

Co-funded by the
Erasmus+ Programme
of the European Union



Online and blended learning

September 2015



© NIACE 2015

Published by the National Institute of Adult Continuing Education (England and Wales)

21 De Montfort Street

Leicester LE1 7GE

Company registration no. 2603322

Charity registration no. 1002775

NIACE is the National Institute of Adult Continuing Education, the national voice for lifelong learning. We are an international development organisation and think-tank, working on issues central to the economic renewal of the UK, particularly in the political economy, education and learning, public policy and regeneration fields.

www.niace.org.uk

Follow NIACE on Twitter:

[@NIACEhq](https://twitter.com/NIACEhq)

[@NIACEDC \(Wales\)](https://twitter.com/NIACEDC)

All rights reserved. No reproduction, copy or transmission of this publication may be made without the written permission of the publishers, save in accordance with the provisions of the Copyright, Designs and Patents Act 1988, or under the terms of any licence permitting limited copying issued by the Copyright Licensing Agency.

CONTENTS

Background:.....	Error! Bookmark not defined.
Aims of Report.....	4
Methodology	5
Limitations	5
Section 1: Defining Online Learning.....	6
Types of digital learning.....	6
The online element.....	6
Blended learning	6
Section 2: Is online learning more successful compared to offline learning?	8
Ways of measuring success rates.....	8
Difficulties with research	8
Recruitment	8
Retention	9
Pass rates	10
Section 3: Who learns online?.....	11
Section 4: What topics best suit online learning?.....	12
Section 5: What barriers are there to learning online?.....	13
Resourcing Barriers	13
Institutional Barriers	13
Skills barriers (learners & tutors)	14
Policy Barriers.....	14
Other barriers	14
Section 6: Practice to overcome barriers	15
Teacher practice.....	15
Institutional Practice.....	15
Policy Practice	15
Section 7: Conclusions	16
Extending research	16
References	17

Aims of Report

This report seeks to provide an overview of current thinking and evidence available around blended and online learning. Its findings will inform further research and provide baseline data to compare with the findings of NIACE's direct research with learning providers and key stakeholders. Specifically, this report aims to:

Identify barriers and enablers for the effective use of online learning, including investigation of the following:

- Are there any examples / research which compares online learning success rates with conventional learning methods
- Are there any areas of the vocational learning curriculum which are most appropriate for online learning?
- What definitions of online learning could the Agency adopt for funding changes e.g. blended/pure online learning?
- What provider marketing methods are most successful in attracting online learners and how does this compare to conventional marketing methods?
- Identify obstacles/barriers (including funding constraints) to the development of online learning and any solutions which have been found to enable progress.
- Is there any evidence to show that online courses can stimulate additional demand for courses or attract a different cohort of learners?
- Is there evidence identifying which types of learners are likely to find online learning course most beneficial / flexible?

Methodology

This research is to be carried out by NIACE researchers as a desk research exercise; that is, no efforts will be made to test the data or establish it through independent research instruments. The majority of this research will be based around what is available online and in peer discussion groups. This report will present the evidence, note commonalities and exceptions in the data and form simple conclusions.

This evidence will be tested, in part, by the research conducted by NIACE elsewhere in the project, so this document will seek to collate with minimal analysis.

Limitations

There are limitations to the use of this methodology. Firstly, the data is based only on what is immediately available. Secondly and, perhaps, more significantly, the research obtained is not representative of learners or learning in the UK, nor is it focused on adult and community learning. The vast majority of research stems from higher education and is based in the United States. While there is evidence to suggest that there is considerable overlap of results between the United States and Britain, cultural, cost and other differences to the learning environment and experience should not be underestimated. Equally, there are vast differences between Higher Education and other forms of adult continuing education. Therefore it would be dangerous to assume that HE studies could adequately inform adult and community learning in their blended learning approach.

Section 1: Defining Online Learning

Types of digital learning

In order to further investigate blended and online learning it is first necessary to define them. Defining online and blended learning is fraught with problems as multiple definitions exist using different terminology that overlapsⁱ. The terms e-learning, online learning, digital learning and, to some extent, blended learning are used interchangeably. This is further complicated by differences between sectors. The term e-learning in the professional CPD field is broader than that used in more formal education. LearningPool define e-learning as “chunks of information presented online to educate and inform”ⁱⁱ while another online training consultant defines it as “involving the use of a computer or electronic device... in some way to provide training, educational or learning material. Richard Mobbs, the Head of Learning Technology at The University of Leicester, discusses this in an online tutorial. He quotes the definition used by the former Learning & Skills Development Agency was: “the use of electronic technology to deliver, support and enhance teaching and learning”, with a greater emphasis on the enhancing of traditional learning. ⁱⁱⁱ The emphasis here differs from the LearningPool definition as here the technology is seen as enhancing traditional learning rather than being a sole end to learning in itself. Moss discusses other definitions too, notably that of the EU, which adds an online element and talks of “remote exchanges and collaborations.”^{iv}

The online element

Online learning is generally assumed to be one method of deploying e-learning. Frostberg University describe the various different elements in online learning defining it as something that is always done at a distance, rather than as part of any other model or approach. This approach is taken throughout HE with FutureLearn, The University of Edinburgh both defining online has having an exclusively distance element.^v

Blended learning

Blended learning is much clearer in its definition, though there is still some disparity between sectors and approaches. The corporate training sector again defines it broadly as “e-learning combined with other training methods,^{vi}” while the Scottish government’s definition again focuses on the traditional learning experience talking of “an element of online support”^{vii}. What is not clear from any definition is whether the online element needs to be entirely remote or the contact hours entirely face to face; it is assumed that the e-learning element is distance of self-directed online and the traditional training methods are delivered in a classroom situation. While some definitions do break down the elements of online learning into different online activities, some of which are facilitated while other collaborative or self directed^{viii}, there is no defined model where an entirely remote session could be described as

blended. Research conducted by Piccano of Hunter College in New York acknowledges this definition, noting that a “True blend” would not be some aspects of traditional and some aspects of online, but the two intermingled literally as if placed in a blender.^{ix}

Section 2: Is online learning more successful compared to offline learning?

Ways of measuring success rates

Success in education and learning is an extremely broad topic that many scholars have attempted to define over the years. While some see engagement as the measure, others see accredited qualifications or employment as the desired measure. Therefore, the task of assessing the success of online or blended learning is not straightforward.

The key measures that are normally discussed and that we shall use for this discussion are:

- Recruitment (the numbers on the course)
- Retention (the number of people who complete the course)
- Pass rates (the number of people who achieve an acceptable grade in any assessment, testing or examinations)
- Destinations (whether learners progress to further or higher learning)

Unlike in section 1, this section will focus predominantly on research from the formal learning sectors, as the corporate and training sectors do not often feature these measures as outputs.

Difficulties with research

A great deal of the research on this topic originates from Massive Open Online Courses (MOOCs), which is problematic; MOOCs are predominantly Higher Education tools attempting to scale learning to a wider audience and thus are not representative of online learning as a whole and certainly not of blended learning.

There is no standard research on the number of people completing online courses, possibly due to the wide definition; a single completion rate would not be possible when different forms were taken into account. This means that contrasts are often between nationwide statistics for the traditional courses and specific institution or even specific courses for the online or blended learning.

Recruitment

Recruiting learners online has become more prominent in recent years. This, according to Hanover Research, applies even more to those undertaking online learning courses^x. Despite the prominence in communications of social media marketing, however, research seems to suggest that email, search engine optimisation and, indeed, face-to-face still plays an important part in the recruitment drive^{xi}. Many universities across the UK and United States are now using a “blended learning” approach to recruitment, recruiting social media champions to mentor students online, and then meet them in the “real world”.^{xii} The Guardian

quotes Simon Pride of Arts University Bournemouth saying that social media must be used to engage, not advertise^{xiii}. Despite this, around 70% of University recruiters value online as an advertising medium^{xiv}. No research could be found about online recruitment for adult and community education programmes; however the American journal "Recruiting Adult Learners" does note that supporting learners with technology is important in achieving recruitment and retention^{xv}.

Retention

If MOOCs are the sole measure of online learning retention and retention the ultimate measure of success, then online learning has failed. Statistics vary, however 2013 figures show distance learning retention rates for undergraduate degrees in the UK as between 15-20% (compared to an 82% for full time student retention rate on traditional undergraduate courses)^{xvi} and as low as 7% for MOOCs^{xvii} making use of under and post graduate degree level learning. A number of suggestions are put forward for this; most distance learning courses require fewer (or no) qualifications, have a smaller cost commitment and there is no formal record of destination, so some of those not completing may have moved to a formal learning route mid-course. However, a loss of motivation may be a cause too. Simpson differentiates between "e-teaching" and "e-learning", noting that the latter is only the intended consequence of the former and not a foregone conclusion. Therefore, he theorises, if e-teaching is delivered without the retention outreach that comes hand-in-hand with traditional teaching (i.e. you notice your students become bored in a lesson, whereas in a top-down e-teaching model you may be giving podcasts and videos but not interacting directly with the student, therefore missing the opportunities to address motivation and, thus, retention issues) retention may fall^{xviii}. This last point is backed up by some older (2009) research into the retention risks involved in e-learning in virtual world environments. In this research it was concluded that students who would traditionally not engage with learning would not do so online either, unless their motivation issues were addressed and that adding a technology layer or model would not help (and might in fact hinder) the risk of low retention.^{xix}

This assertion leads to a potential for blended learning to address the retention issue. If being proactive rather reactive is important in retention (as suggest by the previous cited papers and Hughes)^{xx} then blended learning gives an opportunity to do this where pure online learning does not.

There appears to be little evidence of the retention rates of blended learning versus online learning, however Hughes provides evidence that submission rates (i.e. Students submitting all of their required work for assessment) were higher in blended models than in traditional or online only model, citing similar reasons to those discussed earlier, namely that some tutor interaction and outreach aided motivation to submit.^{xxi}

Pass rates

A great deal of research has been carried out in all sectors around knowledge retention and grading as a result of using technology. Unlike some of the other areas examined in this report, these results are largely the same from every source.

It is broadly agreed that pass rates are broadly the same in courses that are delivered face-to-face and those that are delivered wholly online. It is worth noting, however, that the recruitment rate of online courses is much higher and the dropout pre-completion considerably higher, so it might be argued that, in effect, there are more able students on online courses than in traditional classes^{xxii}. There is some evidence presented from the training sector that refutes that, however. Where blended learning is used, however, pass rates increase dramatically. The US Department for Education concluded that: "In recent experimental and quasi-experimental studies contrasting blends of online and face-to-face instruction with conventional face-to-face classes, blended instruction has been more effective. When used by itself, online learning appears to be as effective as conventional classroom instruction, but not more so"^{xxiii}. However, the US study also concludes that this is not down to blended learning as the medium, but is a combination of the pedagogy and method used in its delivery. Hughes' study showed this isn't always the case; a submission rate of 98% on a three year blended learning module, compared with 78% on an identical module, delivered by the same tutor, presented along traditional lines.^{xxiv} The student responses in this study pin this largely on the proactive support identified earlier in this document. Hughes also notes, however, that students may have been more "support aware" due to the fact that they were participating in the study.

Section 3: Who learns online?

While Hanover research in the United States claims that 60% of online learners are adults^{xxv}, this question is one that could be easily answered by the “how long is a piece of string” cliché. The increased availability of technology and web access, coupled with the introduction of free learning tools such as MOOCs has yielded far greater opportunity meaning that, in the developed world, most people will have the opportunity to learn online. It is interesting; therefore, that the data does not suggest that online learning, in a formal sense, is taken up diversely^{xxvi}.

As in previous sections, a lot of the data available is for the exclusively online MOOCs. As US based digital entity, it is perhaps not surprising that 27.7% of Coursera users originate in the US, the majority are male^{xxvii} and that the content is 59% STEM related^{xxviii}. While MOOC users were more likely to have specific needs (e.g. be working parents or working irregular hours) they were more likely to be employed and have an income that other learners online^{xxix}. That, however, may not be reflective of wider online learning. An older study (2003) suggested that online learning participants were generally older and female^{xxx}. There is little evidence, however, of who is accessing blended learning in a wider context. An HE Academy study from 2006 acknowledges that blended learning is used by “non traditional learners” but fails to give any statistical evidence^{xxxi}.

There is wider evidence of disadvantaged learners benefitting from technology (particularly those living in predominantly black communities in the United States), however this evidence is more around the way technology is used for communication as a whole rather than through organised learning^{xxxii}. A recent study found that learners from disadvantaged groups in the USA, in particular older males, fared considerably worse online than offline^{xxxiii}. It's clear, however, that more personalised learning will benefit disadvantaged learners^{xxxiv} and, in theory, this could be provided by technology.^{xxxv}

Section 4: What topics best suit online learning?

Blended and online learning is available across the board covering numerous topics in numerous contexts. Large MOOCs like Coursera have focused primarily on STEM subjects (Mathematics, Science and Information Technology make up 59% of their courses^{xxxvi}), however this may be more of a reflection of the user base than the appropriateness of the material.

There is some evidence that certain subjects, in particular arts based courses focusing on performance (e.g. drama and music) struggle to be taught online using conventional methods. However, this evidence applies to online rather than blended learning^{xxxvii}.

There is evidence of successful blended learning approaches across the board. The British Council have published a number of case studies looking at ideas like "podcasts for taxi drivers" and wikis in international education^{xxxviii}. There are numerous examples of STEM related resources and NIACE recently looked at blended learning within family learning where it is beginning to take shape.

Some guides have suggested the subject suitability is in fact a red herring. The site "Digital Librarian" comments: "Because of [subject culture's] institutionalized norms, teachers may believe that certain types of technology may naturally fit in with some course subjects or topics more easily than others. They are therefore unlikely to adopt types of technology that they do not believe fit in with "their" subject." ^{xxxix}

Section 5: What barriers are there to learning online?

There are many perceived and real barriers to online learning. It is noted in some discussions that perception of barriers (by staff and learners) may often differ from the reality, both in the sense that something may be thought easy to access which proves difficult to access or that something that is considered difficult, impossible or unsuitable may in fact be ideal. ^{xi}

Resourcing Barriers

Resourcing equipment for blended learning is often cited as a problem, in particular in older research.^{xi} Digital Librarian breaks this down into staffing resources and equipment resources, citing time for training as a key issue in the former.^{xii} Indeed, BECTA and Jisc (QUANGOs supporting technology in learning) previously supplied entire services around procurement (though these are now discontinued). More recent research and practice appears to focus on the use of learners' own devices (BYOD) and freely available content (OERs).^{xiii} A number of e-learning sites from the corporate sectors dispute that resources are an issue, declaring that "eLearning tends to be the much cheaper option"^{xiv} or "There appears to be little argument that e-learning can be more cost effective to deliver than classroom based training"^{xv} However, others still disagree. Richard Mobbs at Leicester University writes: "eLearning is not a cheap option and there is no "fast buck" to be made. eLearning will only succeed if there is a synergy between educators, instructional designers, curriculum developers, learning technologists, graphics designers, publishers etc. to produce good quality learning materials adhering to recognised standards (see Resources) that can be delivered to the student in a timely way."^{xvi} It would therefore seem that resourcing is, in its self, a matter of perspective but that certain sectors, individuals and organisations may perceive this as a great barrier to implementing online or blended learning.

Financial resourcing is not only a problem for learning providers. While there is little research that directly points to poverty being a barrier to online access in the UK, it is certainly true that digital literacy levels are lowest among those with low economic activity^{xvii} and various organisations combating poverty (most notably the Joseph Rowntree Foundation) have called for greater support for people in poverty to have access to online services and networks^{xviii}. 2015 research from the United States suggests online access in areas of deprivation and poverty may be as low as 50%^{xix}. This would obviously present huge barriers to anyone trying to access the internet for blended or online areas that did not have immediate access to a resourced institutionⁱ.

Institutional Barriers

Institutions present various barriers to blended or online learning including, according to Digital Librarian, Leadership, timetabling and planningⁱⁱ. They suggest that when learning leaders are unfamiliar with, not interested in or actively against technology

this will not only present tutors with barriers, but will mean students are less likely to utilise online systems. The blocking of web content can also present an institutional barrier. NAACE advice recommends a balance is achieved stating “Secure but flexible web filtering is essential but has to meet the needs of all school users”ⁱⁱⁱ

Skills barriers (learners & tutors)

Staff familiarity with technology is an evident and often anecdotally cited problem within digital learning. The Digital Librarian site breaks those down into staff knowledge and staff attitude. The latter, it says, includes subject culture where teachers may be familiar with technology but not its application to “their” subjectⁱⁱⁱ. Time for training staff can be an issue too, meaning that this barrier is often harder to address. It is suggested that, as the next generation become teachers, this will be less of a problem, however e-learning leaders such as Josie Fraser argue that the next generation are not “natives” and actually have skill deficits in some aspects of online learning^{iv}. Inadequate technical support is also regularly cited as a barrier in this category as frequent, timely and effective access to support is key.^{iv}

Policy Barriers

The government and policy agenda is critical in provoking and driving digital learning. This includes not only the policy agenda itself, but also the funding attached to it. The FELTAG recommendations make reference to this referring to: “disincentives to innovation through funding”^{vi}. Policy might also be seen as a key way of addressing the so called “digital divide” and the fact that access to technology can prevent learners participating in blended learning. The University of Leicester point out that it can be something as small as the printing costs which can cause that divide.^{vii} While institutions may put in place measures to address this disadvantage it can be limited by something as small as bus schedules not working around library access times, Digital Librarian^{viii} suggests.

Other barriers

In addition to the barriers mentioned there are also technological issues in implementing e-learning. Leicester University break this down into a longer list^{lix} including too much dependence on technology (which will inevitably go wrong from time to time), device compatibility when learners are using their own devices or when differing devices are used within institutions or when the institution uses different devices between classes.^{lx}

Another barrier to face learners is that online learning is often taken at a time when traditional learning would be more complicated, either down to a specific need or circumstance (e.g. working irregular hours) meaning that learning outcomes may be harder to achieve all round (though conversely made possible by the existence of online learning^{lxi}).

Section 6: Practice to overcome barriers

Overcoming these barriers and promoting good practice is key to online and blended learning being effective. While good practice case studies are frequent, the lack of uniformity means identifying good practice is a research task in itself. Therefore this section outlines only the commonalities associated with good practice rather than examples specific to a given topic.

Teacher practice

How a teacher supports online and blended learning is key to its success rate. Proactive identification of need, offers of support and ongoing monitoring are crucial.^{lxii} ^{lxiii} Teachers need to be familiar with the tools and plan blended approaches where the technology aides the learning, rather than the learning relying on the technology for its effectiveness^{lxiv}. A US study found that keeping online classes smaller (rather than adopting the MOOC model of massive scale) helped disadvantaged learners considerably. It also found that using technologies in support (e.g. audio feedback, visualisations of problems solving) helped boost confidence and, in turn, effectiveness of learning. Jaggars sums it up well as: "Instructors in our study who expertly leveraged interactive technology tools did so in ways that made clear that they *cared* about their students."^{lxv}

Institutional Practice

Support from leadership is crucial; without sufficient CPD, resourcing and planning, pockets of expertise cannot be nurtured. The culture of the institution is also important, allowing cascading and development of innovation.^{lxvi}

Policy Practice

Leadership from government policymakers and funders is crucial for driving institutions to take up digital learning models. It is equally important that agencies such as OFSTED are also familiar with, drive and monitor effective practice in blended and e-learning.^{lxvii} Practice in this area is hard to research; anecdotal evidence along the lines of "they should fund this more" does not make a convincing case, as such examples are not backed up with case building evidence.

Section 7: Conclusions

Extending research

There is a great deal of research available about e-learning, online learning and blended learning, but it lacks uniformity for analysis; some refers to corporate sector training, some to formal HE and some to self directed learning. There is little, if any, evidence around the effectiveness of blended learning with marginalised groups in the community (the closest being evidence within a community college) and with drivers as they apply to providers in community learning. Variance in progression and employment destinations between online, blended and traditional delivery models also need further research and investigation.

It is clear that online learning offers fresh opportunities but that, in itself, online learning is unlikely to drive this without a blended approach. How effective that blended approach, the proportion that is online and offline might vary between subjects or delivery models is impossible for this report to conclude on; there is not enough evidence to draw any conclusions.

When funding adult learning, this research suggests that incentivising online learning is key and that driving and funding support and development is as important as anything else. However, it also suggests that there are many ways to drive blended learning forward through more cost effective means, rather than government funding; the infrastructure and teaching models are more important, perhaps, than the financial drivers.

As part of this project, NIACE will establish many of the answers that were beyond the scope of this report, however it should be noted that, even beyond this, there is a clear need for far greater research into blended learning in FE as a whole but, specifically, in adult and community learning situations.

References

- ⁱ Utley-Bernhardt, S, *What is online learning?*, Frostberg, (accessed July 2015), <http://www.frostburg.edu/online/distance-learning/what-is-online-learning/>
- ⁱⁱ LearningPool, *New To E-Learning?*, Learning Pool, (accessed July 2015), <https://www.learningpool.com/new-e-learning>
- ⁱⁱⁱ Mobbs, R citing LSDA, *What is e-learning*, University of Leicester, 2007 (accessed July 2015) <http://www.le.ac.uk/users/rjm1/etutor/elearning/whatislearning.html>
- ^{iv} Mobbs, R citing EU, *What is e-learning*, University of Leicester, 2007, (accessed July 2015) <http://www.le.ac.uk/users/rjm1/etutor/elearning/whatislearning.html>
- ^v FutureLearn, *Why it Works*, 2015 (accessed July 2015), <https://www.futurelearn.com/about/why-it-works>
- University of Edinburgh, *What is Online learning*, May 2015 (accessed July 2015), <http://www.ed.ac.uk/studying/postgraduate/degree-guide/online-learning/about>
- ^{vi} Stockley, D, *E-Learning Definition and Explanation*, 2014 (accessed July 2015), <http://www.derekstockley.com.au/elearning-definition.html>
- ^{vii} The Scottish Government, *ICT & Literacies*, (accessed July 2015), <http://www.gov.scot/Topics/Education/Life-Long-Learning/17551/practice/ictandliteracies>
- ^{viii} University of Edinburgh, *How will I learn online?*, (accessed July 2015) <http://www.ed.ac.uk/studying/postgraduate/degree-guide/online-learning/about>
- University of Frostberg, *Defining online learning*, (accessed July 2015), <http://www.frostburg.edu/online/distance-learning/what-is-online-learning/>
- ^{ix} Picciano, AG, *Blended Learning: Implications for Growth & Access*, Hunter College New York, 2006, (accessed July 2015) http://www.researchgate.net/profile/Anthony_Picciano/publication/255620924_BLENDED_LEARNING_IMPLICATIONS_FOR_GROWTH_AND_ACCESS/links/5512e8a90cf270fd7e33e0d6.pdf
- ^x Hanover Research, *Effective Online Marketing & Recruitment Strategies*, (accessed July 2015) <http://www.hanoverresearch.com/insights/effective-marketing-and-recruiting-strategies/?i=higher-education>
- ^{xi} Hanover Research, *Effective Online Marketing & Recruitment Strategies*, (accessed July 2015) <http://www.hanoverresearch.com/insights/effective-marketing-and-recruiting-strategies/?i=higher-education> & Collins, M, *Best Practices for College Recruiting*, NACE, (accessed July 2015) <https://www.nacweb.org/knowledge/recruiting/college-best-practices.aspx>
- ^{xii} Arekestall, *How social media has changed the way Universities recruit students*, Feb 2015, (accessed July 2015) <http://arekestall.co.uk/2015/02/university-recruitment-students/>
- ^{xiii} Shaw, C citing Pride S, *Have traditional student recruitment campaigns lost their bite?*, 2014, (accessed July 2015) <http://www.theguardian.com/higher-education-network/blog/2014/mar/10/university-student-recruitment-social-media-marketing>

-
- ^{xiv} Rengozzi, L citing Sixth Sense Survey, *How digital has changed University student recruitment*, April 2015 (accessed July 2015) <http://www.crunchsimplydigital.com/blog/how-digital-has-changed-university-student-recruitment/>
- ^{xv} Gomez, C, *7 ways Tennessee community colleges doubled completion rates*, 2015, (accessed July 2015) <http://www.recruitingretainingadultlearners.com/Article-Detail/learn-7-ways-tennessee-community-colleges-doubled-completion-rates.aspx>
- ^{xvi} Simpson, O, *Student retention in distance education: are we failing our students?*, Routledge 2013 (accessed July 2015) <http://www.mrsite.co.uk/usersitesv31/94669.mrsite.com/wwwroot/USERIMAGES/Open%20Learning%20are%20we%20failing%20art.pdf>
- ^{xvii} Parr, C, *Mooc completion rates below 7%*, TES, 2013 (accessed July 2015), <https://www.timeshighereducation.co.uk/news/mooc-completion-rates-below-7/2003710.article>
- ^{xviii} Simpson, O, *Student retention in distance education: are we failing our students?*, Routledge 2013 (accessed July 2015) <http://www.mrsite.co.uk/usersitesv31/94669.mrsite.com/wwwroot/USERIMAGES/Open%20Learning%20are%20we%20failing%20art.pdf>
- ^{xix} Holley, D, & Oliver, M *Student engagement and blended learning: Portraits of risk. Computers & Education* (2009), (accessed July 2015), <http://www.cblt.soton.ac.uk/multimedia/PDFs10/Student%20engagement%20and%20blended%20learning%20Portraits%20of%20risk.pdf>
- ^{xx} Hughes, G, *Using Blended Learning to increase learner support and improve retention*, IFE, London, (accessed July 2015), <http://eprints.ioe.ac.uk/2022/1/Hughes2007Using351.pdf>
- ^{xxi} Hughes, G, *Using Blended Learning to increase learner support and improve retention*, IFE, London, (accessed July 2015), <http://eprints.ioe.ac.uk/2022/1/Hughes2007Using351.pdf>
- ^{xxii} Jaggars, S *Deomcratization of Education for Whom? Online Learning and Educational Equity*, AACU, 2014 (accessed July 2015) <http://www.aacu.org/diversitydemocracy/2014/winter/jaggars>
- ^{xxiii} US Department for Education, *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies*, 2010, (accessed July 2015), <http://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf>
- ^{xxiv} Hughes, G, *Using Blended Learning to increase learner support and improve retention*, IFE, London, (accessed July 2015), <http://eprints.ioe.ac.uk/2022/1/Hughes2007Using351.pdf>
- ^{xxv} Hanover Research, *Effective Online Marketing & Recruitment Strategies*, (accessed July 2015) <http://www.hanoverresearch.com/insights/effective-marketing-and-recruiting-strategies/?i=higher-education>
- ^{xxvi} Jaggars, S *Deomcratization of Education for Whom? Online Learning and Educational Equity*, AACU, 2014 (accessed July 2015) <http://www.aacu.org/diversitydemocracy/2014/winter/jaggars>
- ^{xxvii} Jaggars, S *Deomcratization of Education for Whom? Online Learning and Educational Equity*, AACU, 2014 (accessed July 2015) <http://www.aacu.org/diversitydemocracy/2014/winter/jaggars>
- ^{xxviii} Clerk, D, *Who's using Moocs?*, 2013 (accessed July 2015), <http://donaldclarkplanb.blogspot.co.uk/2013/04/moocs-whos-using-moocs-10-different.html>
- ^{xxix} Jaggars, S *Deomcratization of Education for Whom? Online Learning and Educational Equity*, AACU, 2014 (accessed July 2015) <http://www.aacu.org/diversitydemocracy/2014/winter/jaggars>

-
- ^{xxx} Burr, L, *Online Beliefs*, 2003 (accessed July 2015), <http://news.csu.edu.au/latest-news/media-and-communication/research-challenges-popular-online-beliefs>
- ^{xxxi} Gulc, E, *Using Blended Learning to accommodate different learning styles*, HEA, 2006 (accessed July 2015), <https://www.heacademy.ac.uk/sites/default/files/2917.pdf>
- ^{xxxii} Science Daily citing Tynes, B, *Internet Safety gone wild?*, University of Illinois at Urbana-Champaign, 2007 (accessed July 2015), <http://www.sciencedaily.com/releases/2007/11/071106133103.htm>
- ^{xxxiii} Jaggars, S *Democratization of Education for Whom? Online Learning and Educational Equity*, AACU, 2014 (accessed July 2015) <http://www.aacu.org/diversitydemocracy/2014/winter/jaggars>
- ^{xxxiv} Chiles, N citing Wolfe R, *Personalized Learning especially good for students of colour*, 2015 (accessed July 2015), <http://hechingerreport.org/personalized-learning-is-especially-good-for-students-of-color/>
- ^{xxxv} Microsoft, *Personalised Learning & the technology debate*, (accessed July 2015), <http://www.educatornetwork.com/HotTopics/personalizedlearning/technologydebate>
- ^{xxxvi} Clerk, D, *Who's using Moocs?*, 2013 (accessed July 2015), <http://donaldclarkplanb.blogspot.co.uk/2013/04/moocs-whos-using-moocs-10-different.html>
- ^{xxxvii} William, M, *Online Learning, pick a subject, any subject*, The Guardian, 2013 (accessed July 2015) <http://www.theguardian.com/education/2013/nov/11/niche-subjects-online-learning-students>
- ^{xxxviii} Tomlinson, B & Whittaker, C, *Blended Learning in English Language Teaching*, British Council 2013, (accessed July 2015) http://englishagenda.britishcouncil.org/sites/ec/files/D057_Blended%20learning_FINAL_WEB%20ONLY_v2.pdf
- ^{xxxix} The Digital Librarian, *Subject Culture*, (accessed July 2015), <https://sites.google.com/site/thedigitallibrarian/barriers-to-integrating-technology>
- ^{xl} The Digital Librarian, *Subject Culture*, (accessed July 2015), <https://sites.google.com/site/thedigitallibrarian/barriers-to-integrating-technology>
- ^{xli} Younie, E, *Abstract of Implementing government policy on ICT in education: Lessons learned*, Springer, 2006, (accessed July 2015) <http://link.springer.com/article/10.1007/s10639-006-9017-1>
- ^{xlii} The Digital Librarian, *Subject Culture*, (accessed July 2015), <https://sites.google.com/site/thedigitallibrarian/barriers-to-integrating-technology>
- ^{xliii} Sites detailing BYOD practice (all accessed July 2015): <http://www.gsma.com/connectedliving/wp-content/uploads/2012/03/uk110811interactive1.pdf>, <https://www.jisc.ac.uk/blog/bring-your-own-device-byod-23-nov-2012>, <http://feltag.org.uk/wp-content/uploads/2013/12/Further-Education-and-Learning-Technology-Final-Draft.pdf>
- ^{xliiv} Optimus Consulting, *The advantages & disadvantages of e-learning*, (accessed July 2015) <http://www.optimussourcing.com/learninghintsandtips/the-advantages-and-disadvantages-of-elearning>
- ^{xlix} Kineo, *The benefits of e-learning*, (accessed July 2015) <http://www.kineo.com/resources/new-to-elearning/the-benefits-of-elearning>
- ^{xlvi} Mobbs, R, *What is e-learning*, University of Leicester, 2007 (accessed July 2015) <http://www.le.ac.uk/users/rjm1/etutor/elearning/whatiselearning.html>

-
- ^{xlvii} Blank, G, *The Internet in Britain*, OxIS, 2011, (accessed July 2015), <http://social-digitalresearch.ning.com/page/april-2013-symposium-1>
- ^{xlviii} Various authors, Joseph Rowntree Foundation (accessed July 2015) http://www.jrf.org.uk/sites/files/jrf/poverty-ethnicity-social-networks-full_0.pdf, <http://www.jrf.org.uk/media-centre/minimum-income-rural-households-5406>, <http://www.jrf.org.uk/publications/cost-of-living-poverty>
- ^{xlix} Dzieza, J citing White House Council of Economic Advisors, *Mapping the Digital Divide, Poverty more than Geography*, The Verge, 2015 (accessed July 2015)
- ^l Jaggars, S *Democratization of Education for Whom? Online Learning and Educational Equity*, AACU, 2014 (accessed July 2015) <http://www.aacu.org/diversitydemocracy/2014/winter/jaggars>
- ^{li} The Digital Librarian, *Subject Culture*, (accessed July 2015), <https://sites.google.com/site/thedigitallibrarian/barriers-to-integrating-technology>
- ^{lii} NAACE, *Guide to web filtering in schools*, 2013 (accessed July 2015) <http://www.naace.co.uk/2448>
- ^{liii} The Digital Librarian, *Subject Culture*, (accessed July 2015), <https://sites.google.com/site/thedigitallibrarian/barriers-to-integrating-technology>
- ^{liv} Fraser, J, *The Digital Native Questions*, Social Tech 2014 (accessed July 2015) <http://www.josiefraser.com/2014/11/digital-native/>
- ^{lv} The Digital Librarian, *Subject Culture*, (accessed July 2015), <https://sites.google.com/site/thedigitallibrarian/barriers-to-integrating-technology>
- ^{lvi} FELTAG, *Paths forward to a digital future for FE & Skills*, 2014 (accessed 2015) <http://feltag.org.uk/wp-content/uploads/2012/01/FELTAG-REPORT-FINAL.pdf>
- ^{lvii} Mobbs, R, *What is e-learning*, University of Leicester, 2007 (accessed July 2015) <http://www.le.ac.uk/users/rjm1/etutor/elearning/whatiselearning.html>
- ^{lviii} The Digital Librarian, *Subject Culture*, (accessed July 2015), <https://sites.google.com/site/thedigitallibrarian/barriers-to-integrating-technology>
- ^{lix} Mobbs, R, *What is e-learning*, University of Leicester, 2007 (accessed July 2015) <http://www.le.ac.uk/users/rjm1/etutor/elearning/whatiselearning.html>
- ^{lx} Mobbs, R, *What is e-learning*, University of Leicester, 2007 (accessed July 2015) <http://www.le.ac.uk/users/rjm1/etutor/elearning/whatiselearning.html>
- ^{lxi} Jaggars, S *Democratization of Education for Whom? Online Learning and Educational Equity*, AACU, 2014 (accessed July 2015) <http://www.aacu.org/diversitydemocracy/2014/winter/jaggars>
- ^{lxii} Holley, D., & Oliver, M. *Student engagement and blended learning: Portraits of risk. Computers & Education*, 2009, (accessed July 2015), <http://www.cbilt.soton.ac.uk/multimedia/PDFs10/Student%20engagement%20and%20blended%20learning%20Portraits%20of%20risk.pdf>
- ^{lxiii} Hughes, G, *Using Blended Learning to increase learner support and improve retention*, IFE, London, (accessed July 2015), <http://eprints.ioe.ac.uk/2022/1/Hughes2007Using351.pdf>
- ^{lxiv} Mobbs, R, *What is e-learning*, University of Leicester, 2007 (accessed July 2015) <http://www.le.ac.uk/users/rjm1/etutor/elearning/whatiselearning.html>
- ^{lxv} Jaggars, S *Democratization of Education for Whom? Online Learning and Educational Equity*, AACU, 2014 (accessed July 2015) <http://www.aacu.org/diversitydemocracy/2014/winter/jaggars>

^{lxvi} Mobbs, R, *What is e-learning*, University of Leicester, 2007 (accessed July 2015)
<http://www.le.ac.uk/users/rjm1/etutor/elearning/whatislearning.html>

^{lxvii} FELTAG, *Paths forward to a digital future for FE & Skills*, 2014 (accessed July 2015)
<http://feltag.org.uk/wp-content/uploads/2012/01/FELTAG-REPORT-FINAL.pdf>