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How are colleges using learning technologies?

An examination of five key trends

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Introduction

The following report, undertaken in collaboration with the Education Foundation, is a summary overview of five key trends in the development of learning technologies. The trends identified are:

- Social media
- Gamification and digital badges
- Flipped or blended learning
- Apps
- Student analytics and big data

The reason for undertaking the report was based on a growing awareness that digital technologies now develop in 'non-linear' ways and are implemented in approaches that are difficult to predict. In this way the concept 'future proofing' is itself redundant. This awareness is important in the context of continued austerity because while the economy is recovering, it will not return to the 'normality' of 2008. Investment in technologies requires an understanding of these changes so that they are viewed as not simply a cost centre but a service delivery unit within the organisation. The technical and economic environment is reflected in the national policy agenda, where there is an all-party consensus on the importance of technology in education, both as a delivery mechanism and as part of the curriculum. FELTAG raised the debate, but the 'digital economy' and real efficiency savings will drive the agenda for the foreseeable future.

When thinking about the role of learning technologies, teachers and managers ought to consider the relationship between 'digitally skilled' and 'digitally literate' as student expectations are not straightforward and a 'top down' approach does not suit changes in pedagogical approach or in the technologies. The on-line delivery of education has the potential to change pedagogical practice, funding models and student experience and moreover how content is created, distributed and assessed.

A significant feature of the increased use of digital technologies is the increased amount, and scope of data that might be collected at individual student, class and organisation level. Appropriate and intelligent use of this data will allow for a better financial and strategic planning, as well as a greater degree of real personalisation in teaching and learning.

The overview that follows is, in part, based on asking colleges how they use technology to increase retention and achievement and improve the delivery of education to the benefit of students, teachers and managers.

Social media

Introduction

Social media has completely revolutionised the way that individuals and organisations interact, communicate and connect with each other online; opening up a huge diversity of opportunities and relationships that, in the past, would have remained untapped and unexplored. Sites such as Facebook, Twitter, Tumblr and Google+ have both democratised and accelerated the flow of information and the exchange of knowledge so that people and organisations can create, distribute and access ideas and information in an instant. However, the real significance of social media is not its effect on how we communicate online but its potential to positively impact and enhance our 'unplugged' lives by increasing our capacity and ability to collaborate, share and cooperate.

In the context of further education (FE), where a majority of students have grown up with and will already access social media, the implications are huge. It can be a powerful tool for increasing the depth and breadth of communication between pupils, staff and colleges, for distributing and storing resources and for developing relationships within and between colleges. The relative maturity and widespread usage of social media compared to other technological innovations means that it is imperative that practitioners, leaders and administrators working in FE develop practices, policies and strategies that incorporate social media in order to improve students engagement, experiences and learning outcomes.

What is it good for?

- 1. Communication.** Inside and outside of the classroom, communication is king. Being able to connect and converse with students to set course work, respond to questions and to communicate essential course information, such as deadlines or relevant extra curricula activities, is very important. Social media sites - in particularly Facebook or Google+ where it is possible to create closed groups - enables multiple parties to take part in a constantly evolving dialogue that might be supplemented with videos, pictures and other multimedia resources.

This non-linear aspect of social media also allows for and encourages peer-to-peer learning as students are able to discuss and respond to each other's posts. In addition to the public element, Facebook also has the chat function that facilitates instant, one-to-one conversations allowing for a more in-depth explanation of subjects or tasks should it be required. Social media is also an excellent tool for communicating with potential students by promoting your college's brand, advertising courses and publicising open days and events.

- 2. Resources and Revision.** Unless it is deleted by the group's administrator anything posted or uploaded on sites such as Facebook and Google+ will be instantly saved making them a good resource bank for students and teachers to refer to. This is especially useful during revision periods when students can look back over all of the materials, resources and discussions posted over the duration of the course in order to inform and complement their revision. As well as acting as a 'ready-made' resource bank for materials, social media can also be used to curate and organise revision materials, distribute them to students and answer any questions they may have.

3. Continued Professional Development (CPD) and Sharing Best Practice. Social media gives practitioners and leaders the opportunity to connect with each other in order to establish and develop online 'communities of practice' through which they can participate in CPD and share best practice. For example, sites like Twitter might be used to reach out and find other professionals who have similar priorities and face similar challenges. Once these connections are made they might then be formed into online groups that are able to share classroom practice, learning materials and provide peer-to-peer CPD. Using social media in this way can strengthen ties between local colleges but it can also be used to effectively transcend regional or even national geographical boundaries, allowing practitioners with very different experiences but similar interests to bring unique and potentially helpful points of view to each other's attention.

Top tips

- 1. Do** extensive research into the functionality, usability and pros and cons of the different types of social media before introducing it into your classroom. You may find that while you do not get on with one type of social media another really captures your imagination.
- 2. Do** think about the specific learning objectives that you are hoping to achieve by introducing social media into your classroom. Remember that social media tools offer a means to achieving real-world outcomes and are not an end in themselves.
- 3. Do** talk to college leaders about using social media in your practice. It has been shown that classroom initiatives that use new technologies are more successful when they are supported and championed by senior leaders. As well as providing support and guidance, they may be able to direct you to any existing social media policies in place in your college.
- 4. Don't** assume that everyone in your class is already an adept user of social media. Make sure that you put aside a session to explain how you want the class to use social media and to explore the functionality of the approach you have chosen.
- 5. Don't** be scared to try out new things. If you think of an innovative new way of using social media for teaching and learning, try it out.
- 6. Don't** give up on using social media in the classroom if students do not engage straight away. It often takes a little time for people to get used to new ways of working.

Key quotes

"The students are building up a digital reputation, they're building up the ability to see beyond just them and their peer groups opinions which is invaluable to making them employable and making them attractive to university and apprenticeship opportunities ... So it's about building up that skillset to make them employable - if you can work using web, audio, video, apps, and social media that is an attractive skillset. I think it is our responsibility to show our students how to use these skills and these techniques efficiently and productively. It isn't frivolous or silly, it's not a gimmick - it's undeniably the future."

Scott Hayden, Specialist Practitioner of Social Media and Educational Technology, Basingstoke College of Technology

"For us social media is all about developing a sense of community and making connections with other social purpose educators across the world ... We call our community the 'Community of Practice' because it is about practice, it is about doing, it's about making things change ... This rhizomatic way of working means that things happen on social media without that central control and that is really exciting."

Louise Mycroft, Teacher Education Programme, Northern College

Gamification and digital badges

Introduction

Gamification is the application of elements of game design and principles, such as point scoring, leader boards and levels, to non-game settings. Whilst the concept was coined in the early 2000's it is only relatively recently that it has gained mainstream attention and even more recently that educators have started to explore how it might be used in the context of teaching and learning. The idea is that students can be motivated to complete learning objectives in the same way that gamers are encouraged to continue gaming - by applying the same elements that make those games fun and engaging to the teaching process. For example, a teacher might incentivise students to complete coursework by awarding points for completed assignments.

Digital badges (online badges awarded for the completion of specific tasks or development of specific skills) can be a good way of rewarding and acknowledging students who are engaged in gamified forms of learning. They can also be an effective and visually compelling way for teachers to record and track progress and for students to show and communicate their skills and expertise to teachers, colleagues and potential employers. When deployed effectively gamification techniques and digital badges can have a dramatic effect on students engagement, motivation and, ultimately, achievement by allowing them to quantify and take ownership of their learning.

What is it good for?

- 1. Motivation.** Using gamification techniques and digital badges may motivate students to invest time and energy into their learning by helping them to visualise their achievements and work towards bettering and improving on past results. In particular, digital badges might be used to effectively break down large subjects into smaller tasks that can be recognised and rewarded, keeping the students constantly motivated by incrementally acknowledging their progress and effort. Whereas motivational models in education have traditionally focused on the long-term negative ramifications of not studying, digital badges tap into the psychology behind games and gaming to reinforce positive behaviours with regular feedback. As well as motivating students by helping them to focus on future achievements, digital badges can also motivate students by helping them to recognise and 'collect' past achievements and results.
- 2. Engagement.** Gamification techniques and digital badges can also be used to boost students engagement with a particular subject, learning objective or idea. This often naturally follows students increased motivation to learn; the more motivated and driven a student feels the more they are willing to engage with additional learning materials.

In this way gamification techniques can be used to introduce a particular topic in order to ensure the engagement of students with the ideas and concepts that underpin it. This can then be built upon with more traditional teaching methodologies. Similarly digital badges can be utilised to increase students' engagement. By building upon the motivational aspects of earning badges, teachers may guide students towards additional learning objectives. For example, by 'unlocking' hidden challenges which can lead to another badge once the primary learning objective has been completed.

- 3. Collaboration.** While games and by extension gamification are most often associated with the promotion of competitive behaviours gamified learning experiences may, in fact, be designed to encourage collaborative and cooperative working. For example, students might be set a task that requires them to combine their different skillsets, represented by their badges, and work together in order to complete it. In an advanced form this type of collaborative gamification could be used to encourage students to cooperate and collaborate on long-term projects across a term or even an entire year.

Top tips

- 1. Do** start with simple forms of gamification and work your way up to more complex techniques and models. The most important thing is to establish a good grounding in how gamification techniques can improve students learning outcomes.
- 2. Do** look into different badging systems. There are some good free badging systems such as Mozilla Open Badges and DigitalMe that could help you achieve your vision. However, you could also look into creating your own in-house badging system.
- 3. Do** talk to your students about gamification and listen to what they have to say. Whilst some students may respond to such a novel teaching technique others may be wary and need an opportunity to ask questions and voice concerns.
- 4. Don't** worry about getting it right every time. Whilst some forms of gamification may energise and engage your students others may not. It is about experimenting in order to find the right gamification technique for you and your students.
- 5. Don't** work in isolation. Try to persuade colleagues to look into and using gamification and digital badges. Your classroom practice will be more effective when you can share idea and tips with other teachers.
- 6. Don't** use gamification techniques and digital badges in isolation. They are much more effective when used in combination with other teaching methods.

Key quotes

"We are looking very specifically at how digital badges can be awarded. If you have the latest version of Moodle you can do that very easily. We are talking about an internal badging mechanism. We are very much at this early stage. Thinking about what a digital badge looks like, what does a digital badge mean? Do we award them for attendance? Or do we award them for softer-skills like good team work? What we want to do is make sure that staff and students value badges."

Kevin Brace, Blended Learning Advisor, Heart of Worcestershire College

“Gamification is trying to give rewards to build on the good practice that we have learnt from psychology that if you reinforce a behaviour it is more likely to happen again. So trying to make learning fun and in the same model as gaming. So many, many young people are now gaming and so many games have collecting points, badges and medals for achievement. So it’s building on that concept. In layman’s terms it is about intermittent reinforcement in order to encourage learning.”

Martin Simmons, Vice-Principal, Sparsholt College

“I think with online learning there has to be some sort of recognition. When students are sitting in their bedroom with their laptop at half-eleven at night. I think the computer is saying to them ‘well done, you have worked your way through this activity’ can be a huge motivator. Using badges is a great way to let them work through it at their own pace but to recognise their achievement.”

Ursula Bailey, ILT Manager, Sparsholt College

Flipped or blended learning

Introduction

As new technologies continue to make it easier and faster for teachers to communicate with their students outside of the classroom, new teaching methods have been developed that look to utilise and exploit this enhanced connectivity to benefit learning outcomes. One of these is flipped or blended learning. This method looks to move the instructional elements of teaching outside of the classroom, through the use of online resources and videos, thus allowing more time in class for group work focusing on theoretical discussions and concept engagement. Essentially, class time that would, in a traditional classroom, be taken up explaining a concept or idea can instead be used to explore it.

In addition to freeing up class time, flipped learning has huge potential to increase students' comprehension of and engagement with their subject by enabling them to receive knowledge and demonstrate their understanding in a number of different ways that, in some cases, they may find preferable to traditional methods. For example, students could potentially demonstrate their knowledge through online group discussions that can be recorded and then replayed, assessed and analysed at a later date. Flipped learning has the potential to revolutionise classroom practice by allowing students to construct and explore their own knowledge rather than the teacher having to 'spoon-feed' it to them.

What is it good for?

- 1. Independent learning.** Delivering resources and content online means that students are encouraged to develop into more independent students as they have to take responsibility for watching, absorbing and thinking about course materials in their free time. Unlike traditional coursework, which is often used to reinforce knowledge from the previous lesson, flipped learning relies on students doing work outside of class that is not just important but integral to the next lesson.
- 2.** Helping and supporting students to understand the relevance of 'homework' in the context of flipped classroom means that they are more likely to do it because they can see how it is directly related to their comprehension and understanding of key ideas. Rather than it simply being a tool to test or reinforce knowledge 'homework' in the flipped classroom becomes a seamless part of the learning process, encouraging students to think, act and study by themselves.
- 3. Personalisation.** The computational aspect of flipped learning, where students complete and submit much of their work online, allows teachers and school leaders to track results and analyse them to a higher level of specificity than if they were using more traditional teaching methods. This information can then be fed back into the flipped classroom allowing the teacher to tailor resources and content to the specific needs of individual students.
- 4.** Additionally, in the flipped classroom the teacher's time is freed up because the introduction and explanation of the topic has already been covered outside of the classroom. This potentially means that the teacher can spend more time with each student, gaining a deeper insight into their progress and helping them to understand the lesson content. In the long term this could help the teacher build up a better profile of each student allowing them to further plan and carry out targeted interventions.

- 5. Student feedback.** The online element of flipped learning also allows for a very high-level of student feedback on learning resources and content as they can quickly and easily feedback on a task, resource or content through online polls or questionnaires. This means that teachers are able to maintain a reflexive and dynamic dialogue with students about how they feel about their learning and how it could be improved. Acknowledging and addressing this feedback helps the teacher to develop and identify better and more effective learning resources in the future.

Top tips

- 1. Do** look online for ready made learning resources that might be used to deliver online instruction. Don't feel that you have to make videos or content from scratch for every subject - there are some very high-quality resources available on the internet.
- 2. Do** read up on the theory and techniques used in flipped learning. There are a number of different ways that the classroom can be 'flipped' - look into all of them and pick the one that best suits you and your students.
- 3. Do** use flipped learning in conjunction with more traditional methods. Change is a process that must be managed and is usually most effective when implemented gradually - don't feel that you must revolutionise your classroom practice overnight.
- 4. Don't** stop reading and thinking about how to flip the classroom. Flipped learning is still a relatively emerging field so it is important to keep up to date on the latest research, techniques and practices.
- 5. Don't** expect dramatic and immediate results. Just like change progress is a process that can take a long time to come to fruition. Make sure that you manage your expectations and take time to reflect on your own experiences with flipped learning.
- 6. Don't** use flipped learning in isolation. As with almost all new techniques that incorporate and use learning technologies flipped learning works best when pursued at a departmental, college or even system level.

Key quote

"When we first moved into flipped learning I believed that this is what students had been waiting for. They live their lives online and getting them learning online would be something that they would really love. It certainly was that for a good chunk of them but another good chunk, I would say it is not far from 50:50, find it very challenging because they are used to being spoon-fed in schools and they find working without a teacher isn't something that they are used to ... However, we do find that over time the resistance does go down."

Peter Kilcoyne, ILT Director, Heart of Worcestershire College

Use of apps

Introduction

Mobile and online applications are now a ubiquitous and pervasive part of modern life and have changed the way people relate to and connect with each other, organisations and products. In their personal, cultural and social lives many students now use apps on an almost constant basis to communicate, problem-solve, get information and have fun. This has led practitioners and leaders in the UK's education system to look at the various ways that apps can be incorporated into classroom practice in order to improve subject engagement, enhance learning and boost outcomes. This, in turn, has caused a huge explosion in the choice of apps available to practitioners and by extension students, as developers look to respond to their ever growing and ever more complex demands.

As a result mobile and online applications with an educational dimension are now a firmly established part of the UK's educational landscape and institutions, including FE colleges, are faced with a choice between a huge diversity of apps that cover everything from attendance to creative writing to behaviour management. Whilst navigating this landscape may sometimes be difficult, due to the array, range and apparent complexity of some apps, the payoff can be dramatic in terms of pupil engagement and outcomes. The challenge for college leaders and teachers is to identify the right apps for the appropriate problems and to integrate them into their practice in a way that benefits and enhances students education.

What is it good for?

- 1. Behavior management.** Low level disruption and inappropriate behaviour results in the loss of valuable teaching time and can have a very damaging effect on the educational experiences and outcomes of students. There are a number of apps, most notably ClassDojo, that enable teachers to track the behaviour of pupils thus allowing them to identify patterns, issue warnings and reward and encourage good behaviour. Used in this way, classroom management apps can help to create a calmer learning environment that is conducive to effective teaching and learning. Compared to traditional classroom management techniques, which can rely too heavily on short-term interventions such as removing disruptive students from the lesson, apps such as ClassDojo provide a way of implementing a longer-term, structured strategy for disruptive behaviour.
- 2. Checking learning.** There are a number of apps which provide easy, effective and engaging ways for teachers to check students knowledge and comprehension of specific subject areas. For example apps like Kahoot and FlipQuiz enable teachers to create tailored quizzes and tests with integrated videos, images and diagrams that they can use to quickly ascertain whether their students have properly understood and absorbed the lesson. As with most apps these quizzes generate and present student data in a clear and easily usable format allowing teachers to monitor and measure students progress in specific subject over time.
- 3. Employability.** Being able to effectively and efficiently use mobile and online apps in an innovative and positive way is increasingly becoming an integral skill sought after by employers in a number of different sectors and industries. For example, many organisations in both the public and private sectors are starting to develop, design

and use apps to provide products and services to their clients. Therefore exposing students to using apps in the context of learning and education, as opposed a purely social settings, is important to helping them to understand the wider implications and applications of new forms of technology. Building up an awareness and understanding of how mobile and online apps can be used in formal settings could benefit students by making them more attractive to potential employers.

Top tips

1. **Do** keep an open mind - there are usually a number of different apps that have broadly similar functionalities and are designed to solve the same problem. Make sure that you test out a range of apps to make sure you find the one that is right for you.
2. **Do** ask your students if there are any apps that they use or have heard of that they think could be used in an educational setting. Involving students in the process will ensure that they have a sense of ownership over their own learning.
3. **Do** check for updates and keep up to date. Many apps frequently tweak and change aspects of their functionality and usability based on user feedback. Keeping up to date with downloads and updates will ensure that your students get the best possible learning experience.
4. **Don't** limit yourself to apps that are aimed purely at the education market. Try to think creatively about apps that are not necessarily intended for the classroom as they can often have hidden educational applications.
5. **Don't** let the technology dominate your practice. Try to remember that it is about making the technology work for you and your students not bending lessons or subjects to fit the technology. If you feel that an app is hindering rather than helping then don't use it.
6. **Don't** forget to look at the data. One of the most important aspect of many educational apps is the data that they produce - learning how to analyse and use it in your teaching is essential.

Key quotes

"The focus for us at Activate Learning has been on working with staff to encourage exploration and encourage experimentation. We started off by rolling out Google Apps and that got staff into the mindset that the browser could be used for more than just checking email. We have found that the staff have really liked that freedom to find the tool that works for them and that has been really exciting. So we have been really encouraging staff to experiment with a free range of tools and very much tying the tools and how to use them back to the core basics of teaching and learning."

James Kieft, Group Learning and Development Manager, Activate Learning

“There has been a lot of onus within our organisation on apprenticeships. These students only come in for one day a week and they are expected to get through a qualification whilst working full time and that could be a highly pressurised situation for a 16 to 18-year-old. So we are looking at full on distance learning, platforms and applications, so that they don’t have to come into college if they need functional lessons. They can do it totally online and might only need to be physically present for the exam.”

Daniel Evans, ILT Training & Development Officer, Birmingham Metropolitan College

Student analytics and big data

Introduction

As more advanced computer systems and software become widely available and teaching, learning and assessment moves online there is a huge opportunity for colleges to electronically collect and analyse large amounts of data about their students. This could potentially allow them to develop more tailored, personalised learning interventions for individual students based on insights that may only be perceptible through the analysis of this data. The potential benefits for the students learning outcomes are huge as teachers are more quickly able to develop a clearer idea of their needs and capabilities and respond to them.

At an individual level big data could help teachers to identify and address trends in an individual or class of students. However, it could also be used to help leaders spot problems and patterns at a system level. Because of the privacy issues involved in the collection and analysis of student data it is still a relatively emerging field. This, aside from any technical or logistical issues, is perhaps the main barrier to the mass uptake of big data and student analytics by educational institutions including FE colleges. However, by using techniques such as data anonymisation, education institutions can protect their students privacy whilst still using analytics to enhance and support teaching and learning.

What is it good for?

- 1. Personalisation.** While collecting data on individual students is problematic in terms of privacy it could potentially help teachers to employ far more personalised learning experiences for their students. Analysing large data sets about an individual pupil can help teachers to identify which subjects they are struggling with thus allowing them to plan a more targeted intervention. This, in turn, can lead to higher retention rates. Whilst it is possible to do this without using student analytics using big data speeds up the process and allows teachers to get more granularity within subjects. For example, software developed by Purdue University in the USA called Course Signals uses an algorithm to analyse student data on performance, effort, characteristics and prior attainment in order to assess their risk of low performance.
- 2. Prediction.** In addition to providing students with a more personalised learning experience in the present, analytics can also be used to make predictions about a student's future attainment and performance. This can then be fed back into the teaching process in order to ensure that those who are on track to achieve stay focused and those whose predicted attainment is low can be given extra support, help and additional resources in order to help them improve. This predicative element of analytics can have a very positive effect on outcomes as it means that teachers can intervene at an earlier stage in a struggling student's education.
- 3. Improvement.** As well as informing teachers about student trends and patterns, big data analysis can also be used by teachers to reflect on, critically assess and develop their own teaching practice helping them to develop self-aware and self - responsive forms of CPD. For example, teachers can use student data to see if the way that they have taught or approached a certain subject has had an impact on students attainment. In cases where a significant proportion of students are failing to meet their predicted scores, a teacher could think about delivering the lesson in a different way.

Top tips

1. **Do** combine using student analytics and big data with your own intuition. If you feel that you cannot reconcile the data with your own view try to think about ways that you can weigh up both and come to a balanced conclusion.
2. **Do** make sure that you use good and reliable data points. If you use patchy or unhelpful sources of data then this could invalidate the entire student analytics system. Spend time thinking about how and why you want to measure certain aspects of students learning.
3. **Do** talk to senior leaders and other staff about the privacy and security issues surrounding the collection and storage of data. There may be college policies or even legislation that you may need to think about.
4. **Don't** be put off by the seeming complexity of student analytics and big data. Even very simple forms of data collection and analysis, such as tracking the scores in online tests, can yield significant and useful information.
5. **Don't** assume that using data and student analytics in your teaching and learning practice will create more work. When done properly using data should ease, rather than add to, your workload.
6. **Don't** forget to actively use the data that you collect. Collecting data is one thing, making sure that you actively engage with it and incorporate it into your classroom practice is another. Make sure that you set aside time to think about what the data is telling you try to apply it practically.

Key quotes

"An initiative that we have had over the past few years is that we have tied our Moodle and our Learner Tracker together. So if a piece of work is handed in late teachers have the opportunity to put an X as a mark against that particular piece of work and that generates a Level 1 Performance Indicator for that particular individual. Then, at a curriculum level, they can drill down and look at how many students have those Level 1 Performance Indicators. If they get a repeated one then they go in at a pastoral or tutor level and offer some intervention. So that was the first time we could take what was happening online and actually bring that into the real world."

Ursula Bailey, ILT Manager, Sparsholt College



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