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USING TECHNOLOGY TO MOTIVATE LEARNERS

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EXECUTIVE SUMMARY

Technology continues to open up new opportunities for motivating language learners. Unlocking the considerable potential of technology depends on institutions, teachers, learners, and communities working together to understand how it can best be implemented in a specific context.

When technology is used with a clear understanding of the benefits it can offer and of the potential learning and motivation outcomes, it is more likely that its adoption will foster and sustain learner motivation. This paper summarizes key lessons learned from research and practice in the use of technology for motivating learners. It contains a number of new insights that have emerged in recent years.

Many of the benefits of technology relate to its potential to create connections between the classroom and learners' lives, interests, and experiences beyond it. With careful and consistent support, teachers can help learners develop the skills and confidence to use technology effectively to manage and find personal meaning in their learning.

Taking an integrated approach to implementing technology into the curriculum and classroom practice will help to maximize its potential benefits and enhance learner motivation. This requires careful management and coordination by all stakeholders, including curriculum developers, teachers, and administrative staff.

Support for teachers and learners is at the heart of realizing the potential benefits of technology for motivation and learning. Teachers need to be able to develop their own skills in working with technology. Learners need appropriate opportunities that are driven by their needs and interests and give them the tools to assume greater responsibility for their own learning.

The key messages in this paper are that:

- technology can have a significant impact on motivation by increasing learners' sense of autonomy, relatedness, and competence
- technology can support learning in a wide range of both formal and informal learning spaces
- successful implementation of technology is always context-specific and requires integration into the curriculum and classroom practice
- the effective use of technology requires careful preparation and appropriate support for both teachers and learners.

THE EXPERTS CONSULTED FOR THIS PAPER

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CONTENTS

INTRODUCTION

Technology has been a major part of language education since at least the middle of the 20th century. Much research has been done and a vast amount of experience has been gained in its use in the classroom. However, teachers continue to face the challenge of deciding how to make the best use of technology for learning—how to select, adapt, and implement it in a way that motivates learners, not just in the short term but throughout their studies. Meeting this challenge is vital because motivation is a key predictor of language learning outcomes,[1] and the ability to maintain motivation beyond formal education is a prerequisite for lifelong learning.[2]

There are two main reasons to focus on technology and motivation together. Firstly, technology can help teachers engage learners in many aspects of the language learning process. Secondly, as technology becomes ever more integrated into all aspects of life, it is important to prepare learners to realize its benefits for their future learning and their lives beyond the classroom.

This paper addresses the challenges that educational institutions, teachers, and learners face in using technology. It presents principles and practical ideas to help them face these challenges in ways that foster and sustain learner motivation.

In Section 1, we summarize key insights from research which shed light on the nature of motivation and its relationship with technology.

Section 2 considers the potential benefits, or affordances, of technology for enhancing motivation. It presents a checklist of questions to help guide decisions about whether and how to use a technology to achieve specific learning outcomes.

Section 3 explores the role technology can play in different learning spaces. We suggest ways that teachers can contribute to learner motivation by connecting technology use with learners' personal lives and supporting their learning beyond the classroom.

In Section 4, we discuss the importance of considering the broader educational context when implementing new technology and explain why innovation has a greater chance of success when it is understood and supported by all stakeholders.

In Section 5, we examine the importance of autonomy, relatedness, and competence—three psychological needs closely associated with learner motivation. We consider how classroom tasks can meet these needs and suggest what teachers can do before, during, and after a task to maximize its motivational impact.

Section 6 looks at how teachers and learners can be supported in realizing the potential benefits of technology for motivation. We outline a range of roles that teachers can assume in order to develop their skills in working with technology. We then offer a framework for helping learners manage their own learning and sustain their motivation.

Appendix 1 presents some examples demonstrating how technologies can be evaluated in relation to specific learning goals. Appendix 2 illustrates how technology-related tasks can be added to a coursebook syllabus.

The paper concludes by reaffirming the view that motivating learners through technology requires teachers and other stakeholders to have a deep understanding of the limitations as well as the potential of specific technologies; the realities of implementing them; and how learners and teachers can best be supported in this process.

Key terms in **bold** are explained in the Glossary.

01

LESSONS LEARNED

Technology has a major impact on the way many people learn today and offers undoubted benefits. Yet it has not transformed education or improved learning outcomes as radically as was once predicted. To understand why learning technology has not lived up to expectations and how its potential might be realized more fully, we explore what is known about its relationship with learner motivation.

UNFULFILLED PROMISE

Technology is often given a special status in our lives: we are excited by its potential for transformation and yet suspicious of its potential for disruption. From the early days of computers in education in the 1950s, bold claims have been made about how technology would automate and optimize learning.[3] It was said that with the arrival of the personal computer, schools would no longer be required because learners could study from home with carefully packaged materials that would adapt to their needs. The internet offered the promise of education for all, regardless of country, background, or wealth. Mobile phones would free learners from the limitations of place and time by providing anywhere–anytime access to education. Today, similar claims continue to be made about emerging technologies, such as **augmented reality** and **virtual reality**. What we have learned is that if some of these claims have been partly realized, it is not because of the technology itself but rather because of the ways educators have been able to draw on it meaningfully to enhance pedagogical practice.[4]

> The value of technology exists only in the good pedagogical use that teachers make of it.
>
> HAYO REINDERS

THE RELATIONSHIP BETWEEN TECHNOLOGY AND MOTIVATION

A technology is any tool—a campfire, a book, a telescope—that helps extend human abilities, and digital technology can be any tool that involves the use of computing power, such as a calculator, a mobile phone, or an autonomous vehicle. This paper focuses on how digital technology can be used in an educational setting.

One of the potential benefits of using technology is its impact on learner motivation, which, following Dörnyei and Ushioda,[5] we define as 'what moves a person to make certain choices, to engage in action, to expend effort and persist in action'.

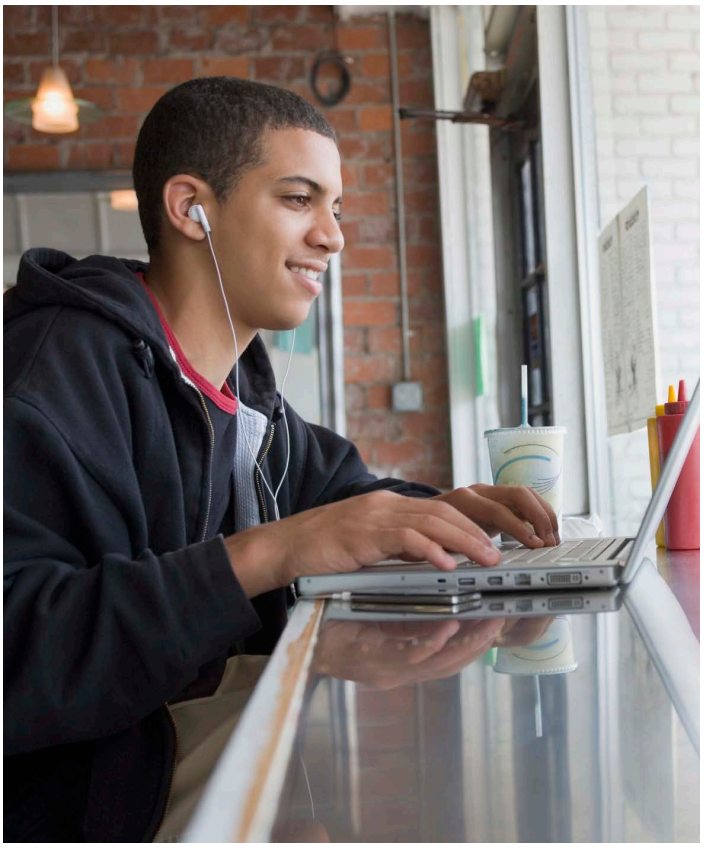
Technology is not inherently motivating for learners: how it affects their motivation depends on how it is used. This idea can be illustrated through the example of a technology that has not typically been successful in fostering learner motivation: the language laboratory. Once widespread in language teaching, language labs required students to engage in drill-and-practice exercises wearing headsets and sometimes sitting in separate booths. The aim was to help them achieve automaticity and complete accuracy in their responses to computer prompts. However, although the novelty of the technology may have produced some initial motivation, this was not found to be sustained over time, as the repetitive, solitary tasks tended to lead to boredom. Perhaps more importantly, it was argued that over-reliance on language labs could have a negative impact on motivation in the longer term, as they did not offer opportunities for learners to make decisions or create meaning in their learning, or to acquire the skills necessary to sustain their own learning—for example, after leaving formal education.

Several decades of research[6] and teachers' experiences have provided valuable insights into how technology is used by learners and teachers and how this affects motivation. In particular, the following observations have been made:

- If the use of a technology in class does not lead to longer-term change in the learning process, any initial enthusiasm it produces will not be sustained and will usually subside quickly.
- Students' apparent enthusiasm for technology usually relates to its use for entertainment, such as gaming or social media, rather than for educational purposes.
- Although learners may be proficient in the personal use of technology, they are not nearly as skilful at using it for learning.
- Learner training can positively influence students' use of technology by helping them understand how to successfully apply it in their learning.
- Learner motivation is significantly influenced by teachers' attitudes towards technology and by their ability to use it to meet pedagogical needs.
- Learner motivation is more likely to follow when the use of technology is supported at an institutional level, integrated into the curriculum, and carefully implemented in the classroom.

We can make a number of inferences from these observations about the potential impact of technology on learner motivation:

- It is dependent on the context. For example, learners may respond differently to the same technology depending on whether it is used in the classroom or at home.
- It is subject to external influence and may be affected by factors like teacher encouragement, learner training, and the development of successful learning habits.
- It can change over time. **Engagement**—both a manifestation of and a catalyst for motivation at a given time in a particular context—is especially likely to vary and has been shown to be closely related to success in language learning.[7]



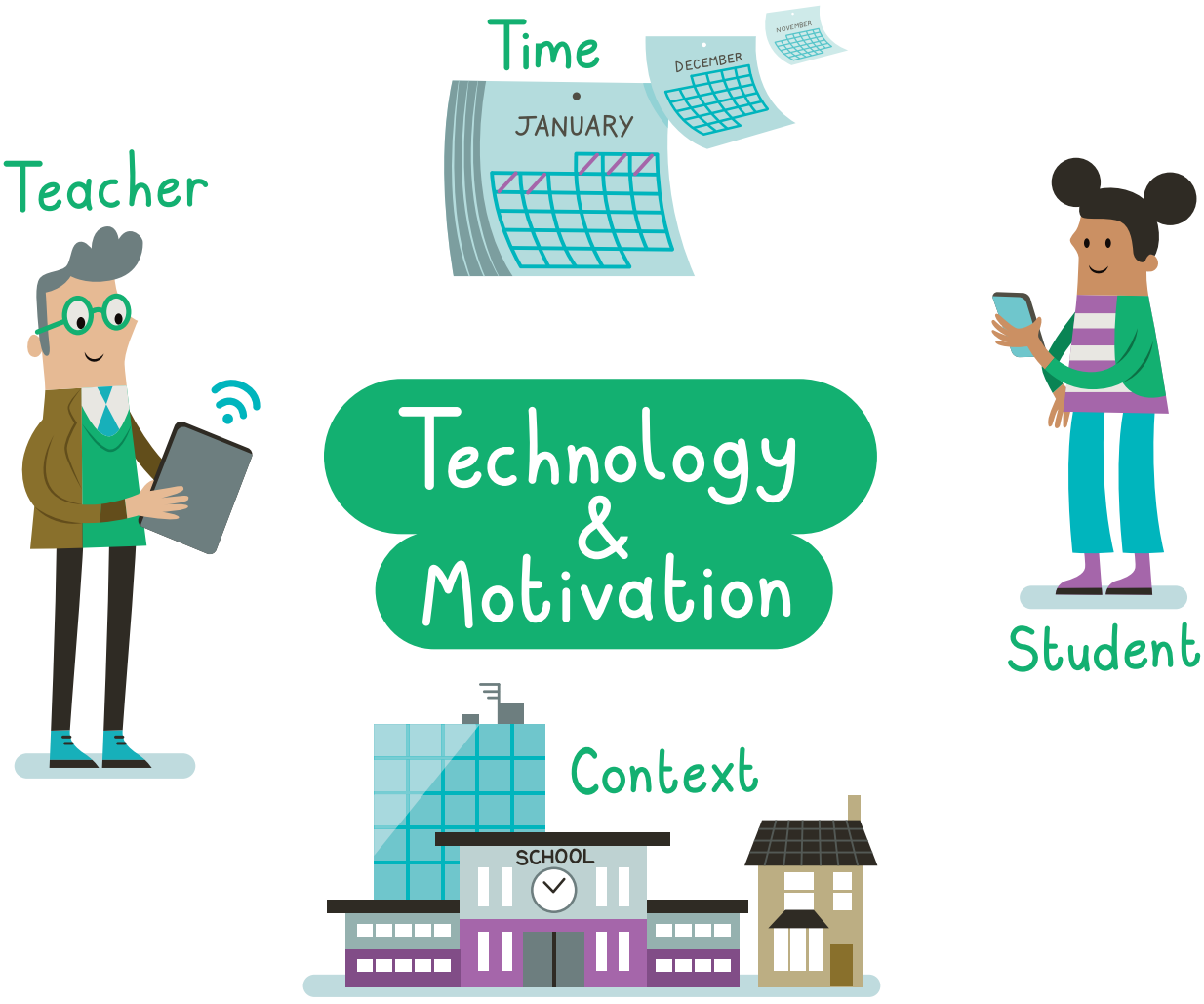
These inferences about the impact of technology align with our current understanding of the role of motivation in language learning more generally,[8] i.e. that motivation is variable across space and time and dependent on both learner-internal and learner-external variables.[9]

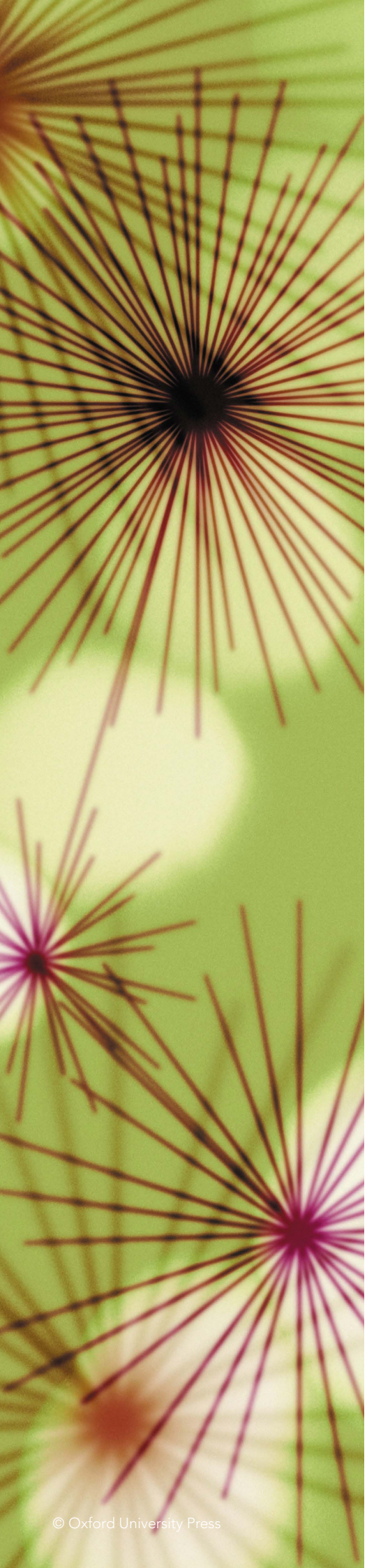
What all this points to is the need to support learners in using technology in a way that enables them to foster, monitor, and maintain their own motivation, and to do so sustainably over time. For example, this might involve helping learners to:

- distinguish between short-term enjoyment and long-term wellbeing
- engage in pedagogically meaningful activities that lead to autonomy (i.e. their ability to manage their own learning)[10]
- avoid the addictive or otherwise harmful behaviours that technology use can sometimes lead to
- deal with the very real privacy, security, and ethical issues that technology raises.[11]

SUMMARY

Although technology is widely recognized to have many benefits for learners, it has not transformed education to the extent that was once expected. This may be partly explained by research which has indicated that the effectiveness of a learning technology depends on how it is used in a given context and how it affects learner motivation. To ensure that technology has a beneficial impact, teachers need to understand the nature of motivation, the factors that influence it, and the role that technology can play in fostering motivation, while at the same time recognizing its limitations.





02

POTENTIAL BENEFITS OF TECHNOLOGY FOR MOTIVATION

The usefulness of any learning technology depends on the way it is implemented. Understanding whether and how to use technology relies, in turn, on an awareness of its specific features and potential benefits for supporting the development of motivation. In this section, we explore the concept of **affordances** and consider how this can help to clarify decisions about technology use in a given context. We propose some key questions to help guide this decision-making process and summarize the contribution that technology may be able to make to fostering learner motivation.

THE AFFORDANCES OF TECHNOLOGY

The potential benefits or opportunities provided by technology are referred to as its 'affordances', a concept which can be illustrated through the analogy of a car. One of the affordances of a car is mobility. However, without petrol or someone who knows how to drive, that affordance cannot be realized. The driver also needs a licence, or they may be pulled over by the police. It is also important to ask whether we really need a car. Maybe there are too many people to fit in the car and a bus would be better, or perhaps our destination is just around the corner and we could simply walk.

In the same way, learning technologies have affordances which may or may not be realized depending on the context in which they are implemented. For instance, a mobile phone has mobility as one of its affordances, but this relies on learners having sufficient data or a good Wi-Fi connection—without them, the phone cannot be used. The teachers and learners (the 'drivers') need to know how to use the technology to support learning, and the use of mobile phones also needs to be permissible under institutional or national rules and regulations (the 'driver's licence').

Thus, in order to implement a learning technology effectively, it is important for teachers and other practitioners to understand not only what they want to achieve and the potential affordances of the technology, but also how those affordances can be realized in a specific context. There are therefore three steps involved in determining whether a particular technological solution is likely to enhance the motivation of learners, and these steps can be expressed as questions:

1 What motivational outcomes are we trying to achieve?
2 How can technology foster motivation?
3 How can we create the right conditions for the affordances to be realized?

We consider the first two questions in the rest of this section and focus on the third question in Section 3.

IDENTIFYING INTENDED MOTIVATIONAL OUTCOMES

Without a clear idea of the intended outcomes, it is unlikely that adopting a technology is going to be a good use of time and resources. Graham Stanley[12] has provided a useful checklist of six questions that teachers and other practitioners can ask to decide whether adopting technology is the best solution in a given situation:

1	Why use the technology?
2	Who is the technology best for?
3	What is the technology best used for?
4	Where should the technology be used?
5	When should the technology be used?
6	How should the technology be used?

Asking questions like this allows educators to use a principled approach to selecting and using technology, which can help them to make more informed choices and achieve better teaching and learning outcomes.

Appendix 1 illustrates how these questions could be used as part of the planning and decision-making process in three different contexts: with very young learners, teenagers, and university students.

> Achieving fluency in a second language requires learners to stay motivated for years. The use of new and appropriate technologies can provide a timely boost to learner motivation.
>
> MARTIN LAMB

HOW TECHNOLOGY CAN FOSTER MOTIVATION

Being able to answer the six questions listed above depends on recognizing the affordances of technology. A number of publications have compiled lists of ways in which technology may impact positively on language learning and teaching.[13] Table 1 provides a synthesis of these potential benefits, or affordances, with reference to how they can help learners and teachers to develop motivation. It is worth noting that some of the potential benefits identified in Table 1 are specific to technology; others are simply made easier by the use of technology but could still be achieved without it.

BENEFITS FOR LEARNERS	BENEFITS FOR TEACHERS
Wider exposure to English	
Learners have many more opportunities to encounter the language both inside and outside the classroom, e.g. through movies, music, games, and social media.	Teachers can draw on learners' experiences to enrich classroom learning. They can also prepare learners for learning in a range of settings, including outside school.
Authentic language use	
Learners encounter language through authentic sources and contexts which match their interests.	Teachers can draw on examples of authentic language use that students can relate to.
Flexible learning	
Flexible learning enables learners to learn when they can, want, and need to.	Teachers can provide focused support for learners in response to a genuine need.
Situated learning	
Mobile technologies enable **situated learning**, i.e. learning that can take place anywhere, including in situations that are relevant to learners' lives (e.g. in social, educational, or professional settings outside the classroom).	Teachers can create opportunities for and support situated learning.
Personalized learning	
Personalized learning, i.e. learning which is tailored to learners' specific interests, needs, and level, can be more relevant and interesting to them.	Teachers can more easily diagnose and support individual differences, making instruction more learner-centred and better adapted to specific needs.
Autonomy	
Learners have more tools available to them and more control over what, when, where, and how to learn. This can offer a sense of **autonomy** and insight into their progress.	Teachers can give learners more responsibility, resulting in **active learning**. Learners may even introduce teachers to the affordances of their devices. Teachers can also prepare learners for **lifelong learning**.
Social learning	
Learners have opportunities to engage in **social learning**, e.g. through joining online communities or interacting with others via digital channels. This can create a sense of belonging.	Teachers can use technology to initiate collaborative learning and create learning communities that extend beyond the classroom.
Feedback	
Learners can access their own learning data and **learning dashboards** to gain insight into their learning. They can also engage in self- and peer assessment.	Data about learning can help teachers monitor learners' progress and identify problems. Learning behaviours and outcomes can be visualized and learners can be taught how to benefit from them, e.g. through **assessment for learning**.

Table 1. Benefits of technology for learners and teachers

SUMMARY

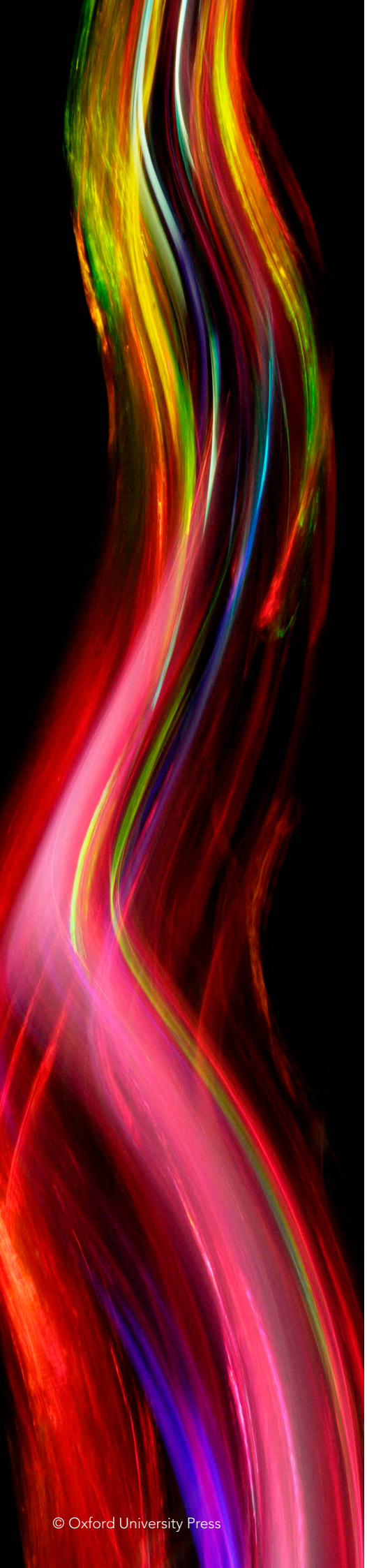
It is important to take a principled approach to selecting learning technologies. This involves asking and answering critical questions about the technology and its use in a particular context. Technology should always be used with a clear understanding of the intended learning and motivational outcomes and of the affordances that a particular use of technology can offer. When these are in alignment, it is more likely that the adoption of a particular technology will be successful in fostering and sustaining learner motivation.

Technology on its own will not motivate learners for long, but in combination with a good teacher, interesting activities, and well-designed materials, it can play a significant role in keeping them engaged.

GAVIN DUDENEY

When we first started teaching remotely, both teachers and students were finding their way and it was sometimes difficult and stressful. But as students became more proficient with the technology, it became easier for them to engage in meaningful tasks. I was able to use online games that we couldn't do in face-to-face classes. I modified homework tasks so that students could include video, images, and podcasts. I asked students to conduct their own research to find useful websites and each week the class voted on the best one. It was really important to allow students to feel a part of the learning process and to be active, not passive, participants in it. I think this really helped to motivate my students.

Ruth, Director of Studies and Teacher, ITALY



03

TECHNOLOGY FOR LIFELONG AND LIFEWIDE LEARNING

If learners do not see the relevance of learning English, they may lose motivation. When activities are connected with their lives and interests beyond the classroom, it is more likely that they will find personal meaning in their learning. In this section, we explore the different contexts in which technology can be used to support learning, both inside and outside the classroom, and how this can help to motivate learners.

LEARNING SPACES IN AND BEYOND THE CLASSROOM

Many of the benefits of technology relate to its potential to create connections with learners' lives beyond the classroom. In addition, global skills and digital literacies now play an important part in preparing learners for the workplace and an increasingly connected society. Critically consuming information, negotiating, and collaborating with others are some examples of skills that depend on, or can be enhanced by, the use of technology. If learners can see that the digital tools they are using and the learning objectives they are working towards in class are relevant to their lives, they are more likely to be motivated to develop the skills needed for **lifelong learning**.

The importance of learning spaces

A key way of making connections with learners' lives is to acknowledge and respect the many different environments that they inhabit and actively link them with the classroom. Supporting **lifewide learning** involves recognizing that learning takes place in a multitude of spaces at any given time, many of which are outside formal education.

A **learning space** is any environment that has one or more **affordances**, or potential benefits, to support learning. The term thus refers both to the place itself, whether physical or online, and to the features of that place that make learning possible, such as the resources it contains and the relationships that exist within the space.

The concept of learning spaces is powerful because it allows us to take a learner-centred approach to teaching which places learners' everyday experiences and interests at the heart of the educational process. This is of particular relevance to the use of technology and its impact on motivation, since technology is integral to so many aspects of learners' lives. By adopting the digital practices that learners engage in and the tools they use in these spaces, teachers have a clear opportunity to align their teaching with their learners' experiences, and thus to enhance motivation. The concept of learning spaces is also important because we know from research that as much as 70 to 80 per cent of adult learning, whether for professional or personal purposes, takes place outside formal education.[14] Preparing learners for this reality is therefore vital.

A wide range of learning spaces is available to learners, many of which are enabled and enhanced by the use of technology. We discuss some of them below and consider their pros and cons.

Remote learning can be either fully online or part of a blended approach which combines physical and virtual spaces, but it is under the direct control of the teacher. Nevertheless, because it occurs outside school, learners' home or work environment can influence their motivation. This influence may be positive, for instance, if a learner appreciates not having to travel to attend class. However, it may also be negative, for example, if a learner misses the physical proximity of others.

Flexible learning takes place at a time of the learner's choosing. It usually involves the use of web-based resources and/or synchronous communication tools, such as a Learning Management System (LMS) like Moodle and a meeting tool like Zoom. Flexibility can enhance learner motivation by giving learners a sense of control and supporting learning when it is convenient for them, but for less disciplined learners, it can also lead to challenges and subsequent loss of motivation.

Self-learning, **community learning**, and **peer learning** involve learners in directing their own learning, whether alone or with others. Their learning may be supported by online self-study and self-access resources and collaborative environments, such as language exchanges, but the influence that these have on learning outcomes and motivation depend largely on the ability of individuals to learn successfully through these approaches. (Ways of supporting learners in directing their own learning are explored further in Section 6.)

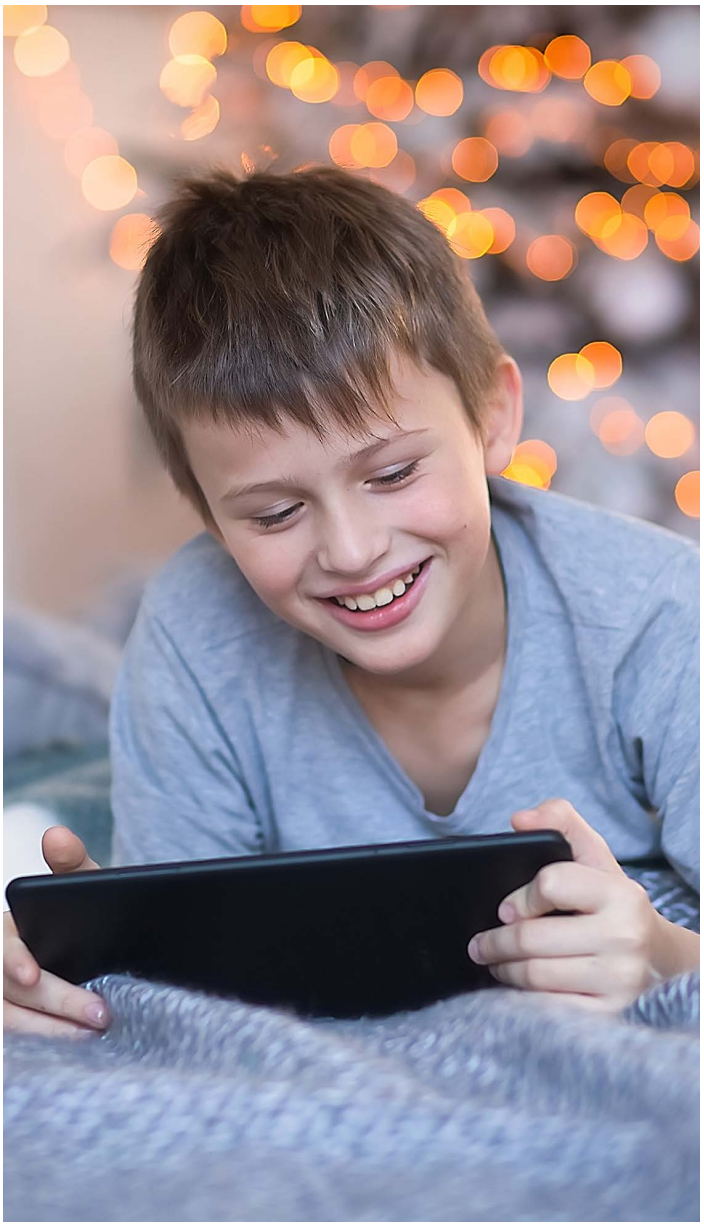
Performance support and **mentor learning** are authentic forms of learning because they occur at a time of need and in a situation that is relevant to the learner. For instance, when facing a problem with their performance (i.e. carrying out a task), learners may seek support (for example, asking a more experienced person or looking up information) to help them solve the problem. An example could be a learner using a translation app to look up an unknown word in the instructions to a computer game. Mentor learning is similar, except that it is usually more structured, takes place over a longer period of time, and typically deals with general skills development rather than solutions to specific or immediate problems. For example, in some schools, older learners are paired with younger ones and meet regularly to discuss any learning-related and social questions the younger learners may have.

Both performance support and mentor learning can be motivating in that they help learners achieve goals or solve problems that they have identified themselves. However, these approaches can also be frustrating when appropriate resources are not available or learners do not have the skills to access them.

> It is important to remember that even school-age learners spend much of their time outside school. Connecting with their personal lives through technology is therefore key to motivating them.
>
> HAYO REINDERS

Informal learning covers all forms of learning that take place outside formal education and that do not necessarily involve a deliberate intention to learn. Examples include listening to music, streaming movies, and using social media in the target language. These kinds of informal activities can be highly motivating as they relate to learners' personal interests. However, they are only likely to benefit language development if learners know how to integrate them into their learning.

Play learning refers to learning that occurs through the discovery, exploration, and experimentation involved in play. Digital games are a widespread form of entertainment in many countries[15] and their potential for motivating learners has been extensively investigated in recent years, with research indicating that they may have a significant positive impact on learners' affective experiences.[16]



INTEGRATING DIFFERENT LEARNING SPACES

In order to successfully integrate learning spaces into the educational process, it is useful to think of an individual's learning as taking place in its own ecology or environment. Broadly speaking, there are two parts to this: what happens in the classroom and what happens beyond the classroom (see Figure 1). Teachers can bring these two parts together in a number of ways and for a number of purposes. It is important to recognize, however, that many learners do not naturally have the ability to make connections between learning in class and their lives beyond. Teachers can therefore guide students to form these connections by following four steps: encouraging, preparing, supporting, and involving. This applies particularly to the use of technology because, as we saw in Section 1, many learners are unfamiliar with using it for purposes other than personal entertainment.

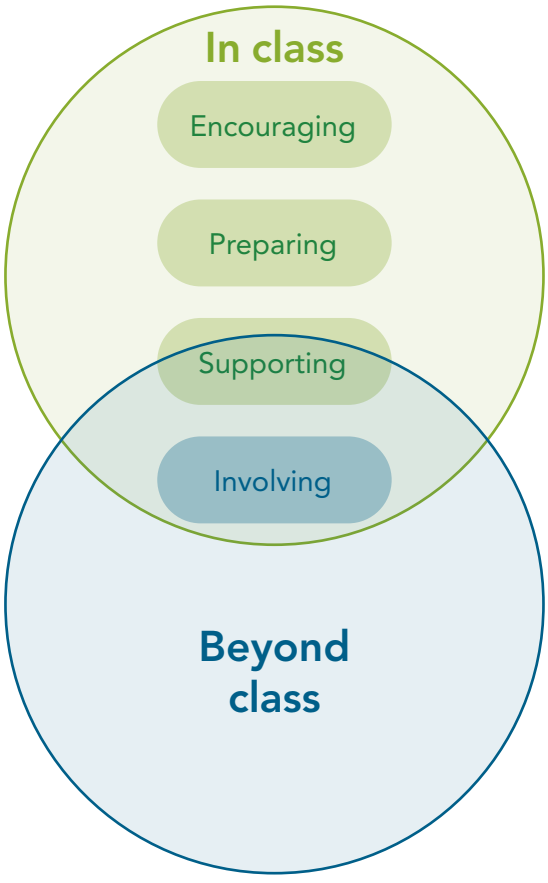


Figure 1. Learning in and beyond the classroom

1 Encouraging

The first step in integrating different learning spaces is to find out more about the learners and the different environments in which they live, work, and play. This will help them to see the potential for learning and motivation that these environments offer. A good starting point is to ask learners what technologies they currently use in their lives and for what purposes. Teachers can then discuss with the class how these technologies could be used to support language learning. With younger learners teachers could experiment with an app like Seesaw, which acts as a digital portfolio for learners to record their activities outside school. Such apps have the added advantage that they connect the classroom with the home environment, including the family, which may encourage a form of the community learning mentioned earlier.

Once information has been gathered about learners' informal use of technology outside class, it can be used to raise learners' awareness of the opportunities that these activities present for learning English. For example, if learners enjoy watching online videos, teachers can demonstrate how to turn subtitles on and off, or how to switch between subtitles in English and their language. If they are fans of a particular sport, they could search online for pictures of their favourite players, share them with the class on a photo site, and describe why they chose them. This introduces the idea that learners can engage in self- and peer learning activities and do not necessarily need a teacher's constant guidance or intervention.

2 Preparing

The second step is to prepare learners for an activity outside the classroom. For example, learners could participate in a virtual language exchange, where they find a language partner and meet online to practise each other's language.[17] It is important to note that not all communities are suitable for young learners, so teacher guidance is vital. Nevertheless, it can be highly motivating to meet with and talk to English speakers of a similar age,[18] especially for learners in a foreign language environment where English is not widely spoken.

To engage in a language exchange successfully, learners will need a range of skills which can be explicitly taught and practised in class. For example, they may find it difficult to know how to respond if they do not fully understand what their exchange partner is saying. Teaching communication strategies, such as asking for clarification, will help them feel better prepared. Similarly, they can be shown how the technology they are using to chat online can help them improve their English. For instance, they may be able to record a written log of a conversation and re-read it afterwards. Some messenger applications have built-in spellcheckers or dictionary tools that learners can use while communicating as a form of performance support. The aim is to prepare learners for success so that they are more likely to be motivated to continue with the activity.

3 Supporting

Once learners are engaging in the activity and have started to develop their skills and confidence, teachers can support them by providing more specific guidelines and instructions. Support is still firmly grounded in the classroom, in that the teacher will establish the nature of the task, how to carry it out (alone or with others, in the classroom or at home, with the use of translation tools or

> Smartphones form a bridge between the classroom and the outside world. Activities started in class may be finished elsewhere, and materials collected on phones in other locations can be exploited in class.
>
> GAVIN DUDENEY

without), and the type of output learners should produce (for example, a written summary of their language exchange conversations). In addition, the teacher needs to provide further help, if needed, and to monitor progress carefully.

4 Involving

When learners have shown they are able to carry out a supported activity, they can move on to setting their own activities. These can be based on the learners' personal preferences and, where appropriate, aligned with broader curriculum goals. Learners gain experience of learning in ways that are flexible (at times of their own choosing) and self-guided, and in so doing, they discover what they can achieve on their own. Involving learners in setting activities can also be motivating because it helps them to visualize the kinds of learning tasks that their ideal future self might engage in and work towards carrying them out.[19]

At this stage, it is advisable to offer assistance to students only if they request it. However, it is crucial that learners have the opportunity to report back on their experiences in class so that they can share what worked well and less well, and exchange ideas about how to do better next time. For example, if they found that having a synchronous conversation using the messenger tool was too hard for them, they might want to practise this more in class; if they discovered a useful learning strategy or functionality, they can share it with their classmates.

Next steps

Once learners have completed these four steps and are used to managing their own learning across multiple spaces, teachers can encourage them to become more adventurous in identifying new learning opportunities. For instance, learners could explore online communities such as fan sites, play digital games, or, in the case of older learners, join professional organizations.

EMERGING TECHNOLOGIES

Promising opportunities for connecting different learning spaces are offered by **augmented reality** and **virtual reality** technologies. Augmented reality usually involves looking through a phone camera at everyday objects and places via an app. The app recognizes what is being looked at and provides information about it. For example, it might allow users to look at a painting in a museum and access information about the artist or visitor reviews. Virtual reality technologies, meanwhile, usually involve the use of a headset and completely immerse users in a virtual world.

Learners can also be encouraged to create their own content using augmented reality technology. Bonner and Reinders[20] suggest using it to enable learners to read comments on learning materials in a self-access centre before adding comments of their own. Learners look at learning material (such as a book) through their phone camera in order to see additional information provided by their teacher or by self-access centre staff. This information might include ideas about how the book can help them reach certain goals discussed in class or suggestions for related learning activities. Learners can then post their own comments and share their experiences of using the material—for example, saying how difficult or interesting they found it, or offering tips for others on how best to use it. This kind of activity can be valuable in enhancing motivation because it gives learners a sense of ownership over what have traditionally been static and teacher-centric resources.

Other similar uses of augmented reality proposed by Bonner and Reinders include:

- getting learners to create a mobile treasure hunt, whereby one team leaves notes for another by tagging items with text, audio, or video
- asking learners to add 'layers' to online maps with points of personal interest
- adding supplementary explanations and exercises to coursebooks in order to provide extra support for learners.

What these examples have in common is that they enable learners to experience or create additional spaces to complement the formal school environment.

SUMMARY

Helping learners to connect what they are doing in class with their lives, interests, and experiences beyond the classroom can be motivating and enable them to find personal meaning in their learning. Many of the benefits of technology relate to its potential to create these connections. Skills for lifewide learning can be developed alongside those for lifelong learning, which learners will also need in their lives beyond the classroom. Teachers have an important role in helping learners to make connections between the classroom and other learning spaces. They can achieve this by encouraging, preparing, supporting, and involving learners as they go through the process of forming these connections. This needs to be done carefully and consistently so that learners develop the skills and confidence to use technology effectively in managing their own learning.

Most of my university students are anxious about speaking English. When I noticed that many of them play computer games every day, I decided to experiment with using an online role-playing game in my classes as a way to link a popular activity outside the classroom with learning English. I gave the students a set of quests (online tasks), which required them to find information, share it with others, and discuss their opinions and ideas in groups. I also told them they would have to use the international server, which is set to English. My students were enthusiastic about being allowed to play games in class and when I investigated their learning behaviours and perceptions, I found a significant reduction in their level of anxiety about speaking English, a large increase in confidence, and much more speaking and writing in English than in previous classes. This resulted in a significant increase in their motivation levels, as shown by their responses to a questionnaire before and after doing the task.

Nuttakritta, Instructor, THAILAND

04

INTEGRATING TECHNOLOGY INTO THE CURRICULUM

Realizing the benefits of technology for enhancing learner motivation involves much more than simply buying new devices or subscribing to a new learning platform. A number of factors are involved in determining whether and how technology should be integrated into the curriculum and how likely it is to impact positively on learner motivation. In this section, we explore some of the key factors to consider.

INTEGRATING TECHNOLOGY: AN EXAMPLE

Schools are highly complex organizations. For new technology to be adopted successfully, all stakeholders need to understand the different parts of the organization and how a change in one part can affect the whole. To illustrate this, we explore the issues that arise when a teacher—let's call her Meena—wants to integrate technology into the curriculum in order to motivate her students.

Meena teaches reading and writing to 12- to 14-year-olds. She finds it very hard to motivate her learners to write. Their level is low and they complain that it takes them a long time to finish even a short text. Furthermore, they do not see the value of writing in English. At an online conference for teachers, Meena is inspired by a workshop on digital storytelling. This involves creating stories that integrate text, audio, music, animations, and video and then sharing them online to encourage audience responses.[21] She thinks using multimedia will make it easier for her learners to express themselves—since they do not have to rely only on words—and to do so in more personal ways. She therefore decides to try digital storytelling with her own classes. She assigns learners to one of several teams, each of which shares a single mobile phone. Each team is asked to find photos and videos and to create audio and video recordings using Animoto or Kaltura. They will then create a digital story and upload it to the school's Learning Management System (LMS).

Initially, Meena's project is not successful. As the school Wi-Fi network cannot handle a high number of users at the same time, she has to ask learners to find materials at home. However, some parents are unhappy about this, believing that 'watching videos' is not educational. In addition, Meena's colleagues have expressed some concerns and she is asked to stop the project. To understand the difficulties Meena experienced, we can make use of a framework created by Yrjö Engeström[22] which examines the elements that make up an educational environment (see Table 2 on page 23).

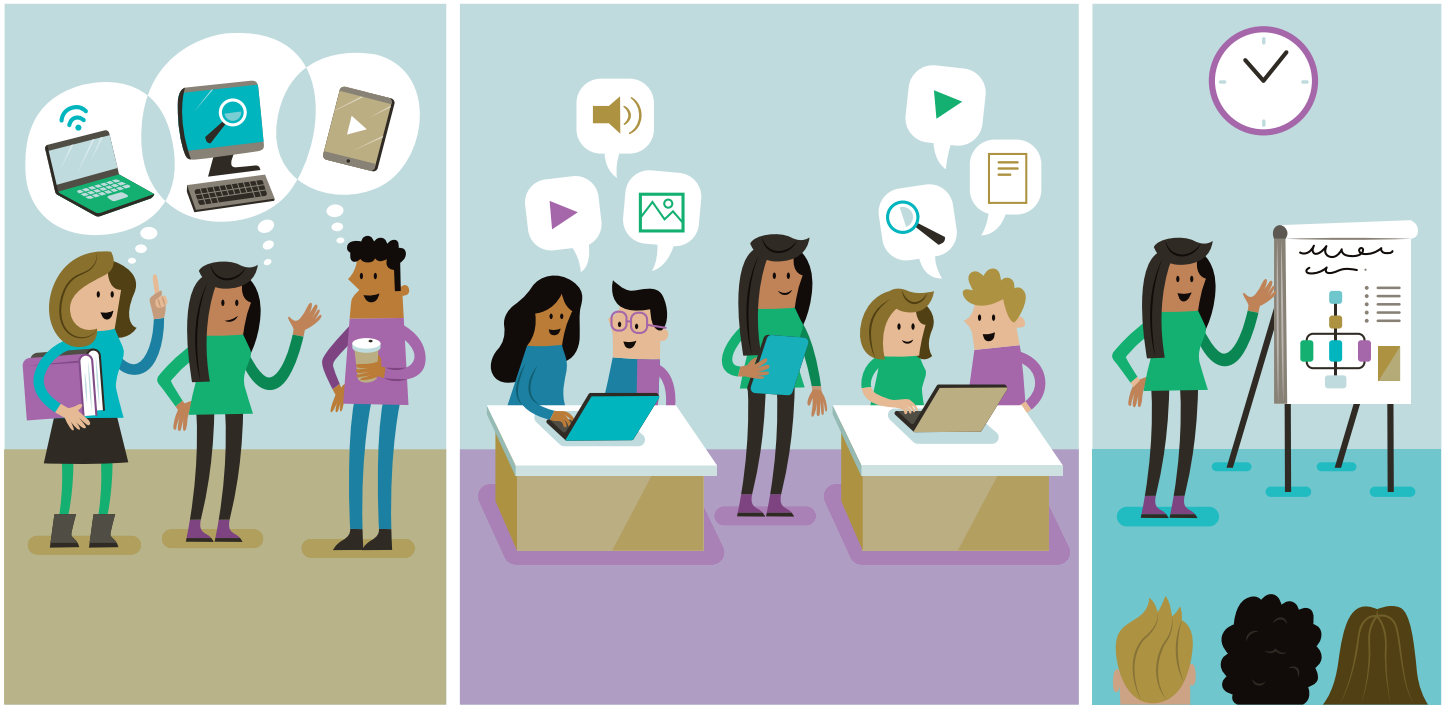
INTRODUCING CHANGE

Meena's project has a happy ending. She implements the digital storytelling project again the following term after making a number of changes to her approach. This time, she follows these steps:

1 She begins by discussing the project with her colleagues. They share some good ideas, especially about how she can encourage her learners to produce both audiovisual and written content. Two teachers offer to help.
2 Meena requests a meeting with her head of department. She presents an outline of her plans and asks for permission to investigate their feasibility. He gives her a number of suggestions for key stakeholders to contact.
3 She meets with the curriculum leader, who is excited about the project and assigns someone from her team to mentor Meena throughout its duration. The curriculum leader also reminds Meena to meet with the IT department as soon as possible.

> Teachers need to be enthusiastic about any new technology they introduce. If the teacher isn't enthusiastic, learners will think: why should I be?
>
> MARTIN LAMB

4 The head of IT provides Meena with the school's policies on the use of technology in class and offers to check any copyright issues related to publishing the digital stories on the LMS.
5 Meena gets permission to run her project as a trial in one class.
6 She sets up a project page on the staff LMS where she can post updates and invite feedback. She also emails a brief newsletter to all the teachers in her department.
7 At the end of the project, she asks the learners for feedback and presents the results to her colleagues. It is clear that the learners loved the activity: they report being more motivated to share their ideas. In addition, their writing seems to have improved.
8 It is decided that the activity will be included in next term's curriculum for all students aged 12–14 years and that a more formal investigation of its impact will be carried out.



Element	Example	Challenges
Subject The person or entity that initiates the change (e.g. a teacher, teaching team, principal, or Ministry of Education)	Meena is the sole subject in her project.	Meena quickly realizes that she faces several technical and pedagogical challenges and needs support.
Object What is to be changed	Learners' writing practices (through the introduction of digital storytelling)	Although it sounds like a promising activity, it is not clear how it relates to the curriculum or how the learners' work will be assessed.
Outcome The intended result	Increased learner motivation to write	The end-of-term test is a 500-word essay, but Meena does not include essay-writing practice in her original plans. Halfway through the term, she becomes concerned about this and asks learners to summarize their digital stories in writing in order to prepare them for the test. The learners are disappointed as they thought they could use audio and video instead. Some learners in other classes wonder why they are not doing the digital storytelling activities.
Community Different stakeholders (e.g. learners; teachers; administrators and managers; parents; future employers; educational, legal, and regulatory bodies; teachers' associations)	Meena's project operates only within her own classroom.	The director of the school is unhappy that she was not consulted. Other teachers in the school are concerned about what this change means for them and their classes.
Division of labour The roles played by different parts of the community and the activities they are expected to engage in	Meena assumes full responsibility for the work involved.	Meena does not consult or involve the curriculum leader. It is therefore unlikely that the digital storytelling activity will be included in future iterations of the curriculum.
Rules The rules that guide the way people are expected to work together (both formal educational policies and informal rules)	As she does not consult colleagues, Meena's project is initially only subject to her own rules.	Meena's project may have inadvertently broken some rules (e.g. the school's privacy, security, and copyright policies, or guidance on using mobile phones and downloading materials from the internet). Meena's head of department feels that she should have discussed the project with him to ensure it aligned with school policies.
Tools and signs The resources available within the school (e.g. classrooms, teaching materials, the Wi-Fi network)	Meena's project relies on the school's IT systems and learners' mobile phones.	There were problems using the internet in class. The IT department could have temporarily allocated more bandwidth to certain classrooms but they were not asked to do so.
Mediating artefacts Ways that the different elements of the organization are supported in working together (e.g. having regular meetings; articulating shared values; encouraging open communication; creating an atmosphere of trust)	Meena does not involve the school or her colleagues, and does not make use of the available support.	Because Meena does not share her ideas and plans, her project lacks important elements of collaboration and trust.

Table 2. Meena's project

THE BENEFITS OF AN INTEGRATED APPROACH

The process outlined above may seem time-consuming, but taking an integrated approach—that is, involving different stakeholders and taking account of the various elements of the educational environment—has a number of benefits that go beyond an individual project.

Firstly, communication leads to collaboration. As people get to know each other better, it is more likely that they will work together and that the results will align with the entire community's values and aspirations. This culture of cooperation can inspire future projects, as well as help a school to become more resilient in dealing with internal and external changes.

Secondly, an integrated approach helps to ensure that the use of technology contributes to changes in learning and teaching and is aligned with assessment practices. From a pedagogical point of view, this is what often determines whether technology will be successful in motivating learners. As in the example above, running a trial with one class may show that the use of a particular technology needs to correspond more closely to the way students will be assessed. This may lead to a useful discussion about what the school feels needs to be tested and how.

Thirdly, this approach emphasizes the experiences of learners as key stakeholders and allows their voices to be heard. This can be highly motivating for them and, over time, they may expect to be able to share their ideas and preferences throughout the curriculum. However, giving learners more responsibility is only likely to be successful if the various communities within the school are supportive and recognize the possible implications of doing so. They need to recognize that it may change the division of labour or require certain rules to be reconsidered, for example with regard to allowing learners to use devices in the classroom.

> Through their enthusiasm and their commitment to using technology for learning, teachers can have a powerful and positive influence on the community in which they work.
>
> HAYO REINDERS

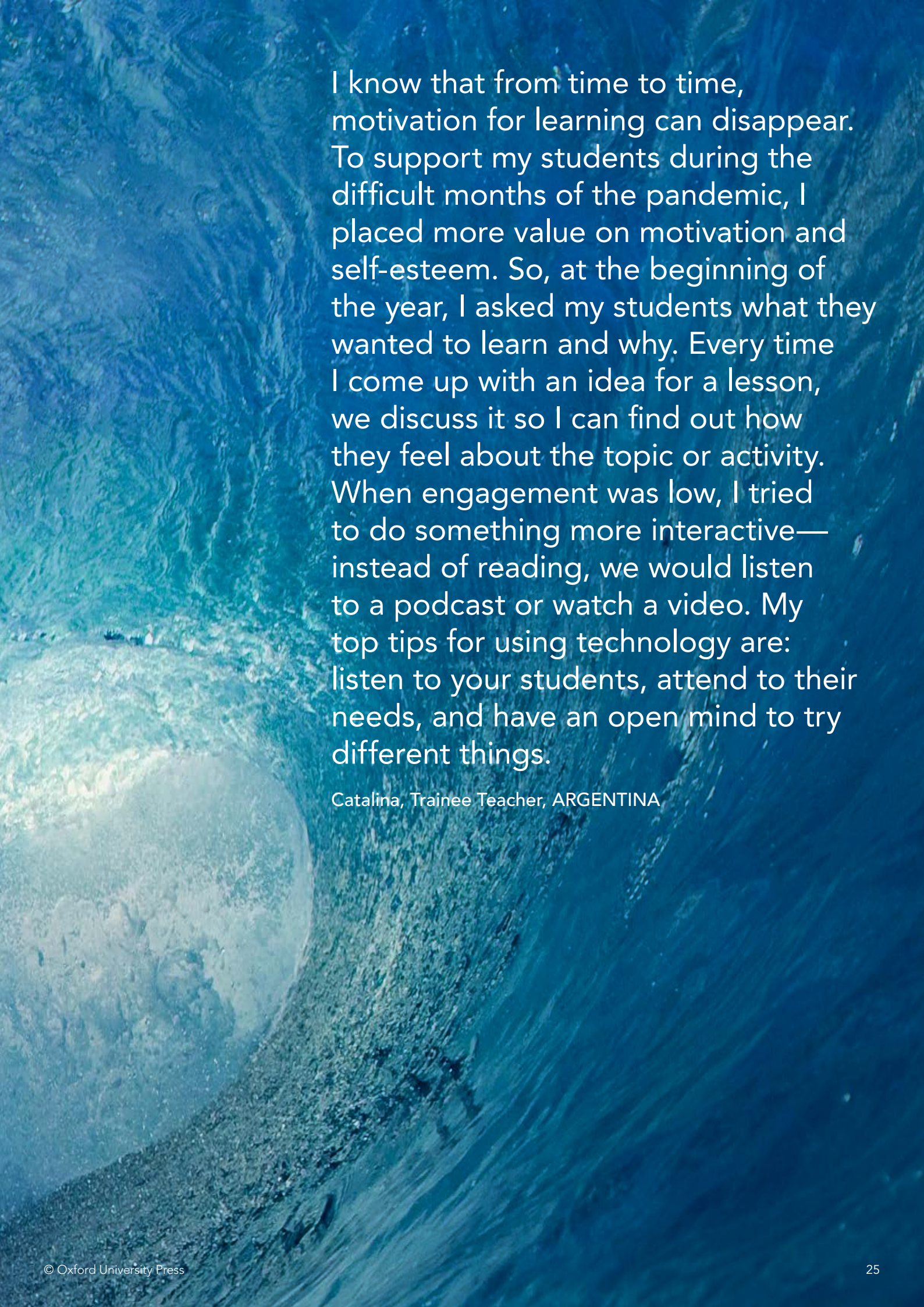
PROMOTING AN INTEGRATED APPROACH

Teachers have a major opportunity to help embed an integrated approach to introducing innovation in their school. As well as having the pedagogical ideas which initiate these discussions, they can create **professional learning networks** both within and outside school in order to encourage the exchange of ideas and advocate for experimentation and change. By bringing different stakeholders and resources together in this way, teachers can help to ensure that new ideas are carefully implemented and therefore more likely to be successful.

In addition, educational leaders can create an atmosphere of trust, where teachers are encouraged to experiment and are supported in doing so, where 'failure' is seen as a learning opportunity, and where there is a conscious and continuous process of reflection and innovation. They can also ensure that organizations are structured in a way that promotes and supports communication between their different communities. This is not easy, but it is necessary, and it has the benefit of improving learner motivation in the long term and boosting teachers' sense of agency and satisfaction in their work.

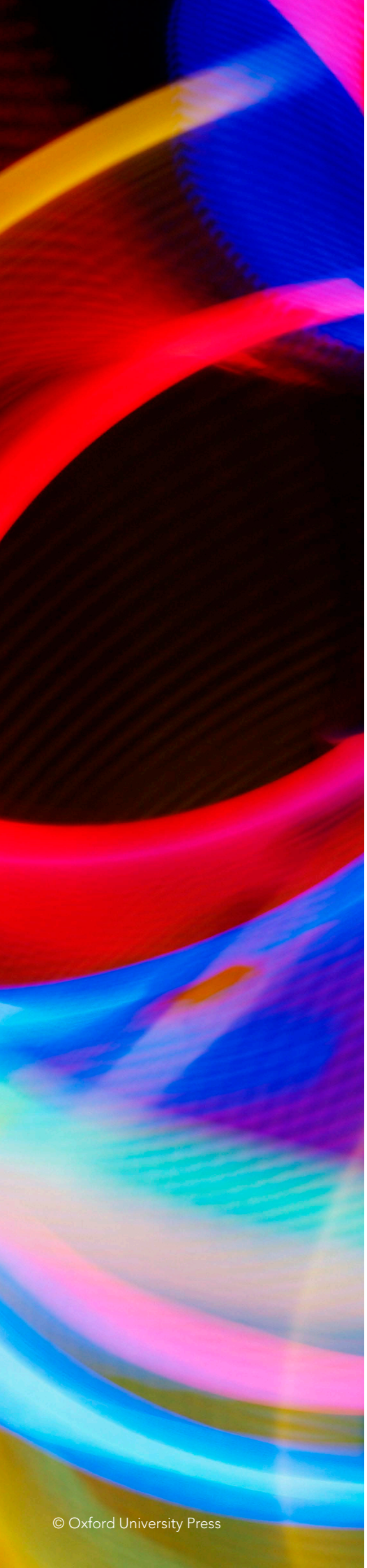
SUMMARY

Technology can have a major—even transformative—effect on learners' and teachers' motivation, but only if its adoption, adaptation, and integration are carefully considered within the larger educational context. Communication among the different parts of the educational community is essential for success. For technology to reach its full potential for motivating learners, it needs to be implemented in such a way that it does not merely replicate existing ways of learning and teaching but is allowed to transform the educational system within which it is used. Teachers can play a key role in influencing this integrated approach to implementing technology, starting from their awareness of their own educational context. The process may not be quick or easy but it is necessary if change is to be sustainable.



I know that from time to time, motivation for learning can disappear. To support my students during the difficult months of the pandemic, I placed more value on motivation and self-esteem. So, at the beginning of the year, I asked my students what they wanted to learn and why. Every time I come up with an idea for a lesson, we discuss it so I can find out how they feel about the topic or activity. When engagement was low, I tried to do something more interactive—instead of reading, we would listen to a podcast or watch a video. My top tips for using technology are: listen to your students, attend to their needs, and have an open mind to try different things.

Catalina, Trainee Teacher, ARGENTINA



05

INTEGRATING TECHNOLOGY INTO CLASSROOM PRACTICE

Research indicates that three psychological needs play an important role in fostering learner motivation and wellbeing:[23]

- **autonomy**, or feeling in charge of one's environment; being able to act in accordance with one's values and personal goals
- **relatedness**, or feeling connected to others
- **competence**, or feeling capable and effective.

In this section, we explore ways in which technology can be integrated into classroom practice to meet these needs. We also consider ways of developing, choosing, and using technology-based tasks to enhance learner motivation.

MEETING LEARNERS' PSYCHOLOGICAL NEEDS

A useful tool for thinking about how to use technology to meet the psychological needs of autonomy, relatedness, and competence is the Motivation, Engagement and Thriving in User Experience (METUX) model proposed by Peters et al.[24] Following this model, we suggest five questions that teachers can ask themselves when designing or choosing tasks in order to ensure that they meet these important psychological needs.

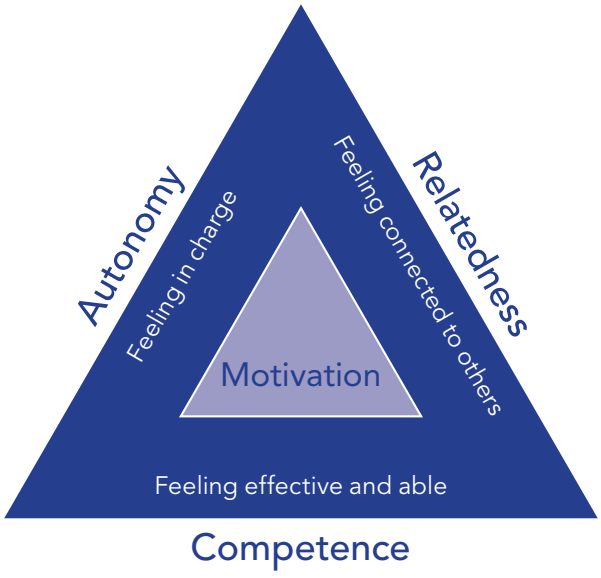


Figure 2. Autonomy, relatedness, and competence

1 Does the technology align with the goals of teachers and learners?

Teachers are more likely to realize the **affordances** of a technology when they can see its value and when it matches their own aspirations. This is one reason why the top-down imposition of technology solutions—for example, those mandated by ministries of education—often does not work: it removes teachers' sense of agency and offers no guarantee that the technology will help them achieve their own specific goals. Similarly, requiring learners to use technology which does not match their goals, or which they dislike, is unlikely to increase their motivation.

2 Is the technology easy to use?

Usability is the extent to which a technology enables users to efficiently achieve the outcomes they seek. One way for teachers to test usability is to work collaboratively to try out a technology. This may also help to increase their own sense of competence. For instance, a group of teachers might be considering adopting a digital portfolio to encourage learners to reflect on and take ownership of their learning, i.e. to foster autonomy. The teachers could explore the usability of a particular website by first using it themselves for a period of time to record observations about their own teaching activities. To guide their investigation, they could formulate some specific questions, such as:

- Was the website easy to navigate?
- Was it easy to search through previous entries?
- How did the site allow sharing of questions or insights with others?

Another option would be to trial it with a small group of learners and carefully monitor how they use it, what problems they face, and how they solve them, either individually or together. In this way, teachers can gain insight into the skills learners need in order to use the technology successfully and how best to prepare them for its introduction in class.

Teachers can also help learners use technology more effectively and increase their sense of competence by providing:

- additional instructions
- a list of frequently asked questions
- short video demonstrations
- a forum in which learners can ask questions of the teacher and other learners.

3 How is the technology used to create and support learning activities?

Technology enables a wide range of learning activities, including many that are difficult or even impossible to replicate without the use of technology. Examples include the use of digital games (see Section 3), augmented reality or virtual reality (see Section 4), and the various online platforms that enable authentic communication with the wider world. However, these activities are only likely to be motivating in the long term if they are implemented in ways that align with learners' interests and needs and give them a sense of control (or agency) over the learning experience.

4 What learning behaviours do the learning activities aim to improve?

Although the activities that a technology enables may be interesting or fun, they are only likely to support language learning if they promote learning behaviours which are relevant to learners' interests and appropriate to their developmental level, and thus increase their competence. For example, many learners enjoy playing digital games, but doing so is unlikely to improve their communication skills unless they are shown how to use relevant writing and speaking strategies and are given instructions on how to communicate with other players.

Similarly, if an online forum discussion is to lead to collaborative, communicative learning behaviours, the learners need to have a sense of relatedness with each other and feel a genuine need or desire to communicate. One way to achieve this is through an information or opinion gap activity, in which each learner or group of learners is given different information which they have to share through their forum posts. For example, they could watch different videos, read different texts, or prepare different arguments for and against a proposal before participating in the forum discussion and exchanging information with other groups.

5 Does the technology integrate with learners' lives?

The use of technology is most successful when it connects with learners' experiences beyond the classroom.[25] For example, asking learners to make physical flashcards to memorize vocabulary may be helpful. However, it is more likely to fit into learners' everyday use of technology to ask them to use their mobile phones outside the classroom to take photos of objects for which they do not know the English vocabulary. The photos could be discussed in class and uploaded to a shared class gallery. The images can then be used in class as a basis for comparing different learners' experiences. They can be asked questions such as 'Where did you take this

picture?', 'What was happening at the time?', and 'How did you feel about it?'. Learners can also make audio or video recordings, or use apps like Google Lens.

Another way of integrating technology with learners' lives is to engage them in extensive listening through audiobooks or audio hosted on platforms such as YouTube. Although many learners may struggle with reading a book, they may be more likely to adopt activities that they can easily incorporate into their daily routines, for example, when walking to school.

Extensive reading can be used to make links with learners' lives, especially if it involves digital storytelling formats, such as fan fiction, anime, and manga. These kinds of texts can be made more interactive with social reading tools like Annotator or Genius, which let users annotate texts or add reviews. The aim is to remove as many as possible of the barriers—perceived or real—that stand between education and everyday life.

TASKS AND TASK DEVELOPMENT

In order for technology-related classroom tasks to be effective in motivating learners, it is important to consider the way they are developed and integrated with technology. Here, we consider what teachers can do before, during, and after a task is carried out in the classroom in order to maximize its motivational impact.[26]

Before the task

Explain the rationale

It has been shown that if learners understand the rationale behind a task, they are much more likely to be motivated by the task itself and by the technology used to deliver it.[27] For example, many learners initially report that they do not enjoy writing an online learning journal, but they are more likely to become motivated to do it when teachers explain the benefits of the activity (such as getting feedback) and show them how to use the technology appropriately. Investing time at this stage also helps teachers to meet learners' need for relatedness (by showing they care about the learners' experience) and autonomy (by explaining a task and listening to the learners' views).

Prepare learners for success

Explaining how to carry out a new task or reminding learners how to approach one they have done before can help increase their sense of competence and expectation of success. Technology can help by enabling learners to create an easily retrieved record of their previous performance for comparison.

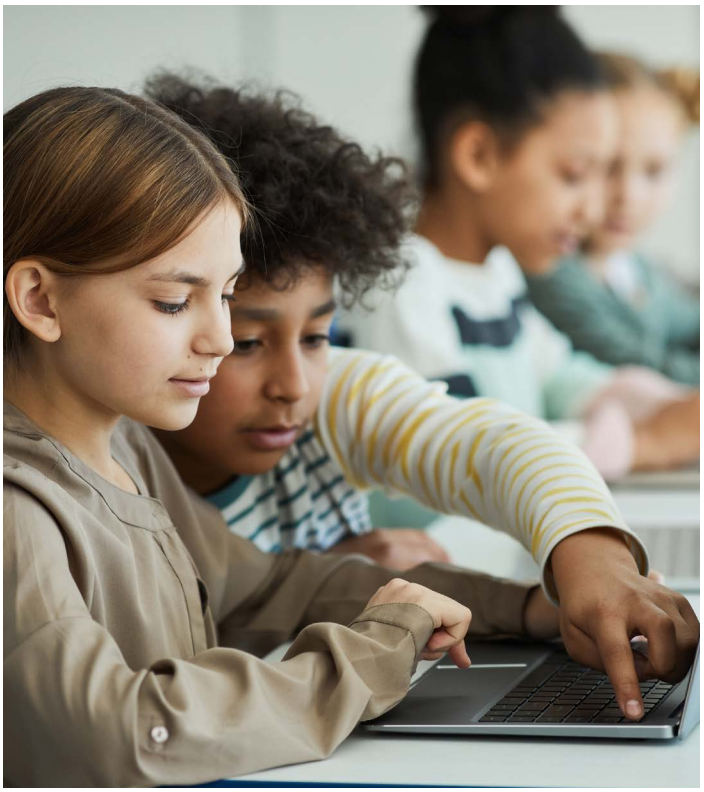
Help learners visualize their progress

Classroom management apps like Seesaw, Kahoot!, and ClassDojo allow teachers and learners to view progress in different areas, including in positive classroom behaviours which promote relatedness (such as helping others or being courageous in speaking out). **Learning dashboards** are another way to help learners visualize their progress and instil a sense of achievement. Peer feedback can also be helpful. For example, classmates could share a draft essay or a video recording of a presentation via an online platform and then give each other feedback.

During the task

Set appropriate goals

With any learning activity, setting goals that are clear, relevant, and appropriate to learners' level of proficiency and confidence is key. When tasks involve technology, this becomes even more important because many apps and websites offer access to potentially unlimited information, pathways, and sources of distraction. For example, if learners are asked to investigate a topic online in preparation for a group presentation, they may end up browsing websites aimlessly, which can be frustrating and demotivating. It is better to give them a limited number of websites to choose from and specific instructions on the types of information to look for. To check progress and ensure everyone is on track, teachers could ask learners to submit a list of three websites they have used as sources or summarize their findings in an email.



Give learners choices

Even simple choices—whether over topic, product, or process—can give learners a sense of autonomy. For example, learners may be asked to create a short animated instructional video but allowed to choose the topic, i.e. what the instructions are for (for example, how to play Minecraft, or how to take a penalty in football). Alternatively, they could be given a topic (such as welcoming new students to their school) but allowed to decide on the format (a video, song, or webpage). They could also be granted freedom over the process and allowed to specify roles (such as who will do what in producing a text or video), or decide whether to work individually, in pairs, or in groups. Even when the syllabus or teaching materials are prescribed, it is usually possible to introduce a degree of flexibility.

Maintain learners' attention

Keeping learners actively engaged in a task involves removing potential distractions. Mobile phones, even more than laptops and tablets, can easily cause learners to be drawn into other activities such as social media. One solution is to compartmentalize the task where possible. For example, learners may not need to use their phones while brainstorming ideas for a collaborative writing activity but may find them useful when looking for sample texts. It is therefore helpful to provide clear instructions on what features of a technology are to be used and when—for instance, ensuring notifications are turned off during the lesson. It is important to check in advance that everything is working, as few things cause more disruption than failing technology: while the teacher is busy trying to get the Wi-Fi network going, learners will be turning their attention elsewhere. Teachers can also make sure they have something for the rest of the class to do while they help individuals, and can encourage learners to help each other.

Monitor levels of engagement

Task **engagement** is the practical manifestation of motivation in one or more of the following ways:[28]

- behaviourally
  Are learners actively participating? For example, teachers can look out for spoken contributions to group work as a sign of engagement or, in an online environment, they can observe who types chat messages or adds forum posts.
- cognitively
  Are learners concentrating and putting in real effort? This can be hard to observe, but there are certain signs that may indicate that learners are 'busy'—i.e. behaviourally engaged—but not cognitively involved. These include learners asking off-topic questions, not being able to respond to questions, and producing superficial work.
- socially
  Do learners feel they belong in the class and share a sense of community? Social engagement has been found to be an important predictor of learning success,[29] and classrooms are organic, social environments that thrive on genuine interaction. Learners are more likely to develop a shared sense of relatedness when they are given a voice and opportunities to engage in activities that help them get to know each other better. Ways of fostering social engagement might include the use of digital storytelling, asking learners to keep a learning diary, or reducing teacher talking time and encouraging more learner-to-learner interaction. Technology can play a key role in supporting group work which promotes learner interaction—for example, through collaborative writing tools, **wikis**, and social media.
- affectively
  Do learners experience positive emotions that lead them to being personally involved? Affective factors play a major role in language learning success, whether they involve negative emotions (such as anxiety or boredom) or positive ones (such as curiosity or excitement). The way tasks are designed, in turn, influences the affective response that they create. For example, is there a time limit? Will the activity be assessed? Will it be done in public or in private? By adjusting these and other parameters, teachers can influence the way that tasks engage learners emotionally. [30]

Provide opportunities for repeated practice

Ideally, the task will be carried out multiple times—at increasing levels of difficulty, in different contexts, with different topics, and using different modalities. This will challenge learners and provide further opportunities for learning.

Some apps have a great deal of built-in adaptive repetition—that is, they present learners with easier items if they offer an incorrect response or more difficult items if they offer the correct one. Such technology can offer some benefits: it may improve the short-term memorization of new vocabulary, for instance, and even lead to short-term motivation through the use of leader boards, stickers, or other forms of gamification. However, it can also lead to superficial, unproductive practice in the limited, controlled environment of the app and should therefore be used with care.

More powerful learning occurs when learners are encouraged to find their own opportunities for practice and are shown how to go about it—they could look for examples of language they know on websites or in movie dialogues, or find ways to use the language in their daily lives. Teachers and students can also think about incorporating activities using technology into the coursebook syllabus for added motivation and engagement and in ways that are appropriate for their own teaching and learning contexts. See Appendix 2 for an example of how this might be achieved. Teachers can decide at what stage of the lesson to do a task using technology, according to needs and preferences.

Promote good language learning habits

Whereas motivation inspires learners in their goal of learning a language and engagement actively involves them in a task, good learning habits ensure that their efforts are not hampered by factors such as anxiety or lack of enthusiasm. Ways of promoting these habits and sustaining learning in the long term include:

- setting aside time in class for certain activities. (For example, using the last few minutes of class to allow learners to update their learning diary may help to establish it as a routine activity.)
- using online tools such as shared calendars and apps which offer planning and reminder functions
- introducing learning contracts
- implementing tandem learning, where two or more learners share their experiences. (This social form of learning can foster peer accountability and a sense of relatedness, which has been shown to be particularly helpful in shaping positive learning behaviours in and beyond the classroom.)[31]

After the task

Build on the task through follow-up activities

Follow-up activities play an important role in sustaining motivation and transferring it from one context to another. For example, after using songs in the classroom, teachers can encourage learners to share the lyrics they were able to understand and/or had some particular importance to them. They can discuss them in class and perhaps even contribute their own lyrics to one of the many open-source websites that publish them. The key is that learners feel their interests and experiences are validated and that what they do outside the classroom is built on in class.

MANAGING THE RISKS OF TECHNOLOGY

It is important to recognize that the use of technology can also have a negative impact on learners. Among the most widely reported issues are those of cyberbullying and trolling, which are made easy by the anonymity, immediacy, and ubiquity of social media. There is also a risk that asking learners to publish their work in forums where it is open to public scrutiny can heighten anxiety, even if it is only visible to their classmates, for example, via a class Learning Management System (LMS). Furthermore, learners' unequal access to technology outside school can become a source of shame.

Teachers can mitigate these risks in a number of ways. They can include explicit learner training in communicating online effectively; giving constructive feedback; responding to feedback; and dealing with unacceptable behaviour. They also need to be sensitive to learners' reluctance to share personal information online and mindful of differences in learners' access to technology. These areas can all be a useful starting point for discussion with colleagues so that learners receive a consistent message and equal support.

SUMMARY

Whether the use of technology is likely to lead to learner motivation is determined largely by the choices made when it is integrated into classroom practice. In particular, tasks can be designed and integrated into classroom learning in ways that maximize the potential benefits, or affordances, of technology. A starting point for choosing both technologies and tasks is to focus on how best to meet the three key psychological needs of autonomy, relatedness, and competence. It is important that the technology aligns with teaching and learning goals, is easy to use, helps learners develop appropriate learning behaviours, and is integrated with their lives. The development and implementation of technology-related tasks requires careful planning and management in order to enhance motivation. This includes explaining the rationale for the task, preparing learners for success, setting appropriate goals, giving learners choices, monitoring their levels of engagement, and providing opportunities for repeated practice.

If a learner can be motivated to use an L2 app or website outside class, it could substantially increase the amount of exposure they get to the language.

MARTIN LAMB

The most challenging part of online learning was to keep up the motivation and engagement of my young learners. Whenever engagement was low, I used sight and sound to regain their attention. For example, I might use a video, animation, or soft toy and relate it to the topic of the lesson or the learning objective. When engagement was high, I used speaking, reading aloud, or chanting activities. Another activity that motivated my students was making their own videos using the target language. They would post the videos on a closed site online for their parents and other students to see. That was a great success!

Kelvin, Primary EFL Teacher, THAILAND

06

SUPPORTING TEACHERS AND LEARNERS

Successful, motivating use of technology depends on teachers and learners knowing how to realize its **affordances**. This requires an awareness of the potential benefits of using technology, as well as the risks and how to avoid them. This section begins by describing some roles that teachers can adopt when using technology to motivate their learners, and ways in which they can develop the skills they need. It then examines how learners can be encouraged and supported as they become more proficient in using technology to sustain their motivation for language learning.

TEACHER ROLES

The International Society for Technology in Education (ISTE) has developed a set of standards that recognizes seven roles for teachers using technology: teacher as learner, leader, citizen, collaborator, designer, facilitator, and analyst.[32] These roles can be used as a starting point for considering how language teachers can develop and exercise the necessary skills and competences to enhance learner motivation through the use of technology. We describe these roles and suggest ways that teachers can find or create opportunities to fulfil them.

1 Teacher-as-learner

It is important for teachers to learn to recognize the affordances of technology and experiment with its implementation in their own classroom practice. Since using technology may impact on the wider curriculum and the whole organization, teachers also need knowledge about this broader context and how to operate within it.

Joining a **community of practice** or a **professional learning network** is a powerful way for teachers to learn from each other's experiences, develop new skills together, and benefit from mutual support. It also enables teachers to discuss and understand how making changes in one area can have implications for another—for example, how moving from paper-based to online assessment might affect the way that test scores are collated and reported. Perhaps most importantly, it allows teachers to recognize and work towards shared goals, and develop a stronger sense of community, which is a hallmark of resilient schools that handle external pressures successfully.

Managers can help teachers fulfil this role by setting clear expectations for continuous learning and offering appropriate support. They may do this at the individual level, for example, by including professional learning as part of a teacher's annual performance goals. They can also make their institution a 'learning organization' by creating a culture in which continuous learning is actively pursued and rewarded.

2 Teacher-as-leader

Language teacher leadership refers to the ability to positively influence one's educational environment[33] and is vital for ensuring that the opportunities offered by technology are disseminated across an organization. Teachers exercise leadership when they empower and support learners to use technology to enhance motivation and when they help their colleagues learn about its benefits and drawbacks.

Teachers can demonstrate leadership to their learners by modelling technology-mediated language learning practices in class. They can play a broader role across the organization by participating in staff development events and sharing best practice, relevant research, reviews of new technologies, or interesting new tools. They can join or establish professional communities or organizations and introduce new ideas into the school. They can also have a powerful influence on the attitudes of other teachers by sharing positive experiences and mentoring less experienced or less confident colleagues.

3 Teacher-as-citizen

Teachers have an important role in inspiring students and colleagues to contribute to and participate responsibly in the digital world, in safe, ethical, and legal ways. They can fulfil this role by advocating for equitable access to technology, and by calling for the adoption or development of standards for pedagogy, ethics, privacy, and security. They can also watch out for—and, where necessary, report—technology practices that create or reinforce bias, or have other undesirable outcomes. Finally, they can remind their colleagues of the community's values and ensure that they are reflected in the way technology is used.

> Investing in learners' ability to use technology will have a major impact on their lifelong and lifewide language learning.
>
> HAYO REINDERS

4 Teacher-as-collaborator

In order to use technology successfully to motivate learners, teachers need to be able to collaborate with a range of people, including other teachers, curriculum designers, materials developers, administrators, and support staff. Teachers can fulfil this role by inviting stakeholders to join team meetings, asking for feedback on new projects, and involving different people in piloting them. They can also ask to visit other teams or join relevant groups in their organization, such as the curriculum development committee or the IT support team.

5 Teacher-as-designer

Enhancing learner motivation involves more than simply adopting the technology that is provided in a school. Teachers also need to be able to design authentic, learner-driven activities and environments which make use of that technology. Fulfilling this role starts with a willingness to experiment. Teachers can learn the practical skills required informally, working alone or in groups, or formally, by attending courses on designing CALL materials.

6 Teacher-as-facilitator

In this role, teachers need to foster a culture that encourages flexibility, creativity, and collaboration through the use of technology. To promote **autonomy** in their learners and help them develop the necessary skills for managing their own learning, teachers need to be willing to move away from an exclusively directive role and towards a more facilitative, learner-centred one. This involves giving learners increasing freedom to make their own choices about what technologies to use and how to use them to enhance their own motivation.

7 Teacher-as-analyst

Using learning analytics can help teachers to understand the impact of their teaching practices on learner motivation. Such tools are powerful in that they can give teachers access to information which may previously have been unavailable to them and which can inform their teaching. The data can also be shared with learners, as their readiness grows, to help them make decisions about their learning.

SUPPORT FOR LEARNERS

When teachers develop the skills and competences set out above and model appropriate use of technology for their students, this can make learners more aware of the ways they can use technology to support their own learning. However, as we have seen, learners often do not have the skills to do this effectively. Teachers therefore need to provide some form of induction and ongoing support. This applies to learners' use of technology not only in class but also, crucially, beyond the classroom, in **learning spaces** that are not under the direct observation or guidance of teachers, and where learners need to direct their own learning and generate and sustain their own motivation.[34]

Reinders[35] has identified eight key skills which learners need in order to be able to manage their own learning. These are shown in Figure 3. The skills are presented in the form of an iterative cycle to indicate that they represent a dynamic and continuous process which begins with identifying learning needs. The example which follows illustrates each of these skills and how their development was supported in the context of a classroom-based **augmented reality** activity carried out with university students.

Figure 3. Skills to support student learning

An example: Developing a mobile campus tour

This activity was carried out in Thailand[36] with first-year university students who were taking a compulsory credit-bearing English language course. Many of the students demonstrated low levels of motivation, especially as they saw few opportunities for using English in their daily lives. To remedy this, a project was set up in which learners were given the task of creating an augmented reality campus tour for future visitors, such as guest lecturers, visiting professors, and conference attendees.

The tour would enable visitors to point their mobile phone camera at different buildings and facilities as they walked around the campus and access information about opening times, key contacts, and places of interest.[37] The university agreed that if the tour was of sufficient quality, it would be made available for download on its website. This immediately raised learners' interest as they now felt there was a practical purpose in using English.

1 Identifying learning needs

The students were invited to consider the language, technical, and collaborative skills they would need to be able to create a good product. For instance, they quickly identified the importance of writing clear, accurate directions to guide visitors to different facilities.

2 Setting goals

Next, the students were taught about setting SMART (specific, measurable, achievable, relevant, and time-bound) goals. They had initially come up with general goals, such as 'improving my English' or 'writing better', and this helped them to set more specific goals, such as 'writing clear instructions'.

3 Planning learning

Students were shown examples of learning plans created by successful learners. These plans included information about language skills they wanted to prioritize in the coming weeks—for example, working on descriptive vocabulary. They then created their own plans and shared them via a project **wiki** page on the university's Learning Management System (LMS).

4 Selecting resources

The students brainstormed appropriate resources that they could use to develop their writing skills, such as spellcheckers and example directions from Google Maps. They also realized that the end users themselves were a valuable resource and it was decided that one group would interview some current visitors to find out what facilities they had had difficulty locating, while another group focused on writing the directions.

5 Selecting strategies

The students recognized the need for communication strategies they could use when approaching strangers—for example, strategies for starting and ending conversations or asking for restatements and clarifications.

6 Practice

The communication strategies that the students had identified were practised in class with the help of the teacher until they felt comfortable using them.

7 Monitoring progress

Throughout the process, the students were asked to check their progress, both as a group and individually, and to identify areas for improvement. They used peer feedback and self-assessment sheets to record the language skills they wanted to prioritize, such as academic vocabulary and pronunciation. They also monitored their progress by trialling the tour themselves.

8 Assessment and revision

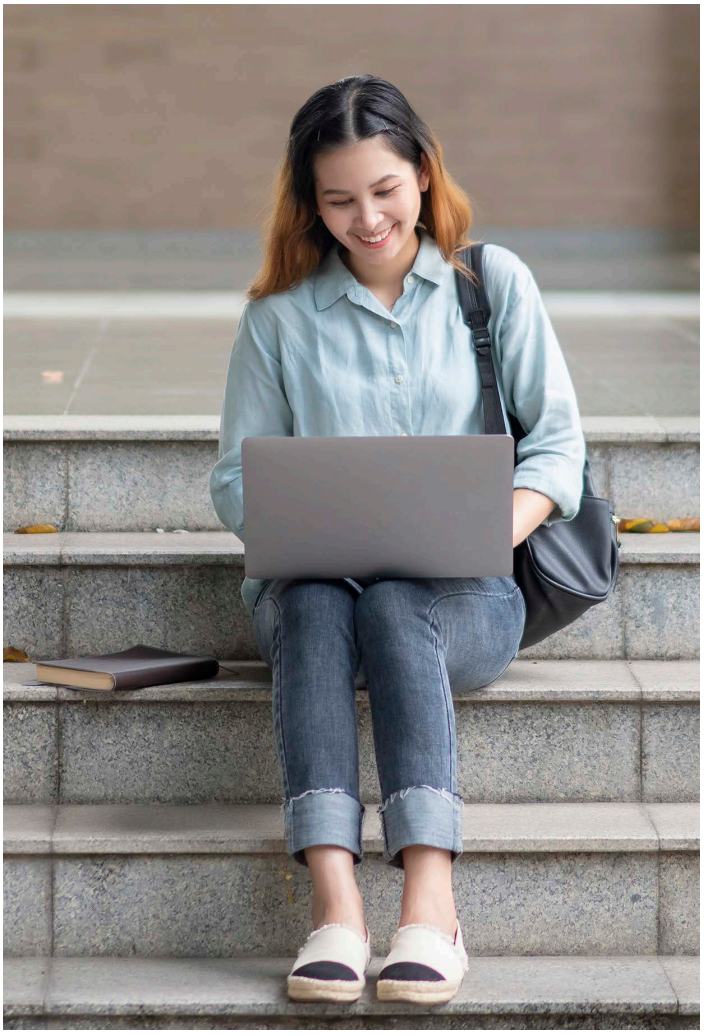
At the end of the project, the students discussed how it should be evaluated and how this might relate to their grade for the course. They suggested that the ultimate success criterion was that visitors found the tour helpful and easy to understand. They therefore decided to include a brief electronic satisfaction questionnaire in the tour. The questionnaire could also be used to help students review their learning needs and improve their skills, thus starting a new cycle of the self-directed learning process.

Throughout this project, the students participated actively and collaborated closely with each other. When surveyed, they showed high levels of motivation and reported significant personal investment in developing a product that would represent them and their university in the best light.

The activity thus met the psychological needs of autonomy, relatedness, and **competence** which are associated with learner motivation (see Section 5). The learners were able to gain autonomy through making some of their own decisions about how to learn and the resulting product, in this case the tour. The task addressed relatedness by requiring learners to work together towards a shared goal and by connecting the classroom with the wider environment—in this case, the university campus. The activity also fostered a sense of competence by encouraging, preparing, supporting, and involving learners in their learning beyond the classroom and by helping them to gain the skills and confidence to direct their own learning.

SUMMARY

Support for teachers and learners is at the heart of realizing the potential benefits of technology for motivation and learning. It is important for teachers to develop the skills and confidence to fulfil the roles that will help them to implement technology effectively in their teaching. Meanwhile, learners need opportunities for learning that are continuous and collaborative, that are driven by their needs and interests, and that give them the tools to assume greater responsibility for their own learning. In this sense, teachers and learners are on a similar journey of discovery.



CONCLUSIONS

Technology plays an important role in language education and one that is set to increase in coming years. Despite its many benefits, a number of significant issues may prevent its full potential from being realized. One of the primary challenges reported by teachers is how to integrate technology in such a way that it leads to long-term learner motivation.

It is now recognized that successful use of technology requires careful consideration of its affordances, or potential benefits, in a particular situation. Teachers can first determine through a series of reflective questions whether a technology-based solution is the most appropriate, and if so, what particular benefits they would like to achieve. This will help to support more effective uses of technology for both teachers and learners.

The adoption and possible adaptation of technology by teachers also requires an understanding of the educational context. This means considering the pedagogical characteristics, including the spaces in which learning and teaching take place, both in and beyond the classroom, and learners' prior experiences and preferences. It also includes understanding organizational characteristics, including management, technical, and practical processes, in relation to the ways in which technology is integrated and supported.

Individual tasks can then be designed to carefully prepare learners for the use of technology, provide structured support during task completion, and feedback and assistance afterwards. The purpose of this is to enable learners to transfer their skills to other language learning environments and, through a gradual process of encouragement and support, to develop the ability and the confidence to use technology to support lifelong and lifewide learning.

A major factor in the successful use of technology is the quality of the available opportunities for teacher and learner development, as well as the ways in which the organization provides ongoing support.

At its best, technology can empower learners by creating opportunities for language learning across and throughout their lives. It can inspire and enable teachers to support learning in new and powerful ways. By drawing on the best practices identified in this paper, technology can have a lasting impact on learner motivation.

KEY MESSAGES

- Technology can have a significant impact on motivation by increasing learners' sense of autonomy, relatedness, and competence.
- Technology can support learning in a wide range of both formal and informal learning spaces.
- Successful implementation of technology is always context-specific and requires integration into the curriculum and classroom practice.
- The effective use of technology requires careful preparation and appropriate support for both teachers and learners.

APPENDIX 1:
MATCHING TECHNOLOGY USE TO LEARNING GOALS

Below are three examples which illustrate how the checklist presented in Section 2 (page 10) could be used by institutions and teachers in different contexts to evaluate the effectiveness of a particular technology for their purposes.

EXAMPLE 1: USING CLASSDOJO WITH YOUNG LEARNERS TO ENCOURAGE ACTIVE LEARNING

Why use the technology?
ClassDojo allows teachers to award badges and rewards to their students. The app can be used to encourage students to talk about their achievements with their parents.

Who is the technology best for?
It is most suitable for learners aged between 5 and 9 years, since they seem to benefit from conversations with their parents about their learning.

What is the technology best used for?
The badges and other rewards can be awarded to students when they work well together or help each other. This information is recorded and can be shared with other teachers and with parents, who can add their own comments.

Where should the technology be used?
Teachers use it to monitor learning in class. Parents can also access this information at home.

When should the technology be used?
It is best to introduce it at the start of the school year so that learners and their parents can get used to it.

How should the technology be used?
Our curriculum places great emphasis on developing a growth mindset because we want to encourage learners to be active, to help others and to learn that their own actions affect their learning outcomes. We can acknowledge behaviours that we want to encourage by giving the learner a sticker (for example, awarding a sticker for 'persistence' when a learner perseveres with a challenging task).

A record of the stickers the learners have earned can go into their learning portfolio. This allows them and their parents see what they have done and how it relates to the language learning outcomes. We hope this will form stronger connections between learning in school and home life so that learners can benefit from their parents' encouragement and feel proud of their achievements.

EXAMPLE 2: USING SMARTPHONES TO MOTIVATE TEENAGE LEARNERS

Why use the technology?
All our teenage students have smartphones and they are very proficient in using them, so support will not be needed very often. Smartphones have a long battery life and can be used throughout the day. They can easily be put away when we want to work on more traditional activities.

Who is the technology best for?
It is suitable for teenagers because they use mobile phones frequently outside class. It is less suitable for primary school learners because they are unlikely to have their own devices.

What is the technology best used for?
Smartphones can do so many different things, from working with text, audio, and video to browsing the web for information that can be used in class.

Where should the technology be used?
Students can use smartphones at school, at home, or even while travelling from one to the other. For example, they can collect photos or record audio or video material to use later. They may start an activity in class and finish it at home or vice versa.

When should the technology be used?
Smartphones should be used sparingly and only when it makes sense—for example, to make activities more interesting or productive, or to enable students to practise their English or improve their digital skills. We should limit the use of smartphones to a few minutes in each class due to their small screens.

How should the technology be used?
This is an ideal way to help learners develop digital literacies, which are part of our curriculum, alongside language. We can work on skills such as staying safe online, managing our digital footprint, and aspects of citizenship, such as treating people respectfully online. Smartphones make it possible to combine language and digital skills in a way that is current and relevant to our learners.

EXAMPLE 3: USING FLIPGRID TO MOTIVATE UNIVERSITY STUDENTS LEARNING REMOTELY

Why use the technology?

During the Covid-19 pandemic, university language centres were forced to give lessons online using platforms such as Microsoft Teams or Zoom. These worked well for delivering content via PowerPoint presentations, but it was often found that students were not engaging with each other as they did in regular classes and were not giving sufficient feedback about each other's L2 speech or writing. The Flipgrid app allows learners to use video to collaborate remotely with each other on language learning tasks.

Who is the technology best for?

It could be used at tertiary level. The software is very easy to use for both teachers and students.

What is the technology best used for?

Flipgrid has many possible applications, but it is probably most widely used to enable learners to create their own short video presentations and share them with other learners in their group, or 'grid'. They can enhance their videos by inserting text, emojis, and other symbols, and they can edit them until they are satisfied with the final product.

Where should the technology be used?

Learners can create the videos at home and share them online.

When should the technology be used?

It can be introduced at any point during a course.

How should the technology be used?

It could be used in the following way by teachers of English for Academic Purposes to help prepare their students to write an essay:

1. Students work individually to prepare a short video outlining their essay ideas using Flipgrid.
2. In pairs, students watch two Flipgrid videos made by other students and then discuss together what feedback they can give.
3. The members of the pair work separately, each creating a Flipgrid feedback response video for one of the videos they watched.
4. Finally, the feedback videos are sent to the original students to help them write their essay.

The technology motivates students to engage with each other enthusiastically, critically, and constructively. It does this by giving learners time to refine their oral presentations, offering a private channel for communication, and enabling them to watch and rewatch sections until they are confident they have understood them.

APPENDIX 2: INTEGRATING TECHNOLOGY INTO A COURSEBOOK

Contents and Learning Objectives

Student Book	Topics				
Welcome pp.8–15	• At school • Colours • The alphabet	• Classroom language • Numbers 0–31 • Ordinal numbers	• Months • Subject pronouns • Adjectives	• Numbers 32–100 • Days of the week • Telling the time	• Countries and nationalities • Introductions • Introducing ...

	Vocabulary	Explore 360°	Grammar	Skills	Functions	Culture Video	Review
1 Back to School pp.16–29	**School subjects** LO – Talk about my school day **Pronunciation** – syllables **Basic adjectives** LO – Talk about my things **Pronunciation** – syllables **Extension: Adjectives**	**Episode 1: Welcome to the school of Sound!** LO – Understand and reflect on an episode of a story	***be*: affirmative & negative** LO – Use *be* to describe people ***be*: interrogative & short answers** LO – Use *be* to ask and answer questions **Question words** LO – Use question words to ask and answer questions	**Listening Skills: Welcome to my week** LO – Listen to Aiden talk about his week **Reading Skills: A Quiz** LO – Read a quiz and use Italian to guess new words **Speaking:** Your turn pp.17, 19, 22 & 23 Active Speakers p.26	**Talk about school** LO – Use (*not*) *good at* to talk about school subjects	**Schools in the UK and US** LO – Understand a video about schools	**Review 1** pp.28–29 • **Train your brain** – Mind map – Memory challenge
2 At home pp.30–43	**Rooms and furniture** LO – Draw and label rooms and things in my home **Pronunciation** – word stress **Family** LO – Draw and explain my family tree **Pronunciation** – word stress **Extension: Family**	**Episode 2: Its *our* apartment!** LO – Understand and reflect on an episode of a story	**Possessive adjectives and Possessive 's or s'** LO – Use possessives to write about my family's things ***There is / There are* + *some / any*** ***Is there ...? / Are there ...?*** LO – Use *There is / There are* + *some / any* to talk about things in my class **Prepositions of place** LO – Use prepositions to talk about things in my favourite place **Pronunciation** – word stress	**Listening Skills: Meet a big family** LO – Listen and identify speakers **Reading Skills: A blog** LO – Predict the topic of a blog from pictures **Speaking:** Your turn pp.33, 34 & 38 Active Speakers p.40	**Talk about your family** LO – Use phrases to check my understanding	**The Salazar family** LO – Understand a video about a family	**Review 2** pp.42–43 • **Train your brain** – Pairwork challenge – Groupwork challenge – Lookback: Units 1 and 2
3 What are you into? pp.44–57	**Interests** LO – Talk about my favourite interests **Abilities** – Talk about my abilities **Pronunciation** – *can* **Extension: Abilities**	**Episode 3: Can you sing?** LO – Understand and reflect on an episode of a story	***like*** LO – Use *like / don't like* to talk about my interests ***can*** LO – Use *can / can't* to talk about abilities **Pronunciation** – *can* **Demonstrative pronouns: *this, that, these, those*** LO – Use *this, that, these, those* to talk about my things	**Listening Skills: I can do that!** LO – Listen carefully to find specific information **Reading Skills: An article** LO – Read an article and use headings to predict the topic **Speaking:** Your turn pp.45, 47, 49, 50, 51 & 52 Active Speakers p.54	**Talk about abilities** LO – Use (*not*) *well* to talk about my abilities	**The Fringe Festival** LO – Understand a video about a festival	**Review 3** pp.56–58 • **Train your brain** – Mind map – Memory challenge 1 – Memory challenge 2
4 My favourite things pp.58–71	**Possessions** LO – Talk and write about my possessions **Pronunciation** – /h/ **Action verbs** LO – Use action verbs **Extension: Classroom verbs**	**Episode 4: I don't like the song!** LO – Understand and reflect on an episode of a story	**Imperatives and Plural nouns** LO – Use imperatives and plural nouns to talk about actions ***have got*** LO – Use *have got* to write about possessions	**Listening Skills: Happy birthday** LO – Listen to and understand a conversation about a birthday **Reading Skills: Best buys** LO – Read texts quickly to get a general idea **Speaking:** Your turn pp.59, 61 & 65 Active Speakers p.68	**Talk about shopping** LO – Use functional language in shops	**Favourite things** LO – Understand a video about favourite things	**Review 4** pp.70–71 • **Train your brain** – Pairwork challenge 1 – Pairwork challenge 2 – Groupwork challenge – Lookback: Units 3 and 4

My school day

Take photos throughout your school day and add audio commentary using an app like iMovie or Movavi Clips.

My family

Use PowerPoint or Keynote to make an illustrated family tree.

Rooms in my house

Use Skitch, or similar, to take photos of the rooms in your house and label them.

My interests

Interview a partner about his or her interests. Record it on your mobile phone.

Songs

Choose a song you love and one you can't stand. Find them on YouTube and create a presentation explaining why you chose each one.

GLOSSARY

active learning
An approach to instruction that aims to deeply engage learners and provides opportunities to learn by doing and by reflecting.

affordance
A potential benefit or learning opportunity recognized by the learner.

assessment for learning
Assessment that focuses on informally monitoring learners' progress as a way to support their learning and inform approaches to teaching and learning. It allows teachers and learners to identify strengths and weaknesses and to focus on areas for improvement.

augmented reality
The integration of digital information with the real world, mostly through the use of mobile phone cameras.

autonomy
Feeling in charge of one's environment; being able to act in accordance with one's values and personal goals.

community learning
Learning that takes place in and is supported by a community of people who are not teachers.

community of practice
A group of people who work together in a specific domain, engage in common activities, and share practices.

competence
Feeling effective and able.

engagement
The extent to which learners are cognitively, behaviourally, socially, and affectively involved in learning in a given moment.

flexible learning
Learning that takes place at a time of need rather than according to set schedules.

informal learning
Learning that takes place entirely outside formal education.

learning dashboard
A visual overview of recorded information about learners' activities and progress, such as in an app or in a dedicated part of a Learning Management System (LMS).

learning space
A place (physical or online), as well as the features of that place that make learning possible, such as the resources it contains and the relationships that exist within the space.

lifelong learning
Learning as it takes places across a learner's life, especially after formal education.

lifewide learning
Learning as it takes places in all environments at a given moment during a learner's life. It includes both formal learning, such as in school, and informal learning that occurs outside school.

mentor learning
Learning with a more experienced peer.

peer learning
Learning between two or more learners of similar ability.

performance support
Learning that occurs when an individual carries out a practical task and makes use of available resources, including other people.

personalized learning
Learning content which is adapted to a learner's needs, interests, and/or proficiency, and in which the learner is given a choice over content, learning approaches, and/or pace.

play learning
Learning which is embedded with characteristics of games and which occurs through play, such as learning through discovery, exploration, and experimentation. Also known as game learning.

professional learning network
A group of like-minded professionals with similar interests coming together to exchange ideas and learn from each other. Also known as a personal learning network.

relatedness
Feeling connected; positive and mutually satisfying relationships, characterized by a sense of closeness and trust.

remote learning
Learning that is physically removed from the place where the instructional provider is located.

self-learning
Learning without the help of a teacher.

situated learning
Learning that draws on the affordances of a particular situation, including the relationships between the participants in that situation, and enables learners to draw on different cues (e.g. context, body language, location) which have been shown to affect learning.

social learning
Learning that emerges from the interactions and relationships between learners, teachers, and their communities.

virtual reality
Digital environments in which learners are fully immersed, usually while wearing a headset.

wiki
A website that users can contribute and/or make changes to.

FURTHER READING AND RESOURCES

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IATEFL Learning Technologies Special Interest Group:
ltsig.iatefl.org

IATEFL Learner Autonomy Special Interest Group:
lasig.iatefl.org

Innovation in Teaching (a website hosted by Hayo Reinders containing technology-related publications and a comprehensive bibliography of autonomy):
www.innovationinteaching.org

Language Learning & Technology (an open-access online journal on technology in language education that publishes regular articles on motivation and related topics):
www.lltjournal.org

Free to download from:
www.oup.com/elt/expert

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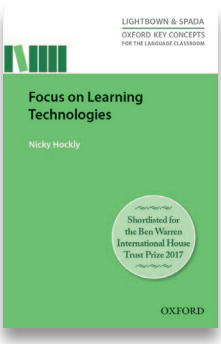

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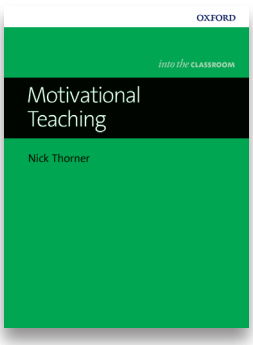

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p.10 from *Cambridge Handbooks for Language Teachers: Language Learning with Technology* by Graham Stanley, © Cambridge University Press 2013, reproduced with permission of the Licensor through PLSclear; p.35 Figure 3 is adapted from Reinders, H. (2010), 'Towards a Classroom Pedagogy for Learner Autonomy: A Framework of Independent Language Learning Skills', *Australian Journal of Teacher Education*, 35 (5), p.51, reprinted by permission; p.40 'Contents and Learning Objectives' from *Kickstart 1 Student Book and Workbook* by James Styring and Christina de la Mare, © Oxford University Press 2022, reprinted by permission.

ENDNOTES

INTRODUCTION

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2 Pintrich (1999)

01 LESSONS LEARNED

3 Bax (2003); Levy & Stockwell (2006)

4 Chambers & Bax (2006); Stockwell & Reinders (2019)

5 Dörnyei and Ushioda (2021), p. 3

6 Lin (2015); Stockwell & Reinders (2019); Tavakoli, Lofti, & Biria (2019); Ushioda (2011a)

7 Reinders & Nakamura (2021)

8 Al-Hoorie (2017)

9 Dörnyei, MacIntyre, & Henry (2015)

10 Ushioda (2011b)

11 Reidenberg & Schaub (2018)

02 POTENTIAL BENEFITS OF TECHNOLOGY FOR MOTIVATION

12 Stanley (2013)

13 Chapelle & Voss (2016); Kukulska-Hulme & Viberg (2018); Reinders & Hubbard (2013)

03 TECHNOLOGY FOR LIFELONG AND LIFEWIDE LEARNING

14 Cross (2007)

15 https://www.statista.com/chart/22392/global-revenue-of-selected-entertainment-industry-sectors/

16 Reinhardt (2018)

17 www.language-exchanges.org and www.italki.com list numerous examples of teachers and learners looking for exchanges as well as tools to set them up.

18 Kato, Spring, & Mori (2016)

19 Henry (2014)

20 Bonner & Reinders (2018)

04 INTEGRATING TECHNOLOGY INTO THE CURRICULUM

21 See Reinders (2011) for examples of digital storytelling activities.

22 Engeström (2015)

05 INTEGRATING TECHNOLOGY INTO CLASSROOM PRACTICE

23 Ryan & Deci (2017)

24 Peters, Calvo, & Ryan (2018)

25 Sundqvist (2009)

26 This is based loosely on Dörnyei's (2001) process-oriented scheme for motivational strategies and draws on Dörnyei, Henry, & Muir's (2016) work on motivational currents.

27 Lamb (2017)

28 Hiver, Al-Hoorie, & Mercer (2020)

29 Cave, Evans, Dewey, & Hartshorn (2017)

30 Reinders (2014)

31 Cave, Evans, Dewey, & Hartshorn (2017)

06 SUPPORTING TEACHERS AND LEARNERS

32 https://www.iste.org/standards/iste-standards-for-teachers

33 Reinders (2022)

34 Ushioda (2011b)

35 Reinders (2010)

36 Reinders, Lakamchua, & Pegrum (2015)

37 Although this activity was designed for young adults, similar projects could be carried out with younger learners and limited to one classroom or one building.

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