Helpdesk Report: Innovations in Education Systems and Delivery

Date: 8 June 2010

Query: Innovations in Education System and Delivery

Enquirer: DFID UK

Content

1. **Overview**
2. **Evidence – selected information sources, references and summaries**
   2.1 Background material and policy documents on promoting innovation in education
   2.2. Innovations within the classroom to improve learning
   2.3. Innovative educational tools, resources
   2.4. Innovations in organising and delivering teacher training
   2.5. Innovative ways of communicating with students and parents/involving community in education
   2.6. Innovations for improving learning environment
   2.7 Research on innovation in education
   2.8 Innovation and education systems strengthening
3. **Additional Information**

1. Overview

- There is a significant body of evidence showing the efforts of educational institutes all over the world to innovate their educational systems in order to extend services, improve performance and communication flows, and to reduce costs.

- The emerging innovations enable educators to gain improvement both in the content, the method and the organisation of education; there is an important body of evidence on innovations challenging current educational models by transforming teaching and learning practices or by devising new tools for self-directed learning or for lifelong learning, among others.

- There is a wide list of diverse promoters of innovative initiatives in education including international organisations active in the field (as OECD, UNESCO, European-based bodies), regional, national governments, NGOs or non-state actors.

- There is a significant amount of literature - from policy documents, articles, books or research to specialised blogs – describing the phenomenon of technology-induced educational innovation (new technologies which are boosting innovative initiatives). Comparatively, there is less information on 'pedagogical innovation' (derived from educational research) etc. It is worth noting that the simple adoption of new technologies into education systems does not mean that systemic innovations are taking place.

- Beside general research developed within the framework of different multinational projects, there is little valid evidence on the impact of concrete innovations on current educational practices (little research appears to have been conducted on assessing the overall impact of the individual initiatives).

2. Evidence – selected information sources, references and summaries

2.1. Background material and policy documents on promoting innovation in education

OECD Innovation strategy – developed by Centre for Educational Research and Innovation (CERI)
www.oecd.org/document/62/0,3343,en_2649_35845581_42378942_1_1_1_1,00.html
CERI has established an international reputation for pioneering educational research, opening up new fields for exploration and combining rigorous analysis with conceptual innovation.

'Opportunities for Change: Education Innovation and Reform During and After Conflict', edited by S. Nicolai, UNESCO, 2009
http://unesdoc.unesco.org/images/0018/001838/183808e.pdf
The paper describes the efforts of education authorities – and the agencies assisting them – as they take advantage of the opportunities for change that emerge out of periods of conflict and early recovery. Case studies from Afghanistan, Angola, Cambodia, Colombia, Kosovo, South Africa, Southern Sudan, Sri Lanka, Rwanda and Uganda explore conditions that contribute to strengthening education systems. Curriculum reform and innovative teacher training approaches are shown to be key parts of quality improvement processes. Moreover, the introduction of alternative education programmes and subjects such as peace education are identified as contributing to positive education change.

Health for Development: The Opportunity of Mobile Technology for Healthcare in the Developing World
www.globalproblems-globalsolutions-files.org/unf_website/assets/publications/technology/mhealth/mHealth_for_Development_full.pdf
Although health focused, this report provides an excellent source of recent, relevant projects which have used mobile technology innovatively to promote Education and Awareness, Remote Data Collection, Remote Monitoring, Communication and Training for Healthcare Workers, Disease and Epidemic Outbreak Tracking and Diagnostic and Treatment Support. Many of the ideas outlined could be adapted for the Education Sector.

2.2. Innovations within the classroom to improve learning

Activity Based Learning – A Report on an Innovative Method in Tamil Nadu
www.ssa.tn.nic.in/Docu/ABL-Report-by-Dr.Anandhalakshmi.pdf
The concept of Activity Based Learning is applied in the Rishi Valley, Tamilnadu, Rajasthan, and Chhattisgarh, India with the help of UNICEF. It represents an effective approach to attract out-of -school children to schools; the teachers who are involved in implementing this method have developed activities for each learning unit which facilitated readiness for learning, instruction, reinforcement and evaluation

English in Action, Implementation Phase, Bangladesh, BMB Mott Macdonald
www.bmb.mottmac.nl/files/page/217220/BangladeshEIA.pdf
English in Action provides English teachers in Bangladesh with resources and classroom materials, so that they can enhance their own teaching skills and bring new ideas into the classroom. The Open University's experts in distance education have helped to produce development materials for teachers that fit with the Bangladeshi curriculum, and advise on

how teachers and their use of technology can be supported in the programme. Teachers are given handheld mobile devices such as iPods to use in the classroom with speakers, so that pupils can listen to podcasts and other audio or video materials, and use these in conjunction with their school textbooks. An innovative feature of the programme is the development of a local support structure with regular groups of teachers coming together in 'cluster meetings' to share experiences and advise each other on how they are using the new materials.

Radio in the Classroom
http://radiointheclassroom.com/
Radio in the Classroom is an educational project meant to promote the idea of using radio shows as a means for language development.

Interactive Radio Instruction: A Successful Permanent Pilot Project?
http://blogs.worldbank.org/edutech/iri
Interactive radio instruction (IRI) is a distance education system that combines radio broadcasts with active learning to improve educational quality and teaching practices. IRI has been in use for more than 25 years and has demonstrated that it can be effective on a large scale at low cost. IRI programs require teachers and students to react verbally and physically to questions and exercises posed by radio characters and to participate in group work, experiments, and other activities suggested by the radio program.

'Virtual Interactive Classroom (VIC) using Mobile Technology at the Bangladesh Open University (BOU)', by S. Alam and Y. Islam
http://wikieducator.org/images/4/45/PID_563.pdf
Bangladesh Open University tested the effectiveness and viability of using interactive television (TV), and mobile Short Message Service (SMS) in the classroom together with the use of available and appropriate technologies to provide ICT enabled distance tuition.

'Learning2.0: The Impact of Web2.0 Innovation on Education and Training in Europe', Report on a validation and policy options workshop organised by IPTS, Authors: K Ala-Mutka, M Bacigalupo, S Kluzer, C Pascu, Y Puni and C Redecker, 2008
http://ftp.jrc.es/EURdoc/JRC50704.pdf
A wide range of examples for using of social computing for learning purposes: examples of such applications are, amongst others, social networking services (e.g. Facebook), collaborative filtering (Amazon, Last.FM), social bookmarking (del.icio.us), folksonomies (Flickr), multi-media content-creation (e.g. Wikipedia, blogs, Flickr & Youtube) social search engines (yoono.com), file sharing (Emule), mashups (BBC backstage), and online multi-player games (World of Warcraft or Second Life). The effect of such integrating such innovative approaches in education are visible in improving collaboration,networking, engagement and motivation, saupporting blended learning scenarios and personalisation of learning paths.

E book:'Mobile Learning: Transforming the Delivery of Education and Training', Edited by Mohamed Ally, 2009
www.aupress.ca/index.php/books/120155
This e-book offers an extensive description of how to design learning materials for delivery on mobile technology and become familiar with the best practices of other educators, trainers, and researchers in the field, as well as the most recent initiatives in mobile learning research.

'Cell Phones in the Classroom? Wiffiti says Yes'
www.schoollibraryjournal.com/article/CA6727431.html
Texting in the classroom (using a cell phone as a learning rather than a social tool). Cell phones and Wiffiti (http://wiffiti.com) can be used for submitting a text message to an online bulletin board placed in front of the classroom. Students and others from any location write on the board by texting from their cell phones. The messages appear on the screen within seconds for viewing by the entire class. Teachers use Wiffiti for brainstorming activities, to

receive answers to homework questions, and to encourage students to text in languages other than English.

'Geocaching in Education'. In K. McFerrin et al. (Eds.), Proceedings of Society for Information Technology & Teacher Education International Conference, by White-Taylor, J. & Donellon, P., 2008 (pp. 5340-5342). Chesapeake, VA: AACE
www.editlib.org/p/28129
Geocaching is an outdoor activity in which the participants use a Global Positioning System (GPS) receiver or other navigational techniques to hide and seek containers (called "geocaches" or "caches") anywhere in the world. Through the use of GPS technology and Geocaching, teachers have the opportunity to open their classrooms to the entire world, while at the same time teaching them something new and creatively addressing the state standards.

'Tech it Easy With Very Young Learners', by Ozge Karagolu
www.techlearning.com/blogs/30292
This is list of different applications and web tools that can be uses by teachers of very young learners.

'Teaching Auction Strategy Using Experiments Administered via the Internet'. Author(s): John Asker, Brit Grosskopf, C. Nicholas McKinney, Muriel Niederle, Alvin E. Roth, Georg Weizsäcker, The Journal of Economic Education, Vol. 35, No. 4 (Fall, 2004), pp. 330-342
www.jstor.org/stable/30042612
The method represents an experimental design used to teach concepts in the economics of auctions and implications for e-Business procurement. The innovation is that it does not require the use of a lab or class time. Instead, the design can be implemented on any of the many Web-based auction sites.

'Technology in Learning and Teaching Languages'. Author(s): Richard Kern Source: TESOL Quarterly, Vol. 40, No. 1 (Mar., 2006), Teachers of English to Speakers of Other Languages, Inc. (TESOL)
www.jstor.org/stable/40264516
The document synthesizes research findings from three current areas of research: computer-mediated communication, electronic literacies, and telecollaboration. It also develops implications for teaching and research, highlighting the importance of the teacher, new understandings of language and communication, critical awareness of the relationships among technology, language, culture, and society, and new trends in research methods.

'Will Technology Transform Music Education?' Author(s): David Beckstead Source: Music Educators Journal, Vol. 87, No. 6 (May, 2001), pp. 44-49 Published by: MENC: The National Association
http://mej.sagepub.com/cgi/reprint/87/6/44
Research on using technology in music education - although technological advances make composing easier, music educators tend to use these tools to make traditional methods more accessible rather than explore new possibilities in composing and teaching.

2.3 Innovative educational tools, resources

Personalisation by Pieces
www.camb-ed.net/pbyp/
'Personalisation by Pieces' (PbyP) represents an innovative online tool being trialled in the UK for accurately assessing learner's competencies such as their ability to work in a team, be creative and research. Any competency can be added to the PbyP framework but most

schools have chosen the PLTS (Personal Learning and Thinking Skills), functional skills or Key skills. PbyP is used by learners of all ages because each skill ladder has been designed on 9 steps of progression from beginner to professional.

PbyP provides every learner with their own e-portfolio that they can access through any computer or device connected to the internet (even their games console or smart phone if they have one).

'ePortfolios: Constructing Meaning Across Time, Space and Curriculum: an Article in the Handbook on Research for ePortfolio', by Jafari and Kaufman (Eds)
www.alicechristie.org/pubs/Carmean_Christie_eportfolio.pdf
ePortfolios can represent an innovative tool for supporting learner digital artifact creation, self-reflection and presentation, being considered an effective tool for knowledge creation.

'Teachers now using Text2Teach technology', Philippine Daily Inquirer, 03/19/2009
http://newsinfo.inquirer.net/inquirerheadlines/nation/view/20090319-194940/Teachers-now-using-Text2Teach-technology
The "Text2Teach" project presents 'interactive, multimedia educational videos' that enhance the learning experience of students inside the classroom

2.4 Innovations in organising and delivering teacher training

Teacher Learning Academy
www.teacherlearningacademy.org.uk
The Teacher Learning Academy (TLA) is an innovative way of helping teachers improve their classroom practice; the initiative has been operating for four years and is led by the General Teaching Council for England (GTC). The TLA provides a framework for teachers to test out a new approach or skill within the classroom, then discuss it with others and reflect on how it has worked. In other words, instead of taking teachers out of the classroom, the learning takes place in the only realistic environment: inside the school.

One innovative technique used for supporting TLA's practice-based approach to professional development is the Learning Journal; additionally, a support structure of schools committed to the process has been recognised as the 'TLA Schools network'.

'Teacher Leadership': Values and Voice', School Leadership & Management,28:4, 337—352, by Frost, David 2008
www.informaworld.com/terms-and-conditions-of-access.pdf
The idea of teacher leadership is described as a strategy for improving teachers training programs and for promoting key values: shared leadership, teachers' leadership of development work, teachers' knowledge building and teachers' voice.

2.5 Innovative ways of communicating with students and parents/involving communities in education

'Software and Internet Analysis: ICT to Improve Parental Engagement, Moving Towards Online Reporting', May 2008
http://emergingtechnologies.becta.org.uk/index.php?section=etn&rid=14162
This document offers solutions for schools which might want to provide parental access to systems where information is more frequently updated such as information held on a Learning Platform or build on the use of mobile technologies and text messaging to provide more timely information about attendance, behaviour, achievements and events.

Teachers 2 Parents
www.teachers2parents.co.uk/public/teachers/login.html

A text messaging service for schools to contact parents by SMS. This allows a variety of different message types to be sent to the parent and does not rely on a single administrative system to generate reports. At the same time, parents can also be notified to praise their child for good progress at school.

Memphis City Schools Improves Student Attendance with Socket Mobile and Plasco ID
www.aimglobal.org/members/news/articlefiles/3405-memphis-city-schools_case-study.pdf
The school district as deployed an innovative mobile tracking system that allows administrators to view student records, log student infractions, and print tardy slips on the fly. The mobile system has helped the school district both save time and helping to maximize students' learning time.

MGM Case Study – Bradfield College, New South Wales
http://www.mgmwireless.com/oceania/study_bradfield.html
A Case Study on how wireless technology is used as a mobile text-messaging attendance management solution in schools.

From Toy to Tool: Cell Phones in Learning
www.cellphonesinlearning.com/
Send Group Text, Email, and Audio Phone Messages to Students or Parents with One Click for Free!
Cell Phones in learning describes several techniques for integrating mobile phone use in the classroom.

WATCH D.O.G.S
http://schools.fwps.org/shf/people/watchdogs/watchdog.info.eng.06.pdf
WATCH D.O.G.S. represents a programme that invites fathers, grandfathers, uncles, or other volunteers to provide different services at their child's/student's school at least one day a week during the school year. Watch D.O.G. volunteers perform a variety of tasks during their volunteer day including monitoring the school entrance, assisting with unloading and loading of buses and cars, monitoring the lunch room, or helping in the classroom with a teacher's guidance by working with small groups of students on homework, flashcards, or spelling.

Can You Text me Money Now? Using Mobile Phones for Cash Transfers, Centre for Global Development, by Jenny Aker. Accessed 7/6/2010.
http://blogs.cgdev.org/globaldevelopment/2010/05/can-you-text-me-money-now-using-mobile-phones-for-cash-transfers.php
This article provides a basic outline of the concepts and challenges of using Mobile phones for cash transfers. While not specifically oriented to the education sector, the principle is still relevant. Key challenges include; the necessity of the having a mobile phone, the importance of 'agents' who can process the payments, the risk environment for the beneficiary, and the problem of fraud.

2.6 Innovations for improving learning environment

Dalry Primary – An Innovative Scottish Case Study
www.oecd.org/dataoecd/5/7/41536439.pdf
Dalry Primary is a unique project involving the close collaboration of artists, architects and the county's council in designing and realising a new concept in primary school building. The whole school is designed as a learning prototype, offering multiple opportunities to engage with different organisational and teaching methods, utilising or modifying the facilities and spaces. It does not impose directions or solutions, but offers them as options.

Changing School Architecture in Zurich - PEB Exchange, February 2008
www.oecd.org/dataoecd/25/35/40051085.pdf
The City of Zurich has revised its guidelines for designing school buildings, both new and old. The authors explain what makes up a good school building and provide a set of design recommendations.

2.7 Research on innovation in education

International Society for Technology in Education
www.iste.org/
ISTE is an organisation for educators and education leaders engaged in improving learning and teaching by advancing the effective use of technology in PK-12 and higher education.

UNESCO Report / Higher Education, Research and Innovation: Changing Dynamics
www.unesco.org/education/researchforum
Report on the UNESCO Forum on Higher Education, Research and Knowledge 2001-2009

Monitoring and Evaluation of Research in Learning Innovation
www.ub.es/euelearning/merlin/publicdocs.htm
Final Report of project HPHA-CT2000-00042 funded under the Improving Human Research Potential & the Socio-economic Knowledge Base, Directorate General Science, Research and Development EUROPEAN COMMISSION.

New Perspectives for Learning - Briefing Paper 39 / Impact of ICT-supported learning innovations
www.pjb.co.uk/npl/bp39.htm
The research is focused on a) new methodological approaches to learning in technology-based learning scenarios and their efficiency; b) institutional/ organisational consequences, including cross-cultural issues to be solved; and, c) contributions of ICT to lifelong learning. It takes into consideration pedagogic innovation, institutional/organisational innovation and socio-cultural innovation – as a consequence of the knowledge base generated in the area of "new learning approaches").

Innovations in Teaching and Learning in Higher Education. Aspects of Distance Learning and the Use and Impact of Information Technology, Faculty of Arts & Education, by Susan English
http://rilw.itim-cj.ro/98/Sue-pap.html
The research involved visiting and interviewing people (who are regarded as 'innovators') in 15 universities across the United Kingdom. However, the most important aspect in choosing which institutions to visit was the identification of 'innovative' people who had some public recognition (in the form of funding or awards) regarding methods of teaching and learning.

Factors Affecting Technology Uses in Schools: An Ecological Perspective Author(s): Yong Zhao and Kenneth A. Frank Source: American Educational Research Journal, Vol. 40, No. 4 (Winter, 2003), pp. 807-840 Published by: American Educational Research Association
www.jstor.org/stable/3699409
The authors of this article report on their study of technology uses in 19 schools. They suggest an ecological metaphor, using the example of the introduction of the zebra mussel into the Great Lakes, to integrate and organize sets of factors that affect implementation of computer uses. Their findings suggest that an ecological perspective can provide a powerful analytical framework for understanding technology uses in schools.

Placing Cybereducation in the UK Classroom. Author(s): Daniel A. Menchik Source: British Journal of Sociology of Education, Vol. 25, No. 2 (Apr., 2004), pp. 193-213 Published by: Taylor & Francis, Ltd.

Research on the use of the Internet in the classroom (characterized as a practice that disconnects the teacher from traditional forms of externally imposed influence). The National Grid for Learning (NGfL) is used as a case study.

Technology in Schools: Evaluation of Kentucky's Student Technology Leadership Program (STLP)
www.education.ky.gov/NR/rdonlyres/2E58AEB4-67A6-4461-AAF6-6ADD40746452/0/ATECSTLPsummary.pdf
The Kentucky Student Technology Leadership Program (STLP) exists to empower Kentucky's students to use technology for learning in Kentucky's classrooms. STLP has generally been successful in reaching its intended goals. In fact, STLP has had positive effects on teachers, students, schools and communities beyond those initially intended. Providing the opportunity to participate in STLP to all of Kentucky's students would spread these benefits across the state.

2.8. Innovations in education system strengthening

Cameras Improve Teacher Attendance: Duflo, Esther & Hanna, Rema & Ryan, Stephen, 2008. "Monitoring Works: Getting Teachers to Come to School," CEPR Discussion Papers 6682, C.E.P.R. Discussion Papers
http://ideas.repec.org/p/nbr/nberwo/11880.html
In 60 informal one-teacher schools in rural India, randomly chosen out of 120 (the treatment schools), a financial incentive program was initiated to reduce absenteeism. Teachers were given a camera with a tamper-proof date and time function, along with instructions to have one of the children photograph the teacher and other students at the beginning and end of the school day. The remaining 60 schools served as comparison schools. The introduction of the program resulted in an immediate decline in teacher absence.

Asian Schools Automate Attendance Tracking
www.futuregov.net/articles/2010/jan/25/asian-schools-automate-attendance-tracking/
FutureGov reveals how schools in Hong Kong, Japan, India and Singapore have taken the load off teachers by deploying biometric or smart card technology to track students' entering and leaving the campus. For this purpose, automated attendance kiosks are used in schools. As students arrive, they stand in front of the camera to have their face scanned and key in their password. Based on facial recognition technology, the scanned image is matched to the schools' database. At the beginning of the day, teachers can access a real-time attendance record either at a kiosk or via their lap top.

Approximately 20 schools in Singapore have installed fingerprint readers linked to an electronic attendance system. Moreover, systems can automatically alert parents via sms or email if their kids do not turn up at school or arrive late. Instead of biometrics, almost half of the urban schools in India are using smart card technology. Pupils scan their student ID card against readers installed at school gates. The information is updated in real-time on to the intranet.

Testing Students by Mobile Phone
http://news.bbc.co.uk/2/hi/uk_news/education/3278625.stm
Various experiments are going on promoting innovative ways of assessing what students know. One example is Ultralab at Anglia Polytechnic University innovation designed for the Qualifications and Curriculum Authority (QCA), working with phone company Orange and CWA New Media in New Zealand. The example of students calling a phone centre to log learning milestones, and then being examined by automated questionnaires once their course work is finished.

Monitors Improve Teachers' Attendance in West Nile, Tuesday, 20th April, 2010 (Uganda)
www.newvision.co.ug/D/9/35/716901
CARE International, Uganda, then devised a system where pupils could monitor the performance of their teachers. The same system is used to monitor attendance of pupils. The programme is sponsored by the European Union, under the Support to Decentralisation Programme (SDP).

The programme is being implemented in Nebbi, Moyo and Adjumani. According to the objectives, these communities will be empowered to monitor and evaluate the performance of Universal Primary Education (UPE) and the quality of health services.
Impact: at the moment, there are visible improvements in attendance by both teachers and pupils.

Monitor School Attendance with iPhone 3G
www.capitalequitypartners.com/seo/news/Aoyama-Gakuin-University.html
A prestigious Japanese university (Aoyama Gakuin) has distributed 550 iPhone 3Gs to staff and students so that they can use the phone's GPS capabilities to monitor class attendance.

Using Mobile Phones (SMS Services) for Educators' Participation and ICTs Integration in Education from Rwanda
www.netsquared.org/projects/using-mobile-phones-sms-services-educators-participation-and-icts-integration-education
Microsoft Mobile for Development (2009) - This project aims to improve participatory communication and e-govenance between educator stakeholders using SMS Media interface messaging system with two ways communication exchange. The system allows sending SMS message to multiple grassroots educators recipients and to get information and knowledge feedback sent from educators' mobile phones devises to a computer interface system.

The received information will then be used for various purposes, to inform education decision making such as education local priorities, challenges, opportunities and trends at all levels, for applied research that advances the integration of ICTs in basic education (monitoring ICTs infrastructure and management is schools and conducting short basic education surveying), exchange and share information that feed the delivery of services to grassroots educators' stakeholders and schools in Rwanda.

Imfundo project, Rwanda
www.virtualcampuses.eu/index.php/Rwanda
The aim of the project is to raise attainment through distance learning and professional development courses in ICT for teachers.

IMImobile Helps Students Receive Exams Results Through Mobile SMS
www.insidetelephony.com/telecom-news/IMImobile_Helps_Students_Receive_Exams_Results_Through_Mobile_SMS.php
Students receive exams results through mobile SMS in India - a specialist provider of technology platforms developed a partnership with the National Network of Education (NNE, India) to deliver board and university examination results direct to students via a mobile SMS.

Kenya Exam Body to Send Results Instantly
www.nation.co.ke/News/-/1056/871564/-/vr52r5/-/index.html
The Kenya National Examinations Council developed an innovative system to make it faster for candidates to get their results. Candidates who subscribe to the short message service (SMS) are texted their results immediately after the official release.

3. Additional information

Author
This query response was prepared by **Anca Nedelcu,** Centre Education 2000+
anedelcu@cedu.ro

Contributors
Robert E.Smith, Cambridge Education
Laura McInerney, Cambridge Education
Sorin Coman, Centre Education 2000+
Dr.David Frost, Senior Lecturer, University of Cambridge Faculty of Education

Websites visited
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JSTOR Journals
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