

## **E-Learning: An Effective Way to Increase Empirical Knowledge**

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**Abstract.** This Paper provides a portrait overview of the use of e-resources amongst concerning Indian DELNET associates LIS professional. E-resources are progressively important to all aspects of education from teaching and learning, through to the collection of student data, Administration and marketing activities those institutions engage in. For this research e-resources are defined in the extensive sense and includes Virtual Learning Environments (VLEs), platforms, research software, and other e-resources (such as social networking technologies, use of Web 2.0 technologies, mobile phones or Audio Visual technologies) as they relate to systems used to aid learning, teaching and administration. The findings confirm the importance of e-resources to the institutions, as they are used daily by staff in all areas of their work.

One of our main findings was that the use of e-resources within institutions is extremely varied, and often the most innovative uses and users are not supported centrally. Indeed, in many institutions there is a lack of communication between IT service departments and other personnel who are responsible for the pedagogical aspects of e-learning. Instead, innovative use and good practice often comes from individual academic or support staff who can be seen as “champions” for e-resources who introduce these initiatives.

It is clear from the findings that e-resources and e-resource use is often not disseminated widely enough throughout individual institutions. As institutions have developed e-learning strategies and units, this may well be overcome in the short term, and these personnel will be able to oversee the roll-out of new e-learning innovations, be able to help with the dissemination of findings, and help to train staff in the use of these technologies.

**Keywords:** Virtual Learning Environments, Web 2.0 Technologies, e-resources, e-learning.

## **1. Introduction**

The quick co-evolution of skill and education is contribution new techniques to signify knowledge, new learning practices, and new mostly people of beginners. Still the influence of these modifications to recognized learning is mainly innovative, along with options for developing our thoughtful of what and how to learn. Like, the convergence of individual talents schemes new opportunities for familiar, informal and to be found learning. But this is widening the sound among everyday learning and recognized education, which is struggling to get used to educations and syllabuses that were well-known in a pre-digital era.

Technology-Enhanced Knowledge, motivation explore knowledge prospects that include digital technologies in innovative and transformative techniques. It will elaborate issues with the design of learning proficiencies that associate recognized and familiar perspectives; the advancement of learning and technology; new social and educational perspectives for learning with technology; new questions of policy, computational communication, teamwork and intelligence; social exclusion and presence in an era of personal and mobile technology; and efforts to increase every day and theoretical views on thought, community and epistemology.

The succession will be of awareness to researchers and students in education and computing, to learning program makers, and to the general community with a motivating the upcoming of learning with technology.

There are two areas of e-resource use that are particularly well developed; firstly the use of social networking sites (Facebook and Twitter) as well as the YouTube website, and podcasting for a variety of purposes, e.g. for marketing and as a learning and teaching aid. The second is VLE development as all institutions have a VLE – and use either Blackboard or Moodle, with the majority using Moodle

The fact that e-resource use is a high priority for institutions, there are two main problems that are holding back the wider utilization of these technologies. Firstly, within institutions, differing skill-sets of personnel, and the lack of internal dissemination of e-resource use findings, means that the adoption of these resources, which might have already been trialed in one subject area, is slow to spread to other areas.

E-resources and e-learning are increasingly important to all aspects, and all levels of education. The research has been conducted over three months, and has involved a stock take of the kinds of e-resources being used in the colleges of Rajasthan. The methodology has necessarily mixed methods, and included an online survey, one to one semi-structured interviews, phone interviews, and case study development of particularly good examples of where e-resource use has made a difference either to learning and teaching and managerial processes.

## **2. Definition of e-resources**

“Learning facilitated and supported through the use of information and communications technologies” (Beetham, Review, 2004 p1). This definition alludes to communications technologies being used as a mediating device allowing students to access learning resources that inform them of new ideas, then reflect upon and integrate these into their existing knowledge.

An "**electronic resource**" is defined as any work encoded and made available for access through the use of a computer. It includes electronic data available by (1) remote access and (2) direct access (fixed media). In other words: Remote access (electronic resources) refers to the use of electronic resources via computer networks. (AACR2, 2002 edition; glossary). Direct Access (electronic resources) refers to the use of electronic resources via carriers (e.g., discs/disks, cassettes, cartridges) designed to be inserted into a computerized device or its auxiliary equipment.

"**Acquire**" refers to any electronic resource, remote or direct access, which (1), the Library provides access to through official contractual, licensed, or other agreements (any of these electronic resources may or may not be owned by or housed at the Library) or (2), the Library receives through its acquisitions processes (e.g., purchase, gift, exchange, copyright deposit, ISSN requests, and transfer).

"**Collect**" refers to electronic resources owned by the Library and selected for the permanent collections. It may also include resources stored elsewhere for which the Library has permanent ownership rights.

"**Link**" refers to pointers from the Library's web resources or bibliographic records to remote access data.

"**Archive**" refers to that process of maintenance in a secure and permanent digital repository managed by the Library or for the benefit of the Library.

### **Scope and Limitation**

The research includes only online journals, books, databases, social networking sites. The research encloses the usage of e-resources by Delnet associates LIS Professionals.

## **3. Methodology**

The research was carried out over a period of Three months by personal distribution among the DELNET associates LIS Professionals. Hundred questionnaires were prepared and some were posted to the respondents with self-addressed envelopes for the responses to be mailed back, out of which 97 responded back.

The well-structured questionnaire comprised of the following questions: The positive and negative aspects of using the E-resources, frequency of users using E-resources, how many institutes are giving more information about their library E-resources.

The collected data was analyzed, classified and tabulated in a proper format. This research is very helpful in our research work.

#### **4. Perspectives of enhancement of e-learning**

Effects for learning technology designers, users, learning researchers, policymakers, and research funders. The Technical Operational Group of researchers and policymakers who providing idea and guidance for this sign framework as well developed a fixed of recommendations for placing the framework obsessed by performance. The report also take in cautionary follow-ups about the moral concerns that necessity be undertaken in conduct student data.

It give details that previously working with big data, there is a significant qualification: the future improvement had better bring into line with deeper learning objects and should include sound learning skills ideologies. New syllabus ideologies, such as the Collective Essential State Ethics and the Next Generation Science Principles, emphasize deeper learning objects. Without these are practically spoken at the essential of a learning resource, it is unlikely the resource will meet these significant objects. Similarly, a future improvement is more possible to be successful if it is grounded in important principles of how people learn. Once these requirements are saw, the suggestion framework defines five openings for using big data, all in a different learning perspective:

- **During improvement of an innovative learning resource;** educational data mining and learning analytics can discover designs of learner activities that can be used to guide upgrading. The purpose of design-based operation research is to involve designers with operation perspectives, because successful learning be influenced by on doing good performances of new resources in truthful perspectives. Design-based operation research brings background perceptions, which can guide analysis of data mining.
- **Students use a digital resource;** adaptive learning structures can opening learning by using big data with new indication models. Conservatively, learning resources are available in books and are the same for all students. With digital resources, still, all student can have a different step, style of performance, or type of content. Big data can be used to assemble wide-ranging information everywhere entities or groups of students, and the data be able to use to familiarize a learning resource to the student. Such as, in a brainy lecturer system, real-time data can find the thorough step in a complex problem where a learner goes incorrect and convey feedback particular to that step. Adaptations can

also be based on motivational or emotional issues. Further, teachers can be the go-betweens of adaptation, making instructional assessments based on rich data collected from their students.

The major challenge in these uses of evidence has been the difficulty finding robust interactions between characteristics of users and alternative ways that learning resources can be adapted to produce learning gains. Even though many find it obvious that learning can be modified, it really takes quite a bit of work to pin down compact sign of mixtures of user features and specific adaptations that substance.

- **As organizations try to support struggling students;** big data and new data exploration techniques can help guide involvement. Best conditions now have statewide data schemes with a standard student identifier for each student, which can make it informal to pathway data about students as they change among education backgrounds. Some school districts now are also investigating with connecting administrative data in student information systems to registers and events in learning management and digital learning schemes. Individuals data, in go, can be joined with data from social services assistances that students may involve with outside school such as youth improvement plans. Involving these various types of data can principal school systems to request new kinds of questions and to better known relations among students' environments outside school and their in-school performances and involvements.
- **As educational systems assess student achievement;** big data and new evidence models can shift measurements to focus more on what is really important and to provide more timely information to educators and students. As demands shift in the 21st century, new outcomes such as collaboration, problem solving, and critical thinking become even more important than in the past. Yet these competencies are rarely measured by high-stakes tests. Further, the current generation of high-stakes tests is mostly given at year's end. As assessments are delivered via technology, they can accumulate data on a student's accomplishments throughout the year and can offer feedback more formatively. The evidence challenge, however, is that even with technology, it is hard to design assessments to measure what is truly important with reliability and validity.
- **As professors choose and get used to learning resources;** since the vast collection now accessible on the Internet, big data and new evidence models can inform their choices. Ideally, many educators would like to make all their choices based on evidence of effectiveness established through randomized controlled trials. However, the production of rigorous effectiveness studies cannot keep pace with the abundance of digital learning resources, and thus educators often make decisions in the absence of evidence of effectiveness. Further, even when effectiveness data are available, educators have additional selection criteria, such as

ease of implementation and likely appeal to their particular students. Methods used in e-commerce are now emerging in education:

- i. User reviews and assessments of digital learning resources in online education sources;
- ii. User sections, which are substantial succeeded online groups that are used to deliver quick feedback to study a product's usability, usefulness, valuing, market place appropriate, and other issues;
- iii. Skilled scores and assessments to deliver curated collections of learning resources and references on how to use them; and
- iv. Collections of user activities on learning resources, such as clicking, viewing, moving, and distribution to social media.

### **5. Types of e-resources used**

The following lists of E-resources are used by DELNET associates LIS Professional.

- a) E-Journals
- b) E-Books
- c) E-Lecture presentation
- d) Case studies
- e) E-Newspapers
- f) E-mail
- g) Simulation/Model
- h) Study Guides
- i) Examination/Test
- j) Frameworks/toolkits
- k) Glossary collection
- l) Tips and tricks
- m) Lesson plan
- n) Reading list

### **6. Definitions and characteristics**

#### **a) E-Journals**

Electronic serials may be defined very broadly as any journal, magazine, e'zine, webzine, newsletter or type of electronic serial publication which is available over the Internet. Within this broad definition, the titles can be electronically accessed using different technologies such as the World Wide Web (WWW).

#### **b) E-Books**

E-books are books that are available to be read electronically on a variety of devices, including traditional computers, iPads, Amazon's Kindle, Barnes & Noble's Nook, Sony e-readers, iPhones, and more. Sometimes e-audio books are also considered e-books

- **Textbook**

The textbook is amongst the most commonly used resource in education. Other commonly used text based resource types include journal articles and conference proceedings (Beetham, Sharpe and Ravenscroft, 2003). Although widely adopted in all educational contexts, these have had limited impact on the effective adoption of e-learning. One of the most successful e-learning textbooks is Gilly Salmon's "E-moderating". This book has been written in accessible language and is available in a format that can easily be used.

- c) **E-Lecture presentation**

This is a record of a lecture presentation, speech or classroom session. These can be available in a variety of formats, including video, audio, and text (as lecture notes) or PowerPoint presentations. There are several reasons why these types of representations are readily adopted. The first reason is due to their apparent relevance: they act as a record of the course syllabus and, to the student, this defines the concepts that are likely to feature within summative assessments. Secondly, ownership: these resources are usually authored by the lecturer and can be used without fear of copyright infringement – although many of the images, etc within these representations probably break copyright rules.

The problem with these types of resources is that they are used passively by the student. If they were to be reused in conjunction with a learning activity resource (for example by giving the students the task of writing a narrative for a set of PowerPoint slides) they have the potential to support learning in a more powerful way.

- d) **Case studies**

A case study is a detailed account of a process or activity. Case studies can be defined as "complex examples which give an insight into the context of a problem as well as illustrating the main point". These can offer an account of the use of e-learning within specific real world contexts. Case studies can be used by practitioners to help them reflect upon their own applications of e-learning, to develop their own solutions, and to practically apply their knowledge of theory (Boyce 1993).

Case studies have been evidenced to improve motivation by allowing the application of theoretical concepts to be demonstrated and bridging the gap between theory and practice. Case studies can be presented in a variety of formats. The use of video – or a combination of video and text - affords the potential to present information in a more dynamic way. Practitioners in some subject disciplines have created case studies in video format to provide students with a more visual medium.

- e) **E-Newspapers**

An electronic newspaper is a self-contained, reusable, and refreshable version of a traditional newspaper that acquires and holds information electronically. (The electronic newspaper should not be confused with newspapers that offer an

online version at a Web site.)Information to be displayed will be downloaded through a wireless Internet connection.

**f) E-mail**

A system for sending and receiving messages electronically over a computer network, as between personal computers.

**g) Simulation/Model**

A simulation/model is a representation of a process, activity, organisation or object. The use of these models can promote deep conceptual understanding of real world concepts through the investigation of simulation models. Students can manipulate a simulation by changing parameters giving the student an opportunity to 'situate' learning that would otherwise remain theoretical. Simulations can also be used to allow students to engage in activities which would be too expensive or dangerous in the real world. There are many examples of these in subject disciplines: for example in Geology, the Virtual Microscope <http://met.open.ac.uk/vms/vms.html> or Business Simulations <http://www.bized.ac.uk> and <http://www.hud.ac.uk/scom/servicewatch/swhome.htm>.

A key barrier to uptake of simulations is the fact that a teacher/tutor would not usually have the skills to produce simulations and would have to rely on colleagues to interpret their content. Many simulations have been developed from a research and development perspective which then results in teachers having to adapt these for an educational purpose. Because simulations are often developed from a research perspective they tend to be numerically based rather than graphical, and therefore may be less useful in an educational setting.

**h) Study Guides**

The aim of a study guide is to provide hints, techniques or ideas in a particular area. Study guides can be used to offer practical information on the application of e-learning across a variety of contexts. Guides often focus on a particular subject (for example assessment) or are targeted towards specific users (for example managers, teachers, support staff, etc). Examples are available from the Learning and Teaching Support Network (LTSN) Generic Centre <http://www.ltsn.ac.uk> which has a large section of e-learning guides and assessment guides and the Association for Learning Technology <http://www.alt.ac.uk> which has a starter guide for practitioners. The problem with generic guidelines is that they frequently do not offer the rich contextualization required to engage practitioners and can seem autocratic.

**i) Examination/Test**

These are materials, typically made up of several assessment items that are designed to measure student learning (exams, questionnaires, quizzes). Question banks offer collections of assessment items. Question banks allow authors to contribute and withdraw questions independently. The construction of question banks means that they offer substantial savings of time and energy over

conventional paper or computerised objective test development (Dalziel and Bull, 2003). The main problems associated with question tests are that they frequently focus on Multiple Choice Questions (MCQs). While these can be designed to test deep learning, they frequently focus on memory recall. This is only appropriate for certain subjects at specific levels (eg first year science).

j) **Frameworks/toolkits**

Frameworks provide a structure to house a collection of concepts, methods and content and are often presented within an interactive toolkit. These allow users to apply elements of the framework to problems within their own context. Examples of toolkits are the Universal Design for Learning (UDL) toolkit created for the Teaching Every Student (TES) learning environment by CAST <http://www.cast.org/teachingeverystudent/toolkits/> and the JISC infarkts <http://www.jiscinfonet.ac.uk/InfoKits>

k) **Glossary collection**

A glossary is a collection of specialized terms and their meanings. These can be helpful in supporting understanding of terms. An example is the Baized Glossary and Diagram Bank <http://www.bized.ac.uk/glossary/index.htm> A major problem with glossaries is that they can date rapidly, particularly in fast-moving areas (such as e-learning).

l) **Tips and tricks**

Although tips and tricks are not favored by educational researchers, they have been readily adopted by practitioners. An example includes ‘2000 Tips for Teachers’ – one of a series of books edited by Phil Race and colleagues. These offer the “quick fix” approach that many practitioners favor. In addition, they are written in language which is accessible to practitioners. The main problem with these resources is that they do not provide a holistic approach to educational development and can advocate unsound applications of educational approaches.

m) **Lesson plan**

Lesson Plans are a useful way of sharing information on course design. They are particularly useful within the context of staff development, since they give insight into different educational approaches. Lesson plans are commonly used within school and Further Education (for example <http://www.teachernet.gov.uk/TeachingandLearning/resourcematerials/Resource/s/>) and have been shown to positively influence the effective adoption of e-learning within the school sector (Littlejohn, Broumley and Jung, 2003). They are, however, less likely to influence the Higher Education sector. However, with increasing emphasis on documentation and quality assurance, this is likely to change.

n) **Reading list**

Reading lists can be reused across different courses and institutions. They are a useful means by which students can be directed towards relevant and

(hopefully) quality assured resources. The main problems with reading lists are associated with the fact that they are frequently maintained by an individual practitioner or as part of a course website. Reading lists are now routinely located within Virtual Learning Environments, which means they are not accessible to practitioners who do not have access to the course for which the reading list is being maintained. Another factor affecting reuse of lists is the increasing development of systems that connect reading lists to the institution's library catalogue, an attractive feature to tutors, particularly if the list includes electronic journals which are available through the library.

### 7. Analyses of data

The data collected were analyzed with the applications of statistical tools. The study encloses itself to the use and usage of e-resources by the DELNET associates LIS Professionals.

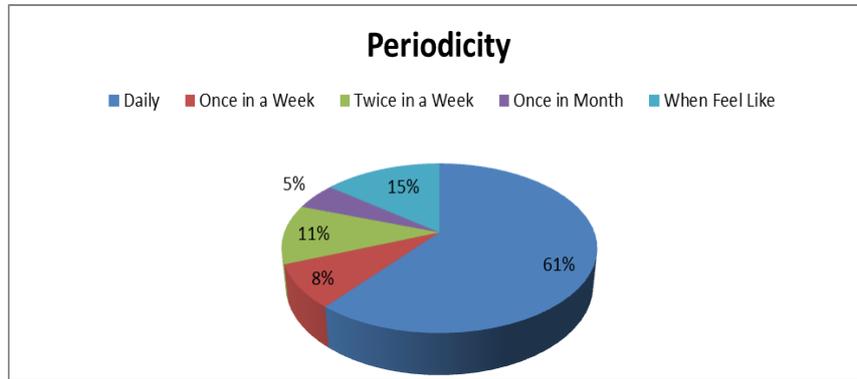
#### 7. a. Periodicity of Access to E-Resources

**Table 7.a.** shows that the 52 (63.5) access online resources daily basis, 6 (07.3) once in a week, 14 (17.1) twice in a week, 4(04.8) once in a month and 6(07.3) when feel like.

**Table 7.a. Periodicity of Access to E-Resources**

S.No.	Periodicity	No. of Respondents	In %
1.	Daily	59	60.82
2.	Once in a Week	8	08.24
3.	Twice in a Week	11	11.34
4.	Once in Month	5	05.15
5.	When Feel Like	14	14.43

**Fig. 7.a.Periodicity of Access to E-Resources**



**7. b. Necessity of E-Resources**

**Table 7.b.** indicates that 59 (60.82 %) of respondents ‘most required’, 38 (39.17%) are ‘required’ E- Resources for teaching, learning and research process. None of the respondents has felt that e-resources are ‘Not required’.

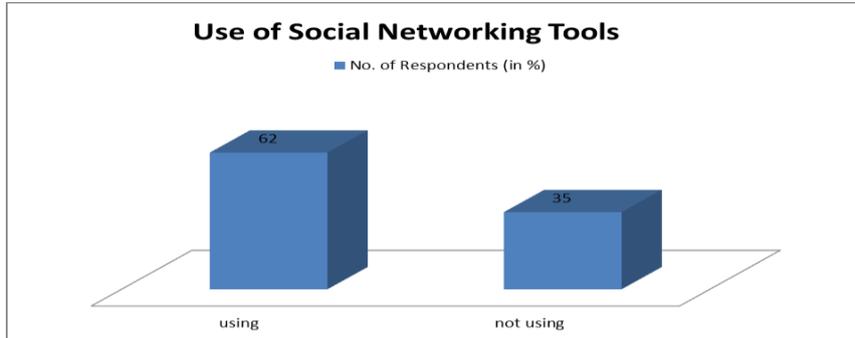
**Table 7.b.** Necessity of E-Resources

S.No.	Necessity	No. of Respondents	In %
1.	Most Required	59	60.82
2.	Required	38	39.17
3.	Not Required	00	00

**7.c. Use of Social Networking Tools for Learning and Teaching**

Social Networking Technologies are not only used by Delnet associates LIS Professionals for marketing purposes, but there is innovative and pioneering use of these technologies for learning and teaching.

**Fig. 7.c.** indicates that 35% said they were not sure, and 62% said they use social networking Tools for Learning, Teaching and information dissemination.



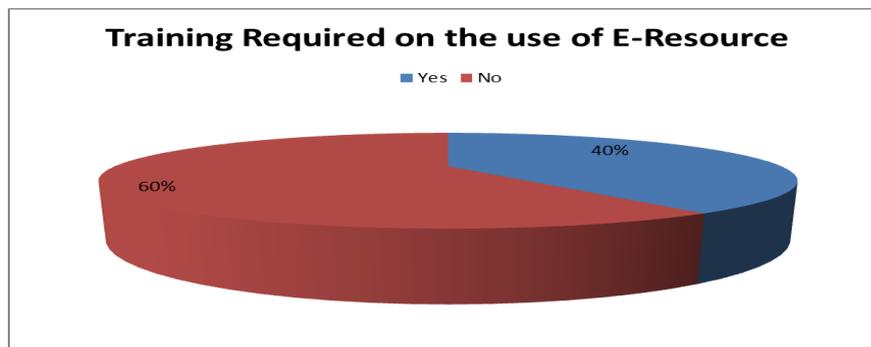
**7. d. Training on the use of E- resources**

We found that all Delnet associates LIS Professionals require training on the use of E-resources, after survey very few staff need training for resources.

**Table 7.d.** indicates that 39 (40.20%) LIS Professionals need training on the use of E-resources, 58 (59.79%) group of respondents do not believe they need training on the use of E-Resources.

S.No.	Training Required	No. of Respondents	In %
1.	Yes	39	40.20
2.	No	58	59.79

**Fig. 7.d.Training for use of E- resources**



**7.e. Institution collaborates with, or share e-resources with another institution**

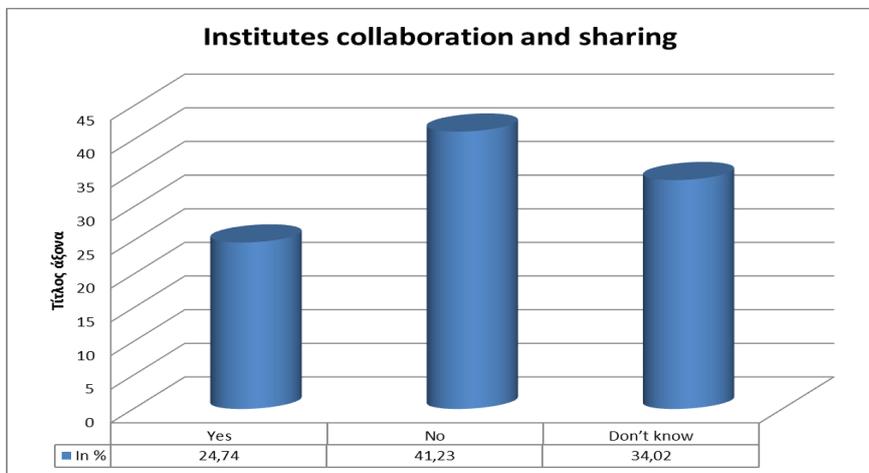
In response to the question “does your institution collaborate with, or share e-resources with another institution?” As shown in Table 7.e. 24 (24.74 % ) respondents would welcome this move, 33 (34.02%) respondents answered that

they would not want to collaborate more fully, and 40 (41.23%) respondents would not want to collaborate.

**Table 7.e. Institution collaborates with, or share e-resources with another institution**

S.No.	Institutes collaboration and sharing	No. of Respondents	In %
1.	Yes	24	24.74
2.	No	40	41.23
3.	Don't know	33	34.02

**Fig. 7.e. Institution collaborates with, or share e-resources with another institution.**



### 8. Conclusion

To maximize the potential of e-resources in the institutions it is clear that the way forward would be to assist those colleagues who are already “champions” in this area to disseminate their good practice, and to help them to up-skill other colleagues to embed these resources in a more even way within individual institutions. There are two main problems that are holding back the wider utilization of e-resources:

1. Within institutions uneven skill-sets of personnel, and a lack of internal dissemination of e-resources. As institutions have moved towards e-learning strategies, this may well be overcome in the short term, and

these units will be able to oversee the roll-out of new e-learning innovations and be able to help with the dissemination of findings, and training staff in the use of these technologies.

2. there is very little collaboration between institutions. This means that there is potential here to optimize e-resource use, for example by sharing good practice in this area. The research found that there is a high level of preparedness amongst institutions to participate more in this way.

## **9. Recommendations**

The following recommendations are designed to help education stakeholders turn the ideas presented in this report into action. Detailed explanations of each recommendation are in the Summary and Recommendations section of this Paper.

1. Developers of digital learning resources, education researchers, and educators should collaborate to define problems of practice that can be addressed through digital learning and the associated kinds of evidence that can be collected to measure and inform progress in addressing these problems.
2. Learning technology developers should use established basic research principles and learning sciences theory as the foundation for designing and improving digital learning resources.
3. Education research funders should promote education research designs that investigate whether and how digital learning resources teach aspects of deeper learning such as complex problem solving and promote the transfer of learning from one context to many contexts.
4. Education researchers and developers should identify the attributes of digital learning systems and resources that make a difference in terms of learning outcomes.
5. Users of digital learning resources should work with education researchers to implement these resources using continuous improvement processes.
6. Purchasers of digital learning resources and those who mandate their use should seek out and use evidence of the claims made about each resource's capabilities, implementation, and effectiveness.
7. Interdisciplinary teams of experts in educational data mining, learning analytics, and visual analytics should collaborate to design and implement research and evidence projects. Higher education institutions should create new interdisciplinary graduate programs to develop data scientists who embody these same areas of expertise.

8. Funders should support creating test beds for digital learning research and development that foster rigorous, transparent, and replicable testing of new learning resources in low-risk environments.
9. Institutional Review Board (IRB) documentation and approval processes for research involving digital learning systems and resources that carry minimal risk should be streamlined to accelerate their development without compromising needed rights and privacy protections.
10. R&D funding should be increased for studying the non cognitive aspects of 21st-century skills, namely, interpersonal skills (such as such as communication, collaboration, and leadership) and intrapersonal skills (such as persistence and self-regulation).
11. R&D funding should promote the development and sharing of open educational resources that include assessment items that address learning transfer.

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### **Examples of resources**

#### **Case Studies**

Information on the effectiveness of case studies:

- LTSN Guide: Teaching Materials Using Case Studies  
<http://www.materials.ac.uk/guides/casestudies.asp>

#### **Examples of case studies include:**

- Learning Environments and Pedagogy Case Studies available at <http://www.ltsn.ac.uk/genericcentre/index.asp?id=17729>
- Online Tutoring Skills Case Studies available at <http://otis.scotcit.ac.uk>
- The Online Tutoring e-Book available at <http://otis.scotcit.ac.uk/onlinebook/>
- The Students' Online Learning Experiences (SOLE) Project <http://www.sole.ilt.org/>.
- ASTER cti-psy.york.ac.uk/aster/resources/case\_studies/case\_studies.html
- Effective Lecturing [www.effectivelecturing.scotcit.ac.uk/elprojecthome.htm](http://www.effectivelecturing.scotcit.ac.uk/elprojecthome.htm)

#### **Study Guides**

- The Learning and Teaching Support Network (LTSN) Generic Centre has a large section of its web site devoted to e-learning, including e-learning guides and assessment guides <http://www.ltsn.ac.uk/genericcentre/index.asp?id=17104>
- The Association for Learning Technology guide “An introduction to learning technology within tertiary education in the UK” by Jane Seale and MerceRuis-Rui [http://www.alt.ac.uk/publications/ALT\\_Introductory\\_Pack.pdf](http://www.alt.ac.uk/publications/ALT_Introductory_Pack.pdf)
- List of Study Guides from Plymouth University <http://home.plymouth.ac.uk/services/help-advice/guides.htm>
- A variety of study guides from the UK and US can be sourced from support4learning <http://www.support4learning.org.uk/education/study.htm>

#### **Simulation/Models**

- Geology, the Virtual Microscope <http://met.open.ac.uk/vms/vms.html>
- Business, ServiceWatch <http://www.hud.ac.uk/scom/servicewatch/swhome.htm>
- Nursing and Healthcare e-ward <http://shscal.swan.ac.uk/eward/index.html>
- MultiVerse – a range of interactive tools <http://www.icbl.hw.ac.uk/simulations.html>