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Cambridge Digital Learning Colloquium



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Better
Learning

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Introduction

This report presents a summary for the Cambridge Digital Learning Colloquium that took place on Friday 6th March, 10:00 – 16:00, Cambridge UK. The goal of this event was to bring together researchers, practitioners and thought-leaders in the field of digital learning – particularly in language learning – to address challenging questions that are shaping the field and industry.

Broadly, the aim of this event was to investigate, from multiple perspectives, how digital products and services can be rendered effective (or not) by key stakeholders such as teachers, learners, product designers, and researchers. This involved considerations of criteria and principles for learning, teacher and student needs, and quality assurance in products. In effect, we wanted to move towards answering the questions “What does ‘good’ look like in digital education?”

The programme was made up of brief presentations and panel discussions, and an open discussion of four challenges that aimed to:

- Identify the risks and opportunities that educationalists face when using technology for language learning
- Identify principles and share examples of good use of digital products/materials by teachers and learners
- Identify principles and share examples of good design for digital learning products/materials
- Identify the priorities for development in digital language learning – in relation to research, products and use

The event was conducted in interactive discussions, which were documented using IdeaBoardz¹. This report presents the analysis of the IdeaBoardz contributions.

Profile of participants

The participants at this event were a collection of specialists in digital pedagogies and educational technologies from a range of institutions and backgrounds that span the field and industry, including the following:

- Cambridge University Press
- University of Seville
- The Open University
- ALTA Institute
- Cambridge Assessment English
- British Council
- Wall Street English
- Digital Learning Associates
- University of Nottingham, Learning Sciences Research Institute
- University of Manchester
- TCE | AQUEDUTO
- ELT Strategies
- University of Wolverhampton
- Busuu Ltd

¹ <https://ideaboardz.com/>

- University of Oslo
- Freelance (several educationalist freelancers with a range of expertise)
- LearnJam
- Digills Consulting
- ED Tech Training Solutions
- University of Cambridge
- University of Central Lancashire
- Wingedchariot
- University of Coventry
- PeacheyPublications Ltd
- EF Education First
- NILE (Norwich Institute for Language Education)

Outline of report

This report presents an analysis of the challenges discussed at the Digital Learning Colloquium. First, the key insights from Challenge #1 are discussed which centre on the challenges and opportunities faced by technology developers, learners, teachers, and researchers. Following that, the key insights from Challenge #2 are presented. This centres on the best and worst digital products and the criteria for an ideal digital product, as perceived by the event participants. For the key insights from Challenge #3, the focus is on good and bad digital teaching, with a view to identifying the process by which one can become an effective digital teacher. The final challenge, the key insights from Challenge #4 centre on priorities for digital language learning, product-design, and research. To conclude, some key recommendations are extracted and presented in the final section.

Key Insights from Challenge #1

Challenge #1 centred on the *identification of the challenges and opportunities that educationalists face when using technology for language learning*. This section specifically covers the opportunities and challenges faced by technology developers, teachers, learners, and researchers.

Technology Developers: Challenges

According to the participants, there are many challenges currently facing product-designers in the digital pedagogy context. A large issue that was identified by several participants was the issue surrounding tech-centricity i.e. they are critical of technology developers who focus on technological functionalities in lieu of pedagogy. Product designers face a challenge when creating digital pedagogies and should ensure that the technologies they create are all pedagogically grounded.

There are also challenges in the creation of quality products that retain users and learners. Products need to motivate learners but must also help them learn. Product designers need to mitigate the ethical challenges and unintended consequences of the technology to ensure healthy and effective interaction. This addresses issues of retention where, in a digital space, learners have a lot of choice.

A further challenge for developers lies in the fast-paced and changing landscape of educational technologies. These change across time and space, and those who design different technologies for teaching and learning need to address the issues of market constraint and obsolescence to continue to work in the area. One particular challenge noted is the managing of priorities and expectations and the perceived value of technology for learning.

Technology Developers: Opportunities

For technology developers in the digital pedagogy context, there are opportunities to extract data that can help in the development of higher quality technologies. These data can capture learning and learning behaviours more effectively than self-reported data. Such data can help inform better products with real-time interventions that support and blend effectively with traditional classroom pedagogies.

For technology developers, there is also scope for more collaborative work with users and researchers to produce clearer and more honest messaging surrounding the development and use of learning technologies. Of course, a natural opportunity in this context is financial. However, this must be balanced with the development of quality and learning-centred products.

Products in educational technology can make a big difference when designed for inclusive and accessible learning. For example, this could be technology that is more personalised, that supports specific learning difficulties, and that works well in lower-resource contexts. Such products can be continuously developed, which is a key advantage of digital products.

Teachers: Challenges

In reviewing the challenges that the participants identified for teachers, it was clear that there were many more challenges than opportunities discussed. These covered a range of themes spanning classroom processes to industry movements, and here they are broadly categorised as issues of combining digital and traditional pedagogies, fears of technology in the classroom and classroom constraints, evaluating technologies, teacher development, and fears of the unknown.

With regard to pedagogy, many challenges were documented that related to merging digital and traditional teaching approaches. Participants raised questions like “how do I integrate online and face-to-face interactions?” They identified the importance of aligning technology with pedagogy and a challenge therein being that teaching must not be tech-centric. However, it was also documented that entrenched practices and resistance to change can hinder attempts to integrate technologies and lead to their premature dismissal.

In fully online contexts, participants argue that teachers will find the current offering limited, functionally. This can distract teachers, demotivate learners, and limit the achievement of learning goals. Some participants are critical of technology being used to motivate learners, arguing that technology alone is not motivating and, at the very least, not for long.

A second challenge pertains to fears about the use of technology. Participants record fears of technology failing in the classroom with the following examples:

- What to do when the tech fails? There are hardware issues? Apps go out of date?
- What to do if teachers are not able to use EdTech to its full extent?
- What to do if there is poor web connectivity/website restrictions in some regions?

These fears are coupled with fears of distractions among learners and with practical constraints like large class-sizes and marking.

Participants also acknowledged that teachers may struggle to effectively evaluate and determine quality learning technologies, and that they may not have the time or allotted teacher development resource to help them develop as digital teachers.

A final area of challenge is related to teachers’ fears of the unknown. “Is AI going to replace me?” This question posed by a participant demonstrates the lack of clarity teachers have over their futures and the ambivalent nature of their relationship with technology. Participants echoed teachers’ concerns about data management in educational technology, the lack of understanding of the future needs of their learners, and the conflicting conflation of revenue and technology in the educational context, which leads them not to trust digital pedagogies.

Teachers: Opportunities

While the participants largely focused on the challenges teachers face, there were a number of themes that emerged regarding opportunities. For teachers, the participants saw the value of up-to-date materials, modifiable materials, and capacity to produce materials at scale for different contexts and levels as clear opportunities afforded by digital.

An important opportunity for teachers was time. Participants argued that technology could save teachers time on marking, making lessons more engaging, minimising administration, and would thus make time for more quality teaching. They also saw flexibility in digital teaching, where working from home could allow them to fit work around life, if necessary. Similarly, they saw technology as a means to support students who miss class, do not have adequate access to classes, or support large classes with different needs and ways of learning.

Finally, participants saw opportunities for teachers to get involved with and benefit from the development of digital pedagogies. This was captured in two discrete lines of thinking. First, the participants saw a value in the opportunity teachers can have to work with EdTech companies to help them create better products. This would support participatory design and make teachers as end users, key in the product development cycle. They also see a value for teachers with regard to the insights these technologies can offer. The participants particularly recognised the value of learner analytics for teachers and indicated that these could give teachers insight into their students' behaviours.

Learners: Challenges

For learners, the challenges identified largely pertained to digital literacies. This manifested in a number of ways. Some focussed on the need to raise learner awareness of the learning process in digital contexts. For others, a large theme in digital literacies related to the need to develop skills in learners to critically engage with and assess learning technologies. Under challenges, participants said:

- Making informed decisions
- Selecting the right product for their needs
- Learners should be more critical in terms of using tech, data, safety, time use, self-regulation
- [There is an] overwhelming amount of choice and inflated or dubious claims from products

Further challenges were documented which relate to issues of access, engagement, and retention. Participants problematised learning technologies, identifying that they may pose a higher risk of distraction as students may disrupt their learning with personal engagement with technologies. There was also consideration of ethics and safety with regard to online participation for children. These ethical challenges were linked more widely to debates on the appropriateness of screen time,

which again is a very current theme in the digital pedagogy field and industry, especially in the young learner context.

At the level of learning, participants problematised digital offerings, identifying that learners need to feel that they:

- are getting value from the service
- are achieving learning objectives
- can trust online sources of learning to effectively support or replace classroom learning

There were also critiques of quality in online learner resources, which they argue can be a result of attempts at scalability. This can result in lower engagement, interest, and motivation.

Finally, user experience was an identified challenge where access, excess discrete log-ins, and usability were identified as challenges for learners to successfully engage with learning technologies. Participants linked poor UX to a lack of learner engagement being recurring messages in the discussion. User experience features strongly in the Challenge #4 discussions.

Learners: Opportunities

The discussion of the opportunities for learning forged a more diverse discussion. This considered issues like cost-effectiveness, engagement and personalisation, access to authentic language and learning opportunities, life skills development, and offerings for those with specific learning difficulties.

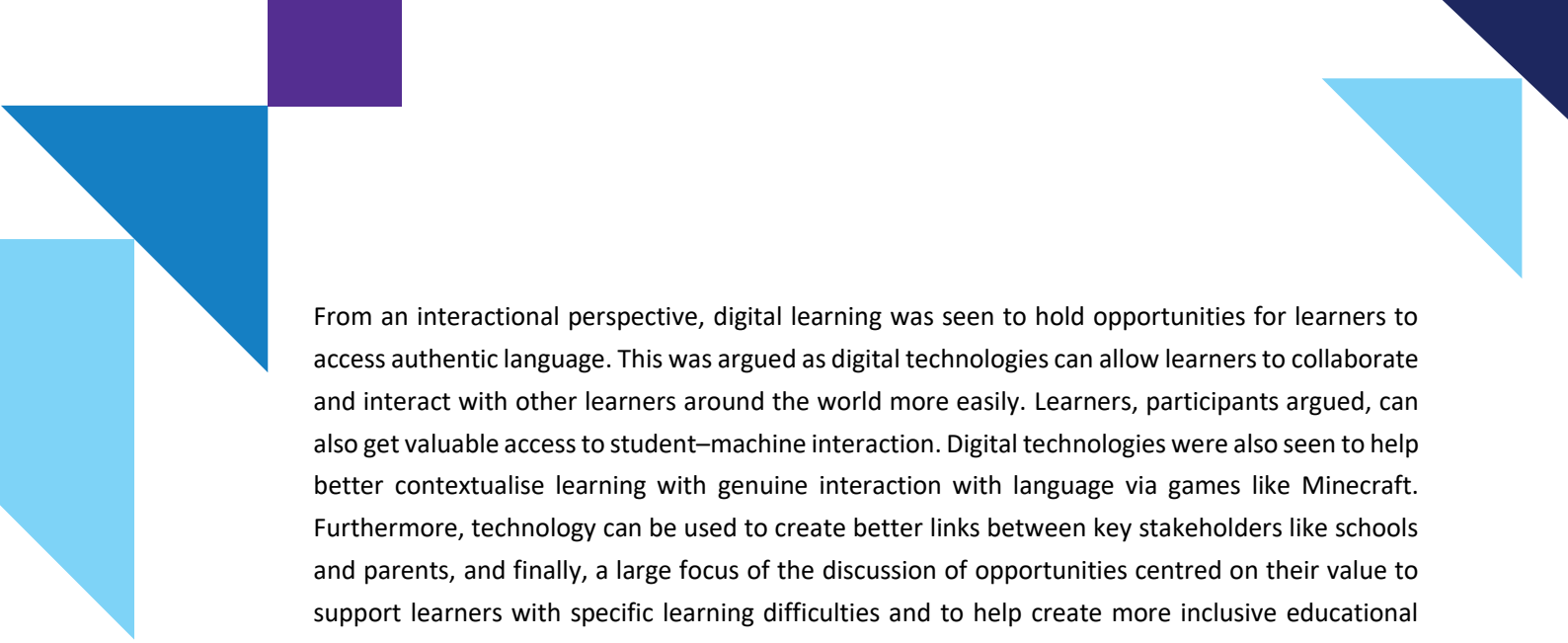
In terms of access and cost, participants reported that:

- learning a language can be more accessible – cheaper and more available
- students can try out different things without committing to pay for a whole year of studying
- that there's never been more free content available

The value and accessibility for learners was a strong theme overall, which made clear a perceived strength of digital and online learning. Of course, considering the challenges above, it is key that this product need not only be accessible, but also it must be motivating. Interestingly, motivation and engagement were seen to be large advantages of online and digital learning. Personalisation was a key theme here, where participants identified that there were greater opportunities:

- for support/extension – truly personalised learning
- developing self-study
- personalised experience
- engagement, motivation and reward

The personal development perspective was also clear in discussions on life skills, where technology was seen to develop students' perspectives on society and social justice as well as their communication skills in virtual contexts.



From an interactional perspective, digital learning was seen to hold opportunities for learners to access authentic language. This was argued as digital technologies can allow learners to collaborate and interact with other learners around the world more easily. Learners, participants argued, can also get valuable access to student–machine interaction. Digital technologies were also seen to help better contextualise learning with genuine interaction with language via games like Minecraft. Furthermore, technology can be used to create better links between key stakeholders like schools and parents, and finally, a large focus of the discussion of opportunities centred on their value to support learners with specific learning difficulties and to help create more inclusive educational materials, both of which benefit from flexible, gradable, and modifiable material.

Research: Challenges and Opportunities

In the context of research, the participants found that the primary issues were:

- accessing teachers, students, schools
- overcoming ethical challenges in research
- managing sensitive data
- research is slow moving and technology changes fast

They critique research for equivocally synthesising studies that come from very different cultures. This they argue is nonsensical and produces results that may not be dependable. They also find it challenging to engage with research produced on classrooms by those who do not work in them and they criticise research that works in silos, isolates digital pedagogy as a discrete pedagogy, and fails to merge fields of pedagogy, learning, language, and technology.

In terms of opportunities, research does appear to offer exciting perspectives. There is a general recognition of the large numbers of participants that large-scale studies can access and the value this can bring. These larger studies move beyond action research and allow for more rigorous and generalizable studies that could inform the development of educational technologies. Research allows us to move beyond self-reported studies to actually capturing learning, and participants specifically called for more research on bite-sized learning and computer-aided language learning accessibility. Research forms part of a larger discussion in Challenge #4.

Key Insights from Challenge #2

Challenge #2 centred on the *identification of principles and examples of good (and bad) digital learning products*. This section specifically covers a review of what the participants identify as the best and worst digital products and their criteria for the ideal digital product.

Best and Worst Digital Products

The following table presents the language learning technologies that the participants identified as the most effective and least effective digital products.

Table 1 Best and Worst Digital Products

Most Effective Digital Products	Least Effective Digital Products
Kahoot	Duolingo
Fun with Ruby Rei	YouTube
Duolingo	Go correct
FutureLearn	CALD app
WordUp	Kahoot
Busuu	
Memrise	
Cambridge Dictionary	
Puku	
Quizlet	
Velawoods	
Created Academy	
Teach Your Monster to Read	
Bayam	
Dingtalk	
Minerva	
Uchi.iu	
MMORPGs	
Grammarly	
IdeaBoardz	
Menti	
Night Zookeeper	

Overall, the clear takeaway from this review is that there is no clear consensus as to what tools are perceived to be the most or the least effective. In discussion that emerged at the event, this is likely owing to the importance placed on the reflexivity expected of learning technologies, where no one technology was considered to be a perfect example.

In terms of positive evaluation of these technologies, what seemed to attract their users were the following descriptions:

- products that are addictive
- products that are beautiful
- products that are motivating
- products that have spaced repetition
- products that are interactive, engaging, interesting, and fun
- products that contain topical content
- products that are up-to-date
- products that are gamified
- products with good UX
- products that facilitate mentoring and coaching
- products that are easy to use

By contrast, those products deemed the worst are described as follows:

- products that contain off-putting content
- products that focus on extrinsic motivators (gamification, badges etc., rather than on the learning itself)
- products like YouTube superstar teachers. They often contain a lot of the content which is felt to be delivered poorly, from a pedagogical perspective
- products that do not use technology very well
- products that use gamification to mask dull content and poor pedagogy
- products with poor and unattractive interfaces
- products that are behind in-app payment wall
- products that encourage lack of thought

Ideal Digital Product

While there is little consistency in terms of identifying existing quality products, there were a number of shared criteria identified by the participants as to what constitutes a “dream digital product”.

A key focus for participants was user experience. Participants identified that effective UX should assume that technology may be misused. Their ideal digital product would be an intelligent system that would create personalised learning opportunities for learners. This tool would be updateable, consistently improved, be mobile accessible, and would fit well within the wider learning experience.

They see the value of such a tool as one that:

- enables shy/quieter learners to engage
- supports and scaffolds learning
- supports teachers to teach virtually
- puts learners at the centre of the product, through collaborating, interacting, and gaining feedback (not just feedback on accuracy)
- allows learners to curate content
- enables learner autonomy
- responds to learners' needs and adapts accordingly
- simulates or facilitates realistic and relevant tasks
- helps slow down the learning while still keeping it engaging
- creates appropriate challenge
- can be reused and is value for money
- supports learners with special needs without compromising design

Overall, they see a key facet of this product as one that balances engagement with learning. The digital product needs a clear learning objective and it must not be hampered by technological gimmicks.

Key Insights from Challenge #3

Challenge #3 centred on *the identification of principles and examples of good use of digital products/materials*. This section specifically covers a review of what the participants identify as “nightmare” and “dream” digital teachers and their view of the process for becoming an effective digital teacher.

Nightmare and Dream Digital Teachers

Based on a review of the criteria shared by participants, the following table contrasts their perceptions of the qualities of a “nightmare digital teacher” and “dream digital teacher”.

Table 2 Nightmare and Dream Digital Teacher

Nightmare Digital Teacher	Dream Digital Teacher
Those who use technology for gimmicks	Those who know when to use technology and are prepared
Those who do not modify their approach to effectively use technology	Those who know how to use digital tools to support learners and learning
Those who do not think about pedagogy, learner needs, and purpose	Those who put pedagogy first and make sure technology adds value
Those who cannot use simple technologies	Those who can think on their feet
Those who waste time with set-up of technology and make the classroom teacher-centred	Those who use technology with purpose
Those who use technology, thinking it will motivate learners	Those who are up-to-date with research
Those who avoid technology when it could add value	Those who are willing to take-risks
Those who treat technology as a crutch	Those who use technology to do something they could not do as well without it
Those who fear learners know more than they do and those who actively dislike technology	Those who use data to inform their teaching
Those who view all digital tools as self-study	Those who use technology effectively
Those who are resistant to change	Those who are curious, willing to experiment, reflective and try new things
	Those who are not overly tool-centric

One participant usefully shared the TPACK² acronym as a means to conceptualise a digital teacher effectively, where a teacher should hold a balance of knowledge in technology, pedagogy, and content. In many ways, this work captures much of what follows in the presentation of criteria for becoming the “dream digital teacher”.

² <https://educationaltechnology.net/technological-pedagogical-content-knowledge-tpack-framework/>

Becoming a Dream Digital Teacher

The participants shared their views of what is needed in order to become effective digital teachers. Specifically, they identified the following behaviours of a digital teacher:

- A digital teacher is a teacher who guides their own professional development
- A digital teacher is a teacher who engages with technology
- A digital teacher is a teacher who overcomes their limitations with technology
- A digital teacher is a teacher who learns from others
- A digital teacher is a teacher who is trained well to use technology to teach
- A digital teacher is a teacher who brings their all knowledge of technology to bear in their teaching
- A digital teacher is a teacher who knows how technology extends their teaching and adds value
- A digital teacher is a teacher who develops skills in experimentation, reflective practice, and peer-collaboration
- A digital teacher is a teacher who develops learner-centred teaching and helps learners to curate their own digital content
- A digital teacher is a teacher who can deal with failure

To become such a digital teacher, the participants identify that teachers need buy-in from their schools, to attend relevant conferences, and to have resource for sustainable teacher development. Similarly, teachers can support their development as a digital teacher through peer-collaboration and the development of a teaching community.

Key Insights from Challenge #4

Challenge #4 centred on *the identification of priorities for development in digital language learning: research, products and use*. This section specifically covers a review of what the participants identify as the key priorities for classroom practices, product design, and research.

Digital Language Learning: Classroom Priorities

Looking forward, the participants identified the key priorities for the implementation of technology in the language classroom. This covered two broad themes: first, types of technology we can implement in the classroom; second, teacher training and support needed to bring technology into the classroom effectively.

In terms of technology, participants identify that technologies like virtual reality can expand the teaching and learning context. They see this as valuable for the future of classroom learning. They also find that there is a need to increase understanding of how to apply existing technology in the classroom, such as WhatsApp. In a more systemic and institutional perspective, the participants see the role of AI in classroom teaching as expansive and a clear priority for the development of learner-centred classrooms.

In terms of teacher development, teachers need time and resources for their progression. The participants see training in the following areas as key:

- Training in digital literacies and digital pedagogies
- Skills development in evaluating technologies
- Training in the application of technology to different facets of teaching
- Training in research and appropriate research dissemination
- Webinars in the area of digital pedagogy

Digital Language Learning: Product-design Priorities

In discussing the priorities for product design, interdisciplinarity was a key emerging theme. The participants identified that it is important for product-designers to work across teams and this means that they should work with:

- research teams to use principles of learning to guide their work
- teachers and students to test virtual reality for learning

Broadly, the participants identify that there is a need to engage in participatory design and for product-designers to realise their role as change managers and change agents.

There was also a focus among the participants on the design of digital materials where they advocate for a digital-first perspective. Again, they argue for research to guide this and for decisions

to be based on needs as opposed to wants of end users. This can be combined with user testing and data on user engagement to create effective products.

A final consideration for priorities for product-design is user experience. The participants argue that UX must be taken seriously and not seen as a “box-ticking exercise”. It is crucial to identify how effective UX is and how it is supporting the learning process. They suggest the adoption of certain best practices, such as integrated guidance and support, akin to gaming tutorials, and the development of products that can be updated and developed further.

Digital Language Learning: Research Priorities

There are two broad themes for research priorities identified among the participants. These are related to research objectives, and funding and support. In terms of research objective priorities, the following themes were identified that can guide future endeavours in the area:

- There is a need for research that communicates to teachers and researchers, and creates dialogues between them
- There is a need for research that looks at the application and implementation of technology for language learning
- There is a need for research that studies technology in the classroom. This requires detailed contextualisation, quality data, and transparency in scalability and generalisability
- There is a need for research with industry through impact studies on products and for non-industry research to bust technological myths
- There is a need for comparative research on technologies
- There is a need for research on the impact and role of teachers’ beliefs of digital pedagogies on learning
- There is a need for research that includes teachers in research design, implementation, analysis, interpretation, and dissemination

This research needs buy-in from institutions, industry, and national bodies. Participants identify the role government agencies have in funding research. There is a need for large-scale national and international research, for research on education and policy, and for research on the impact of digital technology on various stakeholders in educational contexts.

Recommendations

Overall, this document details many recommendations. In Challenge #1, the opportunities and challenges that face technologists, teachers, learners, and researchers are presented. Among these many considerations, some key themes emerge that indicate a value in:

- supporting learners' willingness and engagement in digital and online learning
- developing students' and teachers' digital literacies to effectively exploit and evaluate technology
- making use of digital technologies to support those with specific learning difficulties and to create more inclusive and flexible materials
- producing technology that is pedagogically grounded
- undertaking collaborative research that supports access to teachers and students

In terms of Challenge #2, there was little consensus on the ideal digital product. However, in terms of identifying criteria, the participants identified several core areas for development, such as:

- supports and scaffolds learning
- supports teachers to teach virtually
- allows learners to curate content
- enables learner autonomy
- helps slow down the learning while still keeping it engaging
- creates appropriate challenge
- supports learners with special needs without compromising design

These criteria can be used in the development of future products.

For Challenge #3, the concept of a digital teacher is discussed. For this challenge, the participants made clear that criteria for a "dream teacher" and "becoming a dream teacher" reflect those of effective practitioners more broadly. These criteria can be used to help teachers self-evaluate and identify areas for self-development in their pursuit of effective use of digital technologies.

For Challenge #4, priorities for digital language learning for teachers, researchers, and product-developers are discussed. These considerations point to future directions in the industry, which can act as a valuable guide to the range of stakeholders working in the digital pedagogy context.



Next steps

The Colloquium met its objective of bringing together different perspectives to get a better understanding of the key issues facing the development and use of digital educational products and content. Agreed next steps were:

- Share information from the Colloquium – April 2020: Report and videos
- Create a forum for participants to continue sharing ideas and information
- Set up follow-up Colloquium next year