New technologies and language learning

Many new media technologies have seemed, at their first appearance, to have potential for assisting in language learning. From the earliest examples of paper-based language technologies such as dictionaries and grammar books, through language laboratories, radio, audio tapes, television programs, CD-ROMS, the Internet and most recently mobile technologies (Sharples, 2000), each emergent technology has been perceived as potentially adding to the language learner's (or more frequently, language teacher's) arsenal. Some of these technologies have fulfilled their promise, while others are now regarded as partial or complete failures (Salaberry, 2001). The reasons for the failure of a technology to make a mark are varied. For instance, their pedagogical effectiveness may be questionable (Salaberry, 2001). Indeed, new language teaching technologies have too often tended to be accompanied by a step backwards in pedagogy, with developers showing a tendency to put too much faith in the novelty factor (Warschauer & Healey, 1998). We concentrate here not on teaching but on approaches to learning. In particular, we are concerned with "learner acceptance", i.e. the willingness of the learner to use the technology as part of their learning strategy. While "captive learners", such as children in school, may have to accept their teacher's choice of technologies, this is not the case for independent adult learners, who are free to select their own learning methods and technologies.

Learners' views are rarely consulted when educational software is being designed. Even projects that explicitly adopt a learner centred stance often limit the involvement of individual learners to the evaluation phase of the development process (Soloway et al., 1996). This also seems to hold true for language learning technologies. For instance, of the 82 software-related articles that have appeared in the journal *Language Learning and Technology* over the past seven years, only eleven include user consultation, consisting for the most part of evaluation of software in prototype or final state. Only three articles report attempts to solicit user views as part of the early requirements elicitation process.<sup>1</sup> Where independent adults are the learners, issues of acceptability and "fit" into everyday life become critical. These sorts of issues are best explored as part of the early requirements gathering stage in a user-centred design process. This paper reports our attempt to involve language learners from the very start in a project exploring the potential of another new media technology, interactive television, as a tool for language learning. We report on the approaches that a number of independent adult learners have adopted towards their language learning and their attitudes towards a range of language technologies, including television. The aim is to understand their motivations, the methods they find useful and the problems they encounter. This should help us identify opportunities for matching the capabilities of interactive TV to the real needs of adult language learners.

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<sup>1</sup> Outside the language software community, Bailey and Nunan (1996) report examples of diary based and other studies that do have this learner-centred focus.

## Background

TV is one of the most familiar and popular media technologies. Over 98% of households in the EU and North America have access to television and for many the TV set is the focal point of the household. People of all educational levels, ages and social classes are already familiar with television and use it comfortably. TV has long been co-opted for educational ends, both formally, with syllabus-linked programmes and informally, via the informative documentaries and quiz programmes broadcast every day. In the case of language learning, broadcast TV material in the target language is frequently integrated into the classroom. TV offers a rich multimedia experience, where learners can immerse themselves in authentic materials from the target language and culture. This material may well be engaging in itself, with up-to-date ever-changing content displaying a range of speakers and contexts. Digital television<sup>2</sup>, available via cable and satellite, adds a new dimension to learning from the TV by multiplying available channels (Meinhof, 1998; Moores, 1996).

Television is therefore *already* a powerful learning environment for language learners. Interactivity adds new facilities for information retrieval and communication (Gawlinski, 2003). With interactivity, viewers could:

- Select from alternative audio and video streams
- Make their own choice amongst subtitling or captioning options
- View supplementary information on screen – to access before, during or after a broadcast
- Use communication tools such as chat and email.

The functionality provided by interactive TV (iTV) is similar to that provided by the Internet, but it is displayed on the familiar TV screen. Despite the fact that current levels of interactivity are relatively limited, constrained by the components of the iTV set up, i.e. the set-top box and its software, the on-screen display and the remote control, the potential is clearly vast.

Crucially, iTV has the potential to extend lifelong learning opportunities to new types of learner. Conventional TV is a known and trusted technology (Reeves & Naas, 1996), so delivering learning in this way does not involve the introduction of strange or intrusive equipment or the need for the learner to move to a special environment. Interactive TV may be particularly appropriate for disadvantaged groups who experience barriers to learning such as lack of time resulting from work and family commitments, inadequate information, cost of study, lack of flexible local provision, inadequate transport and lack of childcare (DfEE, 1999). Digital TV, the technological basis for interactivity, has been embraced by these groups, unlike the desktop PC. According to a recent UK government report, "uptake of the Internet among those living ... in deprived neighbourhoods is lower than for the UK as a whole [while] satellite and cable TV (...) appear more prevalent in home take up" (DTI, 2000, p. 25).

Of course the easy familiarity of TV may bring its own problems. Television is perceived as a leisure, rather than a work, technology, so any learning services need to be designed with this in mind. As one respondent quoted in (Ling & Thrane, 2002) eloquently puts it, "I don't watch TV to, like, learn." People have a tendency to do other things - ironing, chatting, reading, eating - while viewing, (Gauntlett & Hill, 1999). They often view in company (Masthoff & Pemberton, 2003) and they may be subject to interruptions of varying frequency and significance. All these factors make it even more important to discover as much as possible about real learners and their lives before undertaking development.

## Methodology

We used a focus group approach, with a total of 21 participants spread over three groups. Participants were recruited amongst the staff and student population of a University, using notice boards and a staff email list. An interest in languages was mentioned as a prerequisite for participation. The sample is therefore essentially a self-selecting group. The fact that participants work/study in a formal learning environment may also have had an effect on their attitudes, perhaps making them more likely to take up classes (free for staff and students) than others outside this environment. Each group met for one hour and participants received a £5 voucher. A short questionnaire was used to

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<sup>2</sup> The UK leads the world in the uptake of digital TV, with more than 50% using it (The Guardian, 17 December 2003). It is predicted that 65% of Britons will be digital viewers by 2007. The uptake in the remainder of Europe has been slower: only 16% of Europeans were digital viewers at the end of 2001. Though uptake in the US is very minimal, other countries like China and Brazil are planning to launch digital TV in the coming years (Bates, 2003).

gather information about personal details, language learning experience and prior exposure to technologies. Participants, ten female and eleven male, were of varied ages, nationalities and language backgrounds. Ten were 21 to 30 years old, four 31 to 50, and seven were over 50. Fourteen were English; the others were Turkish, Chinese (3) and Iranian (3). Participants had reached different levels of foreign language competence, from a professed complete inability to learn any foreign language up to degree level and beyond. Most were interested in learning European languages. Five of the participants knew three or more foreign languages, with the range including Icelandic, Thai, Chinese, Japanese, Arabic, Farsi and Urdu. All participants indicated that they were frequent users of computers. Each focus group was run by the same facilitator and began with participants briefly introducing themselves, explaining their motivation for learning a language, their approach to language learning and any problems experienced. Participants were also asked about a range of information and communication technologies that might be used for language learning, including interactive television. The discussions were recorded on video and subsequently transcribed (resulting in about 23 pages of text per focus group). Three evaluators analysed the transcription independently.

## **Results**

### **Motivation**

Participants volunteered a wide range of reasons for studying a language. For some, learning a specific language was a necessity, as they were living and/or working in a foreign country, or intending to do so. Some wanted to communicate with foreigners, as part of their business dealings or while on holiday. Some had wanted (or been obliged) to study for a qualification for its own sake. Others had family reasons: a Dutch husband, a Bolivian wife and German grandchildren were mentioned. Other reasons related to personal development. Several participants simply said they liked languages and were permanent language learners. The challenge of learning a difficult language was mentioned. Opportunity, in the form of free slots in the diary or particularly convenient location motivated some learners. One went to class "because it is just on the third floor every Thursday" while another found a class that matched his schedule "because it was [on] my free Wednesday night".

Demotivating factors also emerged. Several participants mentioned the fact that bad experiences with learning a language at school had had a negative effect. One participant said he "had a bad experience at school and [didn't] feel confident enough to start again". UK participants felt they suffered what they saw as a "typically British" reluctance to take risks in their language practice, for fear of failure and humiliation, particularly in pronunciation and spoken language production generally [Hilleson, 1996].

### **Approaches to language learning**

Fourteen of the 21 participants were currently attending a language class and all had had some experience of formal, class-based learning at some point in their lives. Participants mentioned that going to a regular class was important to retain motivation: "If there wasn't a class there I would not have bothered". Positive motivating factors included the routine of attending, the structured classroom approach and the goal setting that occurs in a class. The teacher's role was important: there is "somebody telling you things quicker" and "somebody giving you feedback". Peers were also important: "other learners in class can support you", and you "feel guilty [if you do not go, do the exercises]". However, it was also noted that a class had the disadvantage of inflexibility. Learners cannot go at their own speed or repeat things when they want to. Rigid structure was perceived as problem by some: "[in class they] say to people "do this, do that:" it does very much take the pleasure out of things". Participants tended to use a combination of methods. With one exception, all participants attending a formal class used other complementary methods. Seven participants were currently learning a language without attending classes at all. Some mentioned the difficulties caused by having no fixed time slot for study. "I have got a book [but I haven't] even read it for two months." While learning informally like this, "you wouldn't sit and watch your video or something like that".

Most participants had lived in a foreign country while learning its language. They were sure that immersion helped language learning: "the languages that I have learned fastest [were] when I was living in a country, and it was all around you", "You just let it come subconsciously; eventually you surprise yourself". Some try to recreate elements of immersion at home, for instance listening to a foreign language radio station or labelling domestic objects in the foreign language. They reported attempts at immersion in some of the formal classes they attended, with learners only allowed to speak the target language inside the classroom. Some participants thought this helped: "your brain becomes in tune". Reading novels, watching films and listening to the radio were also mentioned as ways of getting

the brain (or ear) to "tune in". All participants expressed a preference for native speaker teachers for the same reason of habituation..

The notion of learning in context was raised by several participants. A particular problem was the difficulty of applying a language item learned in one context in a different context. One suggested solution was the use of a combination of media, with one providing context for the other: for instance, watching the news on television and then reading about the same news stories in a newspaper.

Participants also recognised the importance of learning about the target culture as well as the language. One participant, for instance, mentioned that he had found it very useful to watch *Coronation Street* (a popular UK soap opera), saying "I could improve my English and understand English culture a bit more".

A related theme was the use of authentic material versus material produced explicitly for language learning. Many participants mentioned using a combination of both, regarding the learner's stage of proficiency as a key factor. For beginners, a structured approach, using a book or a course, possibly computer based, was seen as most effective, with authentic material such as films reserved for those with some expertise. An existing local website that provided simplified versions of authentic material was highly praised. Some participants had used target language material intended for small children, such as books and TV programmes, because they tend to use relatively simple repetitive structures. Children were also perceived as speaking more clearly than adults, making their speech easier to understand. However, not everybody agreed, on the grounds that children's material could be quite boring.

Participants stressed the importance of engagement and the use of enjoyable activities. Some had fond memories of games that had been used in their language learning, such as a French version of *Scrabble*, or a game involving sticking labels on people's backs: "you are having fun because it is labelled as a game, and you are learning much more". Others stressed the importance of conversations with native speakers outside the classroom: "I never learned by sitting at home and learning by books. I just told myself I have to have English friends. With some guys we were going to pubs and making conversation and talking with people. I learned this way". The ability to hold a conversation with a native speaker was seen as a key goal for learners.

### **Obstacles and controversies**

A recurring debate in all three focus groups was the role of formal grammatical metaknowledge. Some felt that the need to be able to handle grammatical concepts had been at the root of their slow progress or failure as language learners and would have liked to be able to proceed without it: "in the past it [grammar] has really stopped me learning a language". Others were adamant that a learner in a non-immersive situation could not go far without grammar. One participant suggested that there might be two types of people: people who flourish best in a "pattern matching" regime, essentially learning to combine language "chunks", and those who prefer to be made aware of the rules of grammar. Several participants mentioned a correlation between a taste for mathematics and a liking for explicit grammatical knowledge. Many participants commented on the lack of formal grammar teaching in UK schools and judged this to have had a negative effect on foreign language learning.

A major obstacle to practicing the target language was the fear of risk taking, as mentioned above: "in school they always correct you, they always want you to be doing the right thing". Participants recognised that in a real world situation complete correctness might be less important than communicative competence. They stressed the role of fellow learners here: "they are at the same level ... so you feel that you can talk to them much better, you are not too scared of making mistakes".

Many participants mentioned difficulties in remembering languages that they had learned but did not practice: "I did a bit of Swedish but I have forgotten a lot of it" and "since [taking the classes] I have forgotten much of it". Memory for specific items of vocabulary is also a problem: "I am getting to the age where it is very difficult to remember things unless I keep practicing" and "I tried to memorise something last night, I think of it this morning, it is gone." Some participants noted that knowledge of other foreign languages helped with remembering vocabulary, although this could also cause interference problems. However, they had developed many solutions to the memory problem. One participant who had worked as a taxi driver and had an extensive knowledge of the local road network had developed his own version of location-based mnemonics: "I associate Spanish vocabulary with street names". In addition to mnemonics, participants created their own pocket-sized vocabulary books and bilingual flashcards to memorise vocabulary. They stressed the importance of using their new words "for real" and of repeated practice:

“whenever I ... learn a new word, I try to use it straight after, [then for] days and days after. “ Another noted the importance of “practicing [vocabulary], taking up words that you know in one context and making up sentences using [them].”

Use of technologies in language learning Participants in all three groups were asked about the use they made, specifically for language learning, of a range of media and technologies.

#### *Books*

Fifteen participants had used language textbooks. In addition to conventional texts, some participants were particularly keen to mention monolingual picture books in the target language: “a picture-based dictionary - for each object in a picture you get a name for that object”, and a “[book with just] pictures of people doing things with German underneath it, that starts you on simple words and takes you a little bit further. No English in it at all”.

#### *Audio*

*CDs, Tapes.* Eight participants had used CDs to assist language learning, with four using them frequently. Thirteen participants had used audiotapes, with three frequent users. The main advantage of using audio materials for the participants was that they were able to listen while doing something else. Tapes and CD's enabled participants to learn on the move, e.g. “walking in and out [of work], lots of opportunities to listen” or “driving in a car”. Car-based learning made participants feel able to practice speaking aloud: “I can talk to myself in a car ... it is not embarrassing”. They liked the fact that tapes and CD's allowed the learner to “[listen] over and over again”, and that some provided “clean audio” as well as “recording in context,” i.e. complete with authentic ambient sound. A problem with authentic audio was that it might be very difficult to distinguish subtleties of pronunciation, such as intonation in Chinese. Language learning tapes and CDs often accompany textbooks, and participants found it useful to read the text first and then listen, or to consult the book while listening (though this could be difficult while on the move). The linear nature of tapes made them “very rigid” in use.

*Radio.* Thirteen participants had used radio to assist language learning, with five using it often. They liked the authentic material delivered by radio, but noted that speech could be quite fast. Not everyone saw this as a problem: “it doesn't matter not understanding it; slowly your ear begins to pick things up”. It was also recognised that listening to the radio was good practice for the range of voices and accents learners were likely to meet in real conversations with native speakers. Politicians were mentioned as easier to follow as they speak very slowly and deliberately. Participants felt that the information flow of radio was more intensive than that of TV, which they saw as more leisurely due to its blend of sound and image. A problem was that “you cannot rewind it”.

*Language lab.* Nine participants had used a language lab, with two having used one often. They like the fact that a lab allows learners to listen to themselves speaking.

#### *Video - based media and technologies*

*Language courses on television.* Like conventional language classes, TV language courses adhere to a set schedule. However, participants felt they might be less attractive than live classes: “it is like going to class without having the incentive of all those people to talk to”. As with classes, there was the possibility of falling behind: “If you missed the programme, that was it, you were left behind”. Participants were not impressed with the quality of broadcast material, which was labelled “really badly acted, ridiculous situations” and “artificial”. Some had bad memories of videos being used for “babysitting” a class of uninterested teenagers while their teacher had a rest. They also associated television strongly with entertainment: “We had this ... channel in Iran for learning Arabic. When I have seen it I said no, I am not going to watch that, I would like to watch football”.

*Television in target language.* Thirteen participants had used target language television for language learning, with five using it often. As with radio, they appreciated its authentic material. Speech could still be fast, with background noise, but they liked the context provided by the visual information, which made it easier to determine what was being said: “I just watch TV in French, I don't understand everything, but especially with soap operas, there is so much gesture”. This also makes the experience rewarding even if the language is hard to unravel. TV was perceived as more like entertainment than learning: “[you are] not required to go through the action of watching class in TV ...you can actually sit back and relax”. Soap operas in particular were valued for the insight they offered into the target culture, as well as for language learning opportunities. One problem the participants found with TV was that it was normally shared with others, who might not be interested in language learning: “my two boys would rather watch the Simpsons or something all the time”, “there is a big fight for the TV”. One participant did imagine a scenario where a family might want to learn a language together, for instance if they are going on a holiday.

However, most participants were sceptical about getting their children involved. Some mentioned that TV might be good for learning listening, but not for learning other skills like reading, writing and speaking.

*Television with subtitles.* Eleven participants had used TV with subtitles to assist language learning, with three using it often. Subtitles for a foreign language programme could be provided either in the known language or in the target language. One advantage of target language subtitling was the fact that it anchored speech in written form, making it possible for the learner to find unknown terms to be looked up in a dictionary. However, participants felt they might be tempted to follow the (easier to process) subtitles than attend to the sound track: “[I say] I am not going to look at the subtitles, I’m just gonna listen and before I know it, I’m reading the subtitles”. The feeling was that the scaffolding provided by subtitles should be removed as soon as feasible. The non-UK participants made extensive use of the closed captions (aimed at deaf viewers) to support their learning of English. However, speed was a problem: “subtitles ... I found that really difficult for me because I couldn’t go that fast”

*Film.* Several participants took the opportunity to watch films in the target language. The issues are essentially those of TV, with the extra attraction of being able to consume cultural artifacts in their original language.

*Videotape.* Fifteen participants had used videotapes to assist language learning, with five using them often. Video was seen as a valuable tool, as learners could rewind scenes and record TV programmes that would otherwise be missed. Video gives more flexibility and control than TV (Beyth-Marom & Saporta, 2002; Broady, 1997).

*DVD.* Seven participants had watched DVDs to practice language skills, with five using them often for this purpose. The DVD was valued for its flexibility, its extra material, such as subtitles and extra audio channels, and the user control it affords. For instance, when watching a film one could check the meaning of the language in a scene via subtitles and then turn them off to test one’s understanding. DVDs offer a rich source of interactive content, giving features such as up to eight different audio tracks and multiple subtitling possibilities. Target language subtitling can be particularly effective (Godwin-Jones, 2003; Koolstra & Beentjes, 1999).

#### *Computer*

*PC or On-line course.* Eight participants had used a variety of software products, including online language courses, to assist their learning, with two using them often. One problem with such courses was perceived to be the lack of feedback on speaking: “the trouble is that you will never be able to pronounce it ... you have to prove it yourself”. Spell checkers were seen as useful when learning to write in a foreign language. Several participants had used an electronic dictionary for language learning. Although no participants had used computer technologies such as PDA’s to write notes as they learned, this was mentioned as desirable. (None of our participants owned a PDA).

*Internet.* Eighteen participants, a surprisingly high proportion, had used the Internet to assist language learning. (This may in part be due to ease of access afforded by the University location). They reported that the Internet provided easy access to authentic material, such as newspapers in the target language. Search engines made it easy to find authentic material on topics of interest, with some search engines even providing the option to translate pages of interest. There was a lack of enthusiasm about visiting specially created language learning websites, apart from one local site mentioned above. Carrying out authentic information retrieval activities was seen as more attractive and effective.

#### *Communication technologies*

*E-mail, Discussion boards, Chat rooms.* Six participants had used e-mail for language learning, with three using it often. Two had used discussion boards or chat rooms for language learning.

*Mobile phone.* Three participants had used mobile phones for language learning, with two frequent users. The fact that the mobile phone could be used on the move, e.g. in a bus or train, was attractive to these participants, who particularly liked the potential of SMS for language learning. A Chinese participant had used a Chinese service that sent subscribers text messages with new English words or constructions to learn (see also BBC, 2003). However, there was a distinct generation gap where mobiles were concerned. Younger participants were enthusiastic, but the over 50’s were distinctly cool: “I don’t use a mobile phone, and I wouldn’t use it to learn about a language ... I think it is a terrible idea”. This participant particularly disliked the miniaturised interface of the mobile phone.

#### *Interactive TV*

None of the participants had used interactive TV for language learning, nor were they particularly impressed with the current state of iTV technology and services. Usability was perceived as a problem: “the remote control is just not usable ... by the time you figure out what button to press you miss the content”. This was a particular problem for the less motivated viewer: “if a semi-interested adult decides to use their spare time [to learn a language via TV] they can’t find out what they want to know about getting started, they might just get up and say ‘Poof, forget about it’”. Participants were anxious about missing part of the TV programme, because of while looking up additional

information: “if information is available during a programme, it is a complete waste of time, because you miss a programme when it has background information”.

Participants contributed the following ideas on how iTV could assist language learning:

- The potential of subtitles could be exploited more fully, e.g. by including a “replay subtitles” facility, by highlighting the current segment of the subtitle being spoken or by annotating subtitles with translations. Difficult language items might be accompanied by an on-screen explanation, perhaps linked to the viewer’s language profile. One visionary concept was to avoid disturbing the viewing of others in the room by projecting these enhancements onto an augmented reality display, perhaps on a visor or spectacles (Intille et al, 2003).
- Alternatives to subtitles could be explored for non-speech material. For instance labels could be attached to screen objects in a drama or soap opera, photos of culturally specific individuals or settings on news programmes, could be captioned and so on. Headphones could be used to allow the language learner to enjoy programme in the target language soundtrack, while other viewers perhaps watch a dubbed version. A vocabulary service or dictionary could also be made available.
- Interactive language learning games, familiar from computer software, could be developed. Games are currently one of the most successful iTV applications (Gawlinksi, 2003).
- Built-in communication facilities could be used to hold post-programme conversations in the target language with other learners or native speakers. The programme content would form the shared context and make for comprehensible, focused conversations.

## Conclusions

In this paper we have presented a small-scale study of adult language learners. The results suggest four broad directions for our work on the use of interactive TV for language learning.

Firstly, our participants clearly indicated that they watched television for entertainment, and even our most fanatical language learners were not keen to watch TV programmes specifically made for the language student. However, the up to date authentic material broadcast on TV is very attractive to them and they perceive it as bringing many valuable learning opportunities. Hence, rather than creating interactive TV programmes specifically for language learning, our strategy should be to add interactivity enhancements to existing, engaging, programmes (such as soaps, football, news), supporting informal rather than formal learning, via programmes the viewer might watch spontaneously even without language learning opportunities.

Secondly, participants indicated that they appreciated the advantages of multimedia presentation of material, with different media complementing each other and providing context to facilitate understanding. For instance, subtitles can make it easier to follow speech, gestures and other graphical information can express extra-linguistic meaning, a visual setting can anchor the meaning of spoken language and so on. The support needed by an individual learner will of course depend on their level of competence. Interactive TV could scaffold understanding, by providing a selection of levels of support in appropriate complementary media, either automatically via a user model or as the viewer chooses.

Thirdly, participants indicated that fixed timeslots, like those allocated for formal classes, motivated them to learn. When material is always available (like a video), they often do not get around to looking at it. Hence, instead of making interactive language learning content permanently available, it might be better to restrict the time in which it can be used, for instance to a single day. This need not hold for all services, such as electronic dictionaries. Viewers could be sent automatic reminders, for the Electronic Programme Guide, about programmes related to their language learning interests.

Finally, participants indicated that contact with other people - teachers, peers and target language speakers - motivated them to learn. ITV can provide ways of communicating with such people, via chat and email. Research has showed that the authenticity of computer-mediated communication (such as email or chat) made the communication seem more ‘real’ to learners, increased their motivation and resulted in a high level of learners’ satisfaction and perceived improvement (Greenfield 2003). Chat provides valuable opportunities for the negotiation of meaning similar to that provided in oral interaction (Tudini, 2003). The fact of having viewed a programme, whether a news bulletin or a football match, provides rich common ground for such interactions (Quico, 2003).

The small study reported here was the first step in a project to design iTV language learning facilities. However, we believe the results are useful beyond a single project, for other developers of services for independent learners. Uncovering pre-existing learner beliefs, attitudes and behaviours should be an essential part of a user centred approach to the design of software for learning. The high cost of iTV development also provides a strong financial incentive to draw on potential users throughout, not only via pre-design research but also through prototyping and evaluation. Given the paucity of learner-centric studies of independent adult language learners, we hope the results from the study will also be of interest to other language learning researchers beyond the educational software development community. We all need to find out why and how independent learners learn if the lifelong learning agenda is going to be successful.

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