mEducation

Evaluation Toolkit

August 2013

Executive summary

The purpose of the Evaluation Toolkit

The GSMA mEducation Evaluation Toolkit is intended to inform the process of evaluating mEducation pilots, trials, projects, launches, deployments and implementations and to assist institutions, organisations and individuals in planning for and carrying out mEducation evaluations.

In particular the Toolkit is designed to help mobile network operators and their education and corporate partners in evaluating trials and product or service launches.

Evaluation has been described as "the process of judging something's quality, importance, or value" and as involving "assessing the strengths and weaknesses of programs, policies, personnel, products, and organisations to improve their effectiveness".[1] In order to judge and assess these things it is necessary to carry out some research incorporating collecting, analysing and interpreting data, and then drawing conclusions . Therefore advice about research approaches, methods and tools is included within the Toolkit. It has been suggested that "The most important purpose of evaluation is not to prove but to improve" (Stufflebeam et al, 1971[2]) and that the role of evaluation is 'ascertaining the value of' or 'making a value judgement about' a project, policy, product or service.

Clearly educators, trainers and learners will only wish to use mobile technologies and resources if they judge these to be an improvement on, or a useful addition to, the teaching and learning tools and approaches they currently use.

The advice in the Toolkit seeks to assist in the processes of understanding, making value judgements about and improving education, training and learning as well as mEducation products, services and business models.

The structure of the Evaluation Toolkit

The Toolkit consists of 3 parts:

Part One: An Introduction to evaluation – providing an overview of evaluation in the context of mEducation, introducing some key concepts and principles and discussing the selection of appropriate research approaches

Part Two: A practical approach to evaluating mEducation – including advice and guidance to evaluators, especially those who may have little previous experience of evaluation

Part Three: Some evaluation tools – designed to assist evaluators which can be tailored to meet the specific needs of individual evaluation contexts and requirements

1 http://www.evaluationwiki.org/index.php/Evaluation_Definition

2 Stufflebeam, D. L., Foley, W. J., Gephart, W. J., Hammond, L. R., Merriman, H. O., & Provus, M. M. (1971). "Educational evaluation and decision-making in education", Itasca, IL: Peacock.

Table of Contents

Part One: An Introduction to evaluation 3

1. Introduction 3

2. What is evaluation? 5

3. Who is evaluation for? 6

4. Why evaluate mEducation projects and services? 7

5. When should evaluation happen? 9

6. What to evaluate? 10
6.1. Evaluating mEducation processes 10
6.2. Evaluating mEducation outcomes and impact 11

7. Selecting a research approach appropriate to context, culture and objectives 13

Part Two: A practical approach to evaluating mEducation 15

1. Evaluation planning 15
1.1. The Context 15
1.2. The Learners and Stakeholders 16
1.3. Aims 16
1.4. Objectives 17
1.5. Research questions 17
1.6. Success factors 17

2. Evaluation research methods 18

3. Data collection 19
3.1. Who will collect and analyse the data 20
3.2. Data availability 20
3.3. Pre and Post Data collection 21
3.4. Triangulation 21

4. Evaluation Data Collection Tools 22
4.1. Questionnaires 22
4.2. Interviews 22
4.3. Focus Groups 23
4.4. Observation 23
4.5. Digital and mobile data collection 23

5. Selecting the most appropriate evaluation tools and data sources 24

6. Ethics, privacy and consent 25

Part Three: Some evaluation tools 26

Evaluation Start up Questions 27
Evaluation Planning: Overview and Approach Form 28
Evaluation Planning: Selecting appropriate evaluation research methods 29
Evaluation Planning: Partner/Stakeholder Aims Profile 32
Evaluation Planning: Evaluation Question Data Collection Planning Form 33
Evaluation Planning: Data collection map - Learners 34
Evaluation Planning: Data collection map - Teachers 35
Evaluation Planning: Data collection map - Institutions 36
Evaluation Planning: Data collection map – Sustainability, Business Models, Savings 37
Example Data Collection Tool: distance travelled by institution 38
Example Participant Consent Form 39
Example Practitioner Action Research Report Template 40

Part One: An Introduction to evaluation
1. Introduction

1.1. Purpose and intended audience

The purpose of this publication is:

- To inform the process of evaluating mEducation pilots, trials, projects, launches, deployments and implementations
- To assist the following organisations and individuals in planning for and carrying out mEducation evaluations:
  educational institutions
  work-based learning providers
  adult and community learning providers
  education and training solutions vendors
  publishers and other content providers
  mobile device manufacturers
  mobile network operators

The aims of these organisations and, therefore, the focus of their evaluation activities will vary. Typical aims may be:

- to explore the effectiveness and impact of the use mobile technologies in supporting, extending the reach of, or improving teaching, learning, assessment and other educational processes
- to generate evidence to assist in addressing possible concerns and reservations of stakeholders which can act as barriers to the use of mobile technologies in educational contexts
- to explore the sustainability, cost effectiveness or return on investment of mEducation products and services
- to inform the development of business models

1.2. What is mEducation?

mEducation (or mobile education) is an extension of mobile learning - defined as the exploitation of ubiquitous handheld technologies, together with mobile and wireless networks, to facilitate, support, enhance or extend the reach of teaching and learning - to include the full range of opportunities mobile technologies and systems offer for improving learning, teaching, assessment and educational administration and management. Mobile education incorporates access to e-books, apps and online learning materials and systems, collaboration, learner/tutor communication, evidence collection, e-portfolios, e-assessment, attendance monitoring, task planning, curriculum and device management. The "m" in mEducation can refer to:

- the mobility of the handheld, or easily portable, technologies used
- the mobility of learners and teachers who are enabled to teach or learn in different locations
- the mobile networks provided by mobile network operators (MNOs) which enable communication and access to online resources from most locations inside and outside buildings and throughout the world, including those beyond the reach of institutional and public wireless networks.

1.3. The mEducation Context

The market research company Ambient Insight (Adkins S S, 2011[3]) has observed "Mobile Learning has spread like wildfire across the planet" and a view often expressed at mobile learning conferences is that mobile learning has moved out of the laboratory and into the mainstream.

However many institutions and organisations are just starting, or just planning to start, experimenting with or implementing mEducation approaches and products. Also in many countries the adoption of mEducation within the schools sector in particular has been hampered by negative reactions to the idea of using mobile technologies in schools and by concerns about possible adverse impact on learning, learner behaviour and equality of opportunity.

Where governments, institutions, educators or individuals have started to use technologies for teaching and learning they may have been motivated by a variety of different considerations, some examples include:

Policy makers

- A need to make savings/deliver more for less in difficult economic times
- A need to provide education for more people and more learning opportunities less restrained by time and location in fast growing economies
- A desire to modernise education systems and practices
- Responding to learner, parent and employer expectations of use of modern technology
- A desire to address problems of drop out and under-achievement
- A desire to Improve workforce development and therefore GDP and international competitiveness

Institutions

- A goal (which may be prompted by external organisations e.g. funding or inspection bodies) to improve aspects of education delivery, to reduce learner dropout or absenteeism or attract hard to reach learners
- An aspiration to update delivery methods to take advantage of new technologies and to enhance their reputation for modernity and innovation
- A desire to provide access to standard reference material involving multiple media that is more interactive, more cost effective, more easily updated and physically lighter then printed text books
- The availability of government, regional or local authority funding for innovation or for trialling or adopting specific technologies

Educators

- A desire to try out a new technology to assess whether it can assist with or enhance some aspect of provision
- Being inspired by, and wishing to emulate, the successful use of mEducation by colleagues or in other institutions
- A desire to provide more differentiated teaching to meet the needs of specific groups of learners

Companies

- A desire to improve the flexibility and cost effectiveness of corporate training

Individuals

- A desire (or a parent/guardian's desire) to undertake some additional or supplementary learning to improve their educational outcomes
- A desire to undertake some flexible informal learning for pleasure or to improve specific knowledge or skills

3 Adkins S S, 2011, "The Worldwide Market for Mobile Learning Products and Services: 2010-2015 Forecast and Analysis, A Nascent Market Surges – The Emergence of Lucrative Mobile Learning Value Added Services (VAS)", Ambient Insight

2. What is evaluation?

A dictionary definition of evaluation is "the process of judging something's quality, importance, or value"[4]. The American Evaluation Association defines evaluation as involving "assessing the strengths and weaknesses of programs, policies, personnel, products, and organisations to improve their effectiveness" and observes that "Evaluation is the systematic collection and analysis of data needed to make decisions, a process in which most well-run programs engage from the outset.[5]

They suggest there are three types of Evaluation i.e:

- **Process Evaluations** – describing and assessing materials and activities
- **Outcome Evaluations** – studying the immediate or direct effects on participants
- **Impact Evaluations** – looking beyond the immediate results of policies, instruction, or services to identify longer-term as well as unintended effects

A comprehensive evaluation in education is likely to involve all three of these types. Even if the evaluation is initially motivated by a desire to improve outcomes, educators and policy makers are likely to want to consider what changes in the process led to outcome improvements and what the wider and longer term impacts are. This will enable identification of good practice which can help others to improve their outcomes, generate information about sustainability of improvements and suggest further approaches to be developed.

4 Cambridge Dictionaries On-line

5 http://www.evaluationwiki.org/index.php/Evaluation_Definition

3. Who is evaluation for?

In the specific context of the use of mobile technologies for teaching and learning, expert opinion (Sharples, M, 2009[6]) suggests there may be three broad categories of evaluation dependent upon who has prompted the evaluation and why, these are:

- **Evaluation as part of education research -** evaluating how processes of learning can be mediated, enhanced and transformed
- **Evaluation to inform design –** evaluating how a combination of technologies and activities can best be developed to address problems and provide new learning opportunities
- **Evaluation for policy makers –** evaluating evidence of learning gains or changes, by comparison with existing approaches or by showing how radically new opportunities have been created

When considering the broader learning landscape and ecosystems two more categories could be added to these three, i.e:

- **Evaluation for corporate training departments –** evaluating evidence of improved take up of training offered, improved compliance with processes and requirements taught and improved cost effectiveness, return on investment (ROI) or economic added value (EAV)
- **Evaluation for providers of new or pilot products and services –** evaluating how well new products and services meet the needs of learners, teachers and institutions and the sustainability or profitability of funding or business models

However, the findings of the first three categories of evaluation are also likely to be of interest to corporate training departments and organisations developing, piloting or marketing mobile learning products and services.

Evaluations are normally carried out on behalf of three groups of people, i.e.

- **People involved in trials or implementations,** for mEducation including:
  - developers of products, services or resources
  - project and curriculum managers responsible for the trial/implementation
  - education and training practitioners introducing or adopting mEducation approaches and solutions
  - independent researchers or evaluators studying the effectiveness and impact of mEducation approaches and solutions
- **People affected by the trial or implementation,** for mEducation including:
  - The intended beneficiaries – students, other learners, teaching staff, education administrators, etc.
  - Additional beneficiaries e.g. relatives of the learners who may also benefit, members of wider communities
- **Users of the evaluation findings,** for mEducation including:
  - Governments, local authorities, funding bodies, development agencies
  - Leaders of schools, colleges and universities
  - Employers and other training providers
  - Developers of products, services or resources
  - Providers of infrastructure and connectivity services
  - Market and academic researchers

The aims, objectives, attitudes, motivations and actions of all these people will have an impact upon and/or should be explored by the evaluation.

6 Sharples, M. (2009) Methods for Evaluating Mobile Learning. In G.N. Vavoula, N. Pachler, and A. Kukulska-Hulme (eds), Researching Mobile Learning: Frameworks, Tools and Research Designs. Oxford: Peter Lang Publishing Group, pp. 17-39.

4. Why evaluate mEducation projects and services?

In the Education sector, formal research evidence of effectiveness is not always seen as an absolute pre-requisite for trying or adopting new methods or technologies. The delivery of teaching and learning has traditionally mostly been informed by theories of learning, teaching custom and practice and informal experimentation.

Where educators have decided to try mEducation this is likely to have been prompted by anecdotal evidence of effectiveness acquired from their peers or they may have been convinced by their own experiences of using mobile technologies that these could assist with teaching and learning.

The need for proof of effectiveness is likely to arise when institutions or policy makers are considering expanding the use of mobiles to larger groups or to a greater proportion of the curriculum. In this situation evidence is likely to be required to justify increased investment. Similarly, in commercial companies, evaluation evidence related to training effectiveness and return on investment is required when the introduction or expansion of mobile learning by training departments involves significant spend.

Companies who have developed new mEducation products or services are likely to want to run and evaluate a pilot before committing to a full commercial launch.

Typical reasons for initiating an mEducation evaluation

- To judge whether, and to what extent, the objectives have been achieved (where objectives may include improving achievement, reducing dropout, attracting non-traditional learners, improving support for learners with learning difficulties or disabilities, improving flexibility and efficiency of education services, etc.)
- To meet the requirements of external funders
- To provide evidence to justify further investment, of both money and effort, in future or when expanding a pilot to more departments or institutions
- To identify additional impact beyond achievement of the initial objectives
- To identify which of a number of technologies or approaches have been most effective
- To identify benefits and issues and calculate return on investment
- To inform further development and improvement of products and services
- To test, or inform further development of, business models for products and services
- To identify which types of learners and which learning contexts benefitted most
- To identify best practice which can be shared with other practitioners

The role of evaluation in overcoming barriers to the adoption of mEducation

It has been observed (Kearney, 2011[7]) that, in the Health sector, before a mobile technology product can be adopted, evaluation evidence is required to address four key stakeholder concerns i.e. "safety, effectiveness, cost, and overall healthcare system impact" and that successfully proving that the product will "do no harm" is paramount as "Safety is considered to be the foundation of development for all medical interventions, technologies and services".

Although the adoption mEducation is spreading and growing very quickly in many sectors and contexts (e.g. corporate training and informal language learning), in formal education scenarios, and particularly in schools, there remains some strong resistance to the use of mobile technologies and especially to mobile phones.

Much of this resistance is due to similar stakeholder concerns, some of which are discussed in the GSMA publication "Safeguarding, Security and Privacy"[8], and these concerns act as hurdles which need to be overcome to enable mobile technologies to be widely adopted and embedded in the curriculum.

The findings of evaluations of mEducation trials, projects, products and services can provide evidence which can be used to help to allay concerns and therefore overcome the hurdles they represent particularly in the areas of: safeguarding, health and safety and learner behaviour; pedagogic effectiveness; cost / cost effectiveness / sustainability / return on investment and broader internal and external impact (including impact on families, employers, adverse publicity and the 'digital divide').

Hurdles like fear of change or loss of control, teachers' lack of skills and confidence, management not allowing time for experimentation and preparation and learner, parent or employer objections are best addressed by providing information, advice and training for the stakeholders concerned. The development of this advice and training can be informed and enhanced by the use of evaluation evidence.

7 Anscombe J, Bacardit A and Hamid I of AT Kearney with Dr Craig Friderichs , 2011,"Improving the evidence for Mobile Health", a report commissioned by GSMA

8 http://www.gsma.com/meducation

5. When should evaluation happen?

There is a common belief that evaluation is something that takes place after an event or at the end of a process. For example, many people's only experience of evaluation is being asked to complete a short form at the end of an event, or having tried a new product, indicating whether or not they liked it.

However, it is very important to start thinking about and planning evaluation at an early stage in any project, pilot or launch in order to ensure that:

- all data is collected for later analysis to produce useful information about success and impact
- evaluation roles and responsibilities and timelines are clear
- adequate resources are allocated to evaluation
- To provide the option of collecting pre-trial data which can later be compared with in- trial or post-trial data

In planning evaluation of mEducation trials or projects it is also necessary to investigate:

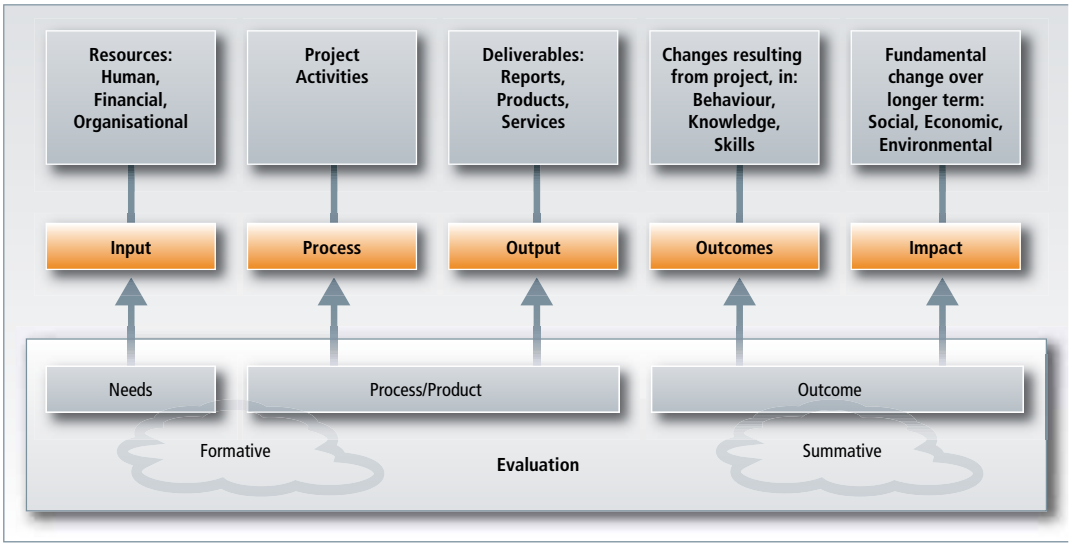
- When events occur that are likely to impact on both the trial and its evaluation e.g. academic year and term dates, examination dates, inter-semester breaks, study leave periods, staff training days
- when official data relating to important indicators such as examination results will be published and therefore available for analysis. Official data may not be available until quite a long time after the examinations or assessments are undertaken.

An example evaluation planning form is one of the tools provided in part 3.

Some authors and organisations describe evaluation as either summative, i.e. happening at the end of or after the deployment being evaluated, or formative, i.e. happening during and informing the progress or development of the deployment being evaluated.

Formative and summative evaluation can also be considered as stages in an evaluation process that runs throughout a project or trial (Glenaffric, 2007[9]). Therefore, in ICT projects, formative evaluation can include the initial process of investigating user requirements at the beginning of a project.

The relationship between an ICT project and evaluation types



Source: Glenaffric, 2007

9 Glenaffric Ltd, 2007, "Six Steps to Effective Evaluation: A handbook for programme and project managers"

6. What to evaluate?

6.1. Evaluating mEducation processes

In suggesting a "set of basic precepts for evaluating mobile learning" Vavoula and Sharples (2009[10]) advise evaluators to: "look beyond measurable cognitive gains into changes in the learning process and practice". The other four precepts are:

- **Capture and analyse learning in context,** with consideration of learner privacy
- **Assess the usability** of the technology and **how it affects the learning** experience
- **Consider organisational issues** in the adoption of mobile learning practice and its integration with existing practices and understand how this integration affects attributes of in/formality
- **Span the lifecycle** of the mobile learning innovation that is evaluated, from conception to full deployment and beyond

In order to achieve this, they suggest evaluation at three levels:

- **Micro level,** examining the individual activities of technology users to assesses usability and utility
- **Meso level,** examining the learning experience as a whole, to identify learning breakthroughs and breakdowns
- **Macro level,** examining the effect of the new technology on established educational and learning practices and institutions

For operators and other companies providing mEducation products and services, the Macro level could be extended to include examining the effect on established educational products, services and business models and the opportunities for developing radically new products, services and models.

The development of products and services will also be informed by the knowledge gained from undertaking Micro and Meso level evaluation.

At Micro level evaluation could include exploring the 'affordances' of mobile technologies, i.e. "the activities or practices that the function of a technology enables the user to perform"[11].

Also at the Micro level, product and service developers and educators are likely to share an interest in the extent and nature of appropriation of mobile technologies by learners and teachers.

Appropriation has been defined as "when users invent ways to use technology for purposes that they had not considered before" (Salovaara A, 2009). In the context of mobile technologies perhaps the most famous example of appropriation was when young people started to use SMS to send text messages on a technology designed as a portable telephone. Evaluations of mEducation trials and implementations should include consideration of the appropriation of mobile technologies for teaching and learning purposes, especially as the mobile technologies used are most commonly normal consumer devices rather than something specifically designed for education.

10 Vavoula G and Sharples M, 2009, "Meeting the Challenges in Evaluating Mobile Learning: a 3-level evaluation framework", International Journal of Mobile and Blended Learning, 1,2,54-75

11 McLoughlin, C. & Lee, M. (2007). Social software and participatory learning: Pedagogical choices with technology affordances in the Web 2.0 era. In ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007

Some examples of the educational affordances of mobile technologies

Features of mobile device	Functions enabled	Examples of educational affordances
SMS service	Sending and receiving text messages	Learners can receive and respond to quizzes testing their recall of material from recent lessons or revision topics. Instant communication between teachers and off-site learners who have questions or need assistance.
Camera	Taking photographs	Geography students on fieldtrips can quickly capture images of landscape features for later discussion in class and inclusion in coursework
	Recording video	Sports, sports science or dance students can record performances for analysis and discussion and to inform performance improvement. Lessons or lectures can be videoed or teaching staff can record vodcasts for students to view later to assist understanding and recall of difficult concepts, for revision or to catch up. Vocational learners can record themselves practicing their skills to assist skill development and to provide evidence of their skills for assessment purposes.
	Reading QR codes	Learners can use QR codes printed on posters in institutions, learning centres or community locations to access on-line information and interactive exercises.
Microphone	Recording sound	Language students record interviews with native speakers in authentic locations to inform development of their own language skills and for inclusion in coursework.
Web browser	Access to on-line resources	Teaching staff can record lessons and/or supplementary material to make podcasts learners can listen to whenever, wherever and at whatever pace they choose. Learners can search the web, access virtual learning environments, access email accounts, share and collaborate with other learners via you tube, facebook, twitter, etc.
GPS	Location awareness	Enables learners to access location specific information e.g. information about historic buildings. Learners can location tag field tip photographs, locate themselves and sites of interest on maps, carry out treasure hunt type learning activities.

6.2. Evaluating mEducation outcomes and impact

Education evaluations motivated by the need to provide evidence of efficacy to funders may be mostly concerned with outcome e.g. did this approach lead to better examination results or did it reduce learner dropout?

There may be several desired outcomes in both the short and the longer term. Evaluation guidance produced by the UK higher education Joint Information Systems Committee (JISC) includes the advice: *"List the outcomes you envisage"* where outcomes include *"the changes in behaviour or state that you are trying to achieve"* and *"It may be helpful to consider outcomes in terms of their impact over time"* (Glenaffric, 2007).

In the short term immediate outcomes related to learning and motivation which impact on individuals' achievements and attitudes may be measured. Intermediate outcomes in the medium term may be more action focussed relating to impacts on behaviour, teaching practice, institutional decision making and policy development. In the longer term final outcomes could be related to impact upon the social, economic, civic or environmental landscape.

Another type of desired outcome may be to reduce the cost of providing education or training. In the context of corporate training and development a key consideration when evaluating any innovation is return on investment (ROI). Calculating ROI involves estimating the total cost of an innovation initially and over a period of time and comparing this with an estimate of the total monetary value of the benefits realised over that time period. Companies sometimes use a comparison of the expected ROI percentages of alternative innovations to select one, where the ROI percentage is calculated by (benefits / costs) x 100.

Another way of presenting ROI information is to estimate the monetary value of the benefits of an innovation on a per month basis and then work out how many months it will take to repay the total cost. This is sometimes called the payback period and can be a useful way of providing persuasive information to senior management considering an investment. A problem with ROI is that it is difficult to express some of the benefits of education and training in monetary terms. It can also be quite difficult to ensure that all associated costs and benefits have been taken into account.

7. Selecting a research approach appropriate to context, culture and objectives

Some people believe that there is a clear hierarchy of research methods in which some methods are 'better' than others. An alternative view is that all research methods have strengths and weaknesses which make them more or less useful in particular situations.

The overall approach to research and the evaluation research methods employed are dependent upon:

- the prevailing culture of the sector or industry
- the attitudes and requirements of the people and organisations initiating and taking part in the activities to be evaluated
- what the evaluation is trying to find out
- what is already known
- how well the current situation is understood
- the expertise and experience of the people carrying out the evaluation
- resources, including money, staffing and time available

A scientific approach

In scientific environments the prevailing culture and attitudes typically suggest that if the correct questions are asked in the right way using the appropriate research methods or experiments which collect the correct data then the facts or the truth will be discovered. Scientific approaches include those described by researchers as positivistic, experimentalist or objectivistic. An evaluation using these approaches is likely to involve generating an hypothesis and carrying out an experiment to prove whether or not it is correct, with the experiment involving the collection and analysis of mostly quantitative data. A typical research method used for such an experiment is a randomised controlled trial.

A social sciences approach

When an evaluation is mostly about studying human behaviour, which is clearly the case with education, social sciences research approaches need to be considered. Such approaches assume that human behaviour is unpredictable, individual and highly dependent upon context (although behaviourism assumes human behaviour to be highly predictable). Social science approaches include those described by researchers as humanistic, interpretivist and subjectivist. Evaluation methods based on these assumptions are likely to be observational rather than experimental and likely to involve the collection and analysis of qualitative data They are also likely to be looking for more than a simple 'yes it works' or 'no it does not work' answer.

Five types of social research for evaluation

Research type	When to use	Objectives
Exploratory	when there is little or no prior knowledge	to gain familiarity, to seek patterns, to generate hypotheses
Descriptive	when more information is needed	to describe what is happening, how often, how much, etc.
Explanatory	to find out why	to assess causal relationships between variables
Predictive	to forecast the future and ask what if	to interpret the findings of explanatory research
Action	to help practitioners improve practice	to identify area for improvement and to plan, implement and evaluate changes

A mixed approach

Educational research frequently combines a number of different research approaches and methods, including collecting both quantitative and qualitative data, in an attempt to establish not only what happens but why it happens. It has been observed: "combining quantitative and qualitative methods in a single study can help elucidate various aspects of the phenomenon under investigation, providing a more holistic understanding of it and resulting in better-informed education policies. This is particularly true when studying complex social phenomena, such as the attitudes and behavioural reactions of teachers when confronted with an educational reform." (Giannakaki M S, 2003)

See "Selecting appropriate evaluation research methods" in Part Three for some further discussion concerning selecting appropriate research methods including consideration of:

- Randomised and non-randomised controlled trials
- Other experimental or quasi-scientific methods
- Evaluation as part of a continuous evidence-based improvement strategy
- Action Research

Part Two: A practical approach to evaluating mEducation

A practical approach to evaluation includes early and careful planning, developing appropriate and unambiguous research questions, deciding what data is required to answer these questions and how it will be collected and then collecting and analysing the data, drawing conclusions and examining the implications.

1. Evaluation planning

An evaluation plan is essential and it needs to include a clear definition of the project, trial or implementation being evaluated, its context, stakeholders, objectives, timescales, how success will be recognised, the data that needs to be collected to judge success and wider impact, the research methods to be used and the roles and responsibilities of those involved. The questions suggested, and the example evaluation planning form in Part 3 may assist the planning process. The forms provided are starting points or examples which may require tailoring or expanding to suit specific evaluation situations. During evaluation planning it is necessary to develop a clear understanding of:

1.1. The Context

- the overall context of the project, trial or implementation being evaluated including why and by whom it has been initiated

  For example it might have been initiated by institutional management, prompted by a desire to find an innovative way of tackling a specific issue e.g. learner drop out; or by the availability of funding to trial or implement mEducation.

  Alternatively it might be the result of institutions or local authorities collaborating with mobile network operators, device manufacturers and/or suppliers of learning resources to trial a specific mEducation service.

- the learning type and location
  i.e. formal or informal learning? learning location e.g. school, college, university (and the specific learning location e.g. classroom, laboratory, workshop, playing field, field trip), workplace, community location or at home

- the technologies being employed
  Handheld and portable technologies used in education and training include mobile phones, smartphones, PDAs, MP3/MP4/media players, e-Book readers (e.g. Kindle), Ultramobile PCs (UMPCs) and netbooks, tablet PCs (e.g. iPad, Galaxy Tab), hybrid tablet/smartphone devices (e.g. Galaxy Note), handheld gaming devices (e.g. Sony PSP and Playstation Vita, Nintendo DS), handheld GPS devices, connected cameras, classroom voting devices and specialist portable technologies used in science labs, engineering workshops or for environmental or agricultural study.

A few models of these technologies have been specifically designed for use in education (e.g. the one laptop per child (OLPC), the Intel Convertible Classmate, the Aakash tablet) but typically educators are using available consumer technologies.

mEducation also involves the use of mobile and wifi networks or mobile wifi hotspot devices, to provide connectivity within institutions and homes and also in a wide variety of other living, working and learning locations, and supporting systems e.g. mobile learning management systems (MLMS) and mobile device management systems (MDMS)

1.2. The Learners and Stakeholders

- Key information about learners including their age, gender, the education stage they are undertaking, the subject they are studying and the level of study, any particular abilities, needs or problems they have.
- Stakeholders with an interest in the project may include teachers, parents/guardians or carers, curriculum management, institution and project funders, regulatory bodies, project partners and employers. It is important to establish early in evaluation planning which stakeholders can potentially assist, champion or inhibit the evaluation. The example form in the Toolkit may help in this by encouraging collection of their aims and objectives.

1.3. Aims

What are the overall aims that the institution, organisation or funder is trying to achieve? Examples could be:

- Reduced learner drop out and improved attendance
- Improved teaching and learning
- Better support and/or engagement of specific learner groups
- Improved learner experience as reported in learner satisfaction surveys
- Better inspection grades
- Improved exam results or position in examination league tables
- Increased use of technology in the curriculum
- Enhanced institution reputation for modernity and innovation
- More efficient more cost effective delivery of aspects of provision
- Phasing out of printed textbooks

1.4. Objectives

The initiators of the use of mobile technologies (e.g. school/college/university, company, local authority, government) are likely to have as objectives the intention to improve some things in order to achieve their overall aims; these objectives may include improving or increasing some of:

- learner engagement
- learner retention
- learner achievement or speed of achievement
- amount or quality of homework/coursework
- number of units or courses completed
- support of less able learners and/or stretching of more able learners
- support of learners with learning difficulties or disabilities
- quality of learner learning experiences
- personalisation of learner learning experiences
- quality of teaching
- differentiation of teaching
- effectiveness of the teaching/learning model
- efficiency of assessment
- teacher and/or learner ICT skills
- cost effectiveness and/or portability of text books
- access to ICT for learners and parents
- home/school communication
- family engagement
- employer engagement
- return on investment
- sustainability of business models

1.5. Research questions

One way of testing whether objectives have been successfully achieved is by an evaluation exercise which seeks to answer specific research questions, for example:

> "Can the use of mobile devices help to improve learner achievement in English?"
>
> "Can enabling access to learning resources outside of institution opening hours and buildings via mobile devices improve the quantity and quality of homework tasks completed by learners?"

The form provided in Part 3 can be used to plan data collection requirements for each research question to be addressed.

1.6. Success factors

In seeking answers to the research questions, and in order to recognise whether and when objectives have been achieved, it is helpful to specify success factors to look out for. For example success factors for 'improved learner engagement' might include improved attendance, better punctuality, more participation in class discussions and completion of more in class or homework tasks.

2. Evaluation research methods

The choice of research method or methods is dependent upon:

- the context, aims and objectives of the evaluation
- the culture of the institution, organisation or sector
- the requirements of funders of pilots/projects/implementations or suppliers and their clients during testing products or services
- the resources, expertise and time available

It is also affected by:

- how much is already known about the context, the participants and their behaviour
- how broad the scope of the evaluation is
- how much of a change the situation, product or service represents and its complexity

For example if the evaluation is about deciding whether an alternative single purpose tool for delivering one element of teaching and learning is better than the existing tool – for example replacement of textbooks with ebook readers and ebooks - a randomised controlled trial may be the most appropriate method. However, additional qualitative research may be valuable in identifying additional or unplanned benefits which may have been realised.

On the other hand an evaluation may be exploring the effects of introducing a multifunctional mobile device which will support and facilitate a wide variety of teaching and learning activities in a many locations. In this case an exploratory evaluation using a mixture of qualitative and quantitative methods will be needed as the evaluation will be seeking to do more than answer a simple yes or no question. However, the initial evaluation may result in the development of some specific hypotheses which could later be tested using randomised or non-randomised controlled trials.

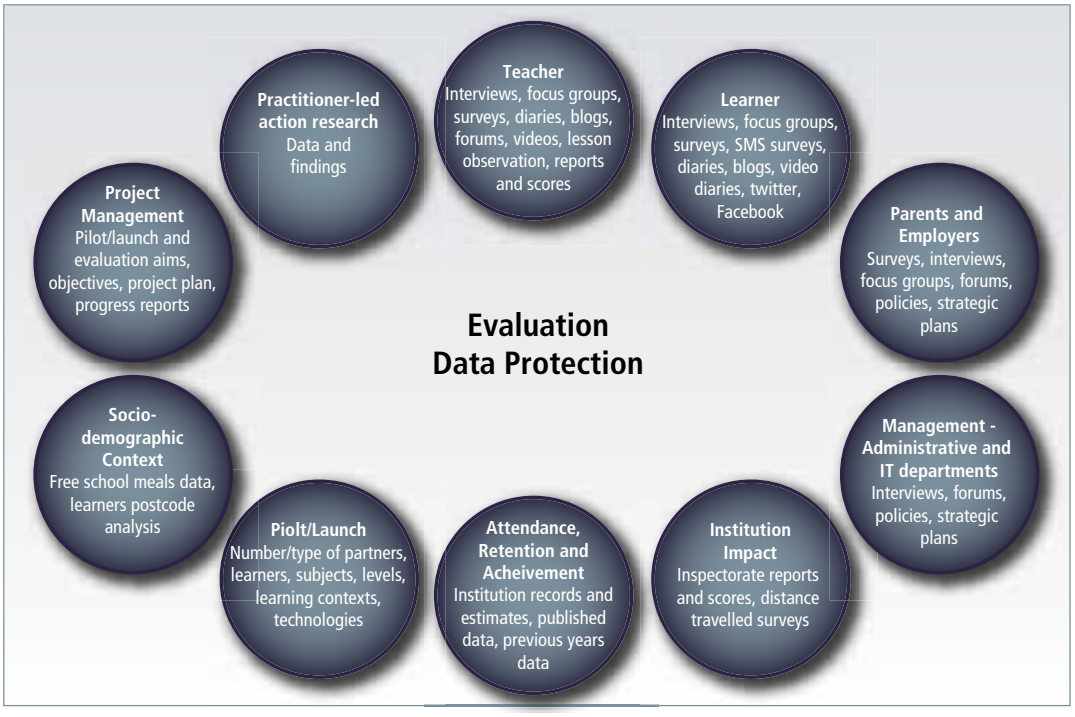
See Part Three “Evaluation Planning: Selecting appropriate evaluation research methods“ for further discussion of selection of appropriate research approaches and methods.

3. Data collection

It is necessary to decide at an early stage what data needs to be collected in order to judge whether objectives have been achieved. Important questions to answer include are:

- What data are required?
- What type of data is needed, available or obtainable? Including:
  - Quantitative e.g. learner retention data, test/exam results, lesson observation scores
  - Qualitative e.g. teacher/learner/stakeholder attitudes, reactions and behaviour
- What data exists? when and where is it available?
- Who are the stakeholders from whom data should be collected?
- What data needs to be generated through primary research?

When evaluating a pilot or implementation in complex environments such as educational institutions and companies, it helps to bring together data from a variety of different sources and people. In this situation collecting and reviewing different types of data and a range of experiences and opinions enables the evaluation to consider in detail both what is happening and why it is happening. Evaluation planning should include listing all possible sources of relevant and useful data as well as all the people involved and how best to capture impact on them and their reactions.



Source: GSMA

3.1. Who will collect and analyse the data

Some data can be collected automatically e.g. the number of times and for how long on-line resources are accessed; the scores from on-line tests together with, if required, additional information such as how long the learner took to answer each question and whether optional hints were accessed. Also systems such as virtual learning environments (VLE) or mobile learning management systems (MLMS) can prompt for data e.g. displaying a short questionnaire to be completed when learners log on to the system.

People collecting and analysing data can include external researchers, who may be more objective and have more research experience, or teaching staff. Although teaching staff may be considered less objective they are likely to have a deeper understanding of the context, the learners, previous approaches and previous learner groups. This can be very useful when interpreting and explaining further the research findings.

In planning evaluation research activities it is necessary to ascertain at an early stage if staff or researchers involved have the necessary skills, experience and tools to analyse the type of data being collected.

This is particularly important where large trials or launches are being evaluated, and therefore large quantities of data are being generated, or where experimental methods are being used which require statistical tests of significance when comparing data from intervention and control groups.

If the people involved do not have the appropriate skills and experience consider:

- Providing training
- Buying in expertise or outsourcing data analysis
- Purchasing statistical analysis software to assist e.g. SPSS
- Purchasing a software package to assist with coding and analysis of large quantities of qualitative data e.g. ATLAS.ti or NVivo

3.2. Data availability

In the context of formal education some data is only available at particular times of the year and officially sanctioned versions of data, especially large sets of data related to public examinations, may not be available until many months after it has been collected.

The timing of availability of data is one of the factors to be taken into account when developing project plans for evaluation exercises.

Where the timing of evaluation does not match the schedule for publication of outcome data initial evaluation may be based on unofficial data such as teachers' predictions of examination results. The reliability of such data can be better assessed if in previous years' teachers predictions have been compared with actual results and a typical margin of error calculated.

3.3. Pre and Post Data collection

Collection of data before a project or intervention starts, for comparison with data collected at the end, or after a period of use, may be important to enable an accurate assessment of impact.

A common approach is pre and post testing of learners' knowledge and skills. This is useful from an evaluation point of view. However consideration of the context and the type of learner involved is important.

Where the objective of a mobile education project is to engage disaffected, vulnerable or previously unsuccessful learners, pre-testing might act as a disincentive to engagement in the project. An alternative to requiring learners to take tests at the beginning and end of the intervention is asking teaching staff who know them well to carry out informally but formally document pre and post assessments of the learners' knowledge and skill levels.

Other data which can be collected pre and post a project or intervention for comparative purposes include for example lesson observation scores and stakeholder ratings of their attitudes, opinions and experiences.

Some data may be collected throughout the project e.g. if learners or teachers keep diaries (written, audio or video) or blogs or regularly tweet about their experiences and this can show for example how people's opinions change over time dependent upon their experiences.

Pre and post data collection is useful for gauging progress or distance travelled by an institution towards embedding mEducation into their culture and curriculum (see Toolkit for an example data collection tool).

3.4. Triangulation

Triangulation is a technique frequently used in social sciences research to validate data by collecting it using more than one method or from more than one source for cross verification. For example:

- when using questionnaires or interviews, asking some of the same questions of different stakeholder groups, e.g. teaching staff and learners and managers
- when exploring individuals' reactions to a product or service, asking their opinions in an interview or questionnaire and also observing their use of the product or service

These approaches can be useful for highlighting discrepancies in reports or different perceptions of situations and discrepancies between people's actual and reported behaviour. Further investigation of such discrepancies can lead to a better understanding of the situation or product/service being evaluated.

4. Evaluation Data Collection Tools

Many commonly used research tools are useful in evaluation but all of them have strengths and weaknesses which need to be taken into account and which make them more or less useful for collecting specific types of information and the correct tools used depending on the aims, objectives etc.

4.1. Questionnaires

Questionnaires are a familiar research tool. They can be easy and cost effective to administer and analyse if they are delivered on-line and if they contain mostly 'closed' questions i.e. requiring an answer to be selected rather than requiring free text answers. Very short questionnaires can be carried out very quickly and conveniently via SMS on the mobile devices being used for the intervention being evaluated.

Key issues with questionnaires are:

- poor response rates - this can be improved in education where learning materials are accessed via an LMS or VLE as the system can be used to deliver the questionnaire (as sometimes learners cannot progress further without answering it)
- people may not tell the truth, in that:
  - people, and especially children, may give the answers they think are wanted
  - people, especially teenagers may deliberately lie as a joke
  - there can be discrepancies between what people believe they do and what they actually do
- they need to be very clearly worded as, usually, people complete them without assistance. Piloting can help to highlight unclear questions for correction to avoid misunderstandings
- If they contain open questions the time and effort involved in analysing them is increased
- they can only collect answers to the questions asked

Comparison of similar questionnaires completed both before and after an activity or intervention provides more information than just one questionnaire completed at the end.

This approach can highlight changes in attitudes and differences between what participants anticipated and their actual experience.

4.2. Interviews

Interviews are relatively straightforward to administer and there are opportunities to explain the questions and collect supplementary information. However, unstructured interviews, which follow the direction of conversation, may fail to collect all the information required from all of the respondents. Therefore, a semi-structured approach, with a check list of questions, and the opportunity to add additional comments is helpful.

Interview data can be time consuming to transcribe and analyse. The use of telephone interviews with simultaneous keying of responses into a computer can speed up data collection and transcription.

4.3. Focus Groups

Focus groups can be considered a type of interview involving several respondents simultaneously. Strengths of focus groups include some people are less inhibited in a group of people they know, others' contributions can help participants remember things they have forgotten and participants can ask each other questions which may reduce researcher bias. Weaknesses include some people are more inhibited in a group and do not contribute and some participants views may be overpowered by other more confident participants.

Focus groups may appear to be an easy evaluation tool. However a skilful facilitator is needed in order to avoid digressions, ensure important issues are probed and prevent any individual dominating.

A separate note taker is often considered essential to allow the facilitator to maintain concentration on their task. Focus groups can be filmed for later analysis (with prior agreement) and other electronic aids may be added, for example each participant can use a classroom response device to record their responses to specific questions or reactions to others' inputs throughout the group meeting. The data collected in this way takes some time and effort to transcribe and interpret.

4.4. Observation

In education, lesson observation is a form of monitoring that many teaching staff are familiar with and used to. Observation of the way in which learners use technologies, engage with activities and respond to mEducation approaches can provide useful insights.

The observer can be known or unknown to learners. Where an internal observer is used objectivity might be questioned. However the presence of external observers can impact on learner behaviour and therefore affect the validity of the data collected. Observation may also be carried using cameras but careful consideration and consultation is required to ensure that this is ethically acceptable and consented to by participants.

4.5. Digital and mobile data collection

The technologies that learners and teachers use (including those used in the situation or service being evaluated) offer additional, or variations on more traditional, data collection tools. Some examples are:

- SMS multiple choice questions
- Blogs, wikis or self-recorded videos instead of written diaries
- Questionnaires automatically delivered by learning management systems
- Forum discussions instead of focus groups
- Feedback and experience sharing via twitter or Facebook

Evaluation data can also be collected from:

- systems used by participants e.g. when and how often systems or resources are used and scores in on-line tests
- institutional or national databases e.g. learner attendance data or examination results

5. Selecting the most appropriate evaluation tools and data sources

Several different research tools may be required to collect the data required to explore each aim of the evaluation and for each aim some tools and data sources will be particularly useful.

Evaluating achievement of mEducation aims: Examples of data sources and data collection tools

mEducation Aim	Evaluation Data Sources and Tools	
	Quantitative	Qualitative
Improve teaching	Exam results Lesson observation scores Inspection scores	Lesson observation reports Inspection reports Learner satisfaction surveys
Improve learner experience	Attendance data Number of learner complaints	Learner satisfaction surveys, Learner interviews and focus groups, Learner diaries
Reduce learner drop out	Learner retention data Learner exit data	Learner exit information
Improve learner engagement	Attendance data Punctuality data Amount of coursework Assessment/examination results	Teaching staff surveys, interviews and focus groups, Lesson observation reports
Better support of learners with learning difficulties or disabilities	Assessment of progress against statements of need Examination results Number of complaint and thank you letters received	Learner satisfaction surveys Parent surveys Classroom assistant surveys and interviews
Increase use of on-line resources	System log-in data Course and lesson planning documents	Learner and teaching staff surveys and interviews
Enhance reputation of institution	Inspection grades, League tables, Number of applicants, Website hit counts, Number of favourable newspaper reports, Number of speaker invitations to senior staff.	Inspectorate reports, Newspaper articles Positive on-line reports and comments

Source: GSMA

6. Ethics, privacy and consent

When undertaking evaluation activities it is important to take into account any possible effects on the participants involved and to operate within an ethic of respect for these people.

Many organisations produce ethical guidelines to assist people conducting research or evaluation for example the British Educational Research Association (BERA) and the American Educational Research Association (AERA).

Before starting evaluation activities preparation of an information sheet for participants is recommended. This should be a plain language document that clearly describes:

- The aims of the trial, service or project and of the evaluation activities
- A description of what will be required of the participants (including the amount of time this is likely to take)
- Arrangements for confidentiality, storage and security of information. Details of who will have access to personal information and the purposes for which participant information will be used, including whether participants would be potentially identifiable in any published material
- That participation in the research is completely voluntary, that participants are at liberty to withdraw at any time without prejudice or negative consequences,
- Where participants can go for further information about the project or to make a complaint

If participants will be loaned relatively expensive items of mobile equipment, the information sheet should refer them to an acceptable use policy.

All participants should be asked to sign a consent form (see Part 3 for an example) and in the case of children or vulnerable adults parents, guardians or carers should also be asked to sign

Copies of the information sheet and the signed consent forms should be retained by the participants as well as by the evaluation team.

Part Three: Some evaluation tools

Evaluation Start up Questions Checklist

Evaluation Planning:

- Overview and Approach Form
- Selecting appropriate evaluation research methods
- Partner/Stakeholder Aims profile
- Evaluation Question Data Collection Planning Form
- Data collection map – Learners
- Data collection map - Teachers
- Data collection map - Institutions
- Data collection map – Sustainability, Business Models, Cost Savings

Example Data Collection Tool: Distance Travelled by Institution

Example Participant Consent Form

Example Practitioner Action Research Report Template

Evaluation Start up Questions

WHO?

- Who are the instigators and/or funders of the pilot/project/implementation and of the evaluation?
- Who are the key stakeholders in the pilot/project/implementation?
- Who are the evaluation champions or enablers?
- Who the beneficiaries of the pilot/project/implementation?
- Who are other players may influence the pilot/project/implementation or evaluation?
- Who will manage the evaluation?
- Who will select and develop or tailor the research tools used?
- Who will collect the data?
- Who will analyse the data?
- Who will be involved in interpreting the data?
- Who will be involved in dissemination?

WHAT?

- What are the requirements and expectations of the instigators/funders?
- What are the objectives of the pilot/project/implementation?
- What are the objectives of the evaluation?
- What are timescales for the evaluation?
- What is the budget for the evaluation?
- What is the management structure of the evaluation project?
- What are the roles and responsibilities of individuals involved in the evaluation?
- What tasks require specialist staff or outsourcing?
- What is the process for reporting progress?
- What will be the overall approach to the evaluation?
- What research methods will be used?
- What data collection tools will be used?

HOW?

- How will progress reporting take place?
- How often will calls and meetings take place?
- How will participating institutions be recruited
- How will cohorts, learner groups and learners be recruited
- How will the evaluation sample learners be identified?
- How will staff involved be selected, trained and supported
- How will the emerging formative evaluation findings be shared? How often? With whom?
- How will the data be analysed?
- How will the task of interpreting the data be approached?
- How will the findings of the evaluation be reported and disseminated

Evaluation Planning: Overview and Approach Form

Trial/Launch Name		Start date	End date (if applicable)
Partners	**Name**	**Role in Launch/trial**	**Role in Evaluation**
Lead Operator			
Education Lead			
Other partners			
Estimated total number of learners to be involved			
Description of the Product or Service being trialled/launched			
Aims and Objectives of the Trial/Launch			
Aims and Objectives of the Evaluation			
Evaluation Approach			
Resources allocated to evaluation?	**Staff time % FTE?**	**External evaluator Y ☐ N ☐**	**Budget**

Which of the following do you expect to use?

- ☐ Control groups
- ☐ Interviews – structured
- ☐ Pre trial/launch data collection
- ☐ Interviews - unstructured
- ☐ In trial/launch data collection
- ☐ Focus groups
- ☐ Post trial/launch data collection
- ☐ System generated data
- ☐ Questionnaires
- ☐ MIS data
- ☐ SMS Surveys
- ☐ Diaries/video diaries/blogs/wikis
- ☐ LMS/VLE feedback forms
- ☐ Lesson observations

Evaluation Planning: Selecting appropriate evaluation research methods

Some people believe that there is a clear hierarchy of research methods in which some methods are 'better' than others. An alternative view is that all research methods have strengths and weaknesses which make them more or less useful in particular situations. The following examples describe some popular approaches and some of their strengths and weaknesses.

Randomised controlled trials (RCTs)

Randomised controlled trials (RCTs), involve randomly assigning people to two groups, one of which tries something new and a control group which does not, and trying to keep all other variables which might affect the experiences of the two groups the same. RCTs are often described as the best research method in that, if properly conducted, they produce reliable results which are generalisable from samples to whole populations.

However RCTs only measure whether or not a pre-defined hypothesis is correct. They do not provide a broader understanding of what is happening and why. Also random assignment and controlling variables does not always produce the situation hoped for. Random methods of assigning people to groups to avoid over representation of people with specific characteristics in either group may not work with small samples (imagine tossing a coin 10 times, the result is not always 5 heads and 5 tails). Whilst trying to avoid all possible variation in people's experiences can lead to RCTs taking place under laboratory-type conditions rather than in situations resembling normal teaching and learning environments. This can lead to questions about the trial's authenticity and therefore the applicability of the findings in the real world.

Non-randomised controlled trials

Non-randomised controlled trials involve allocating people to two groups for comparison but allocation is not carried out randomly. This may be in order to focus on the effect of a specific variable e.g. gender or ethnicity or due to the availability of a potential comparison group which is not the result of random assignment (see historically controlled trails below).

Many educators feel uncomfortable about using experimental research methods which may insufficiently recognise the individuality of subjects. They also frequently raise the objection that random assignment trials, in which one group is given the opportunity to use a new technology or method and the other is not, unavoidably disadvantage one of the two groups of learners and may therefore be considered unethical.

One strategy for minimising possible disadvantage for either group is a staged approach in which after a period of time the groups are swapped with the intervention group becoming the control group and vice versa.

Some other experimental methods

Some other experimental methods used in education research and evaluations are sometimes described as quasi-scientific as they do not attempt to control all variables which might explain differences observed. However they do involve authentic settings and experiences. These methods include:

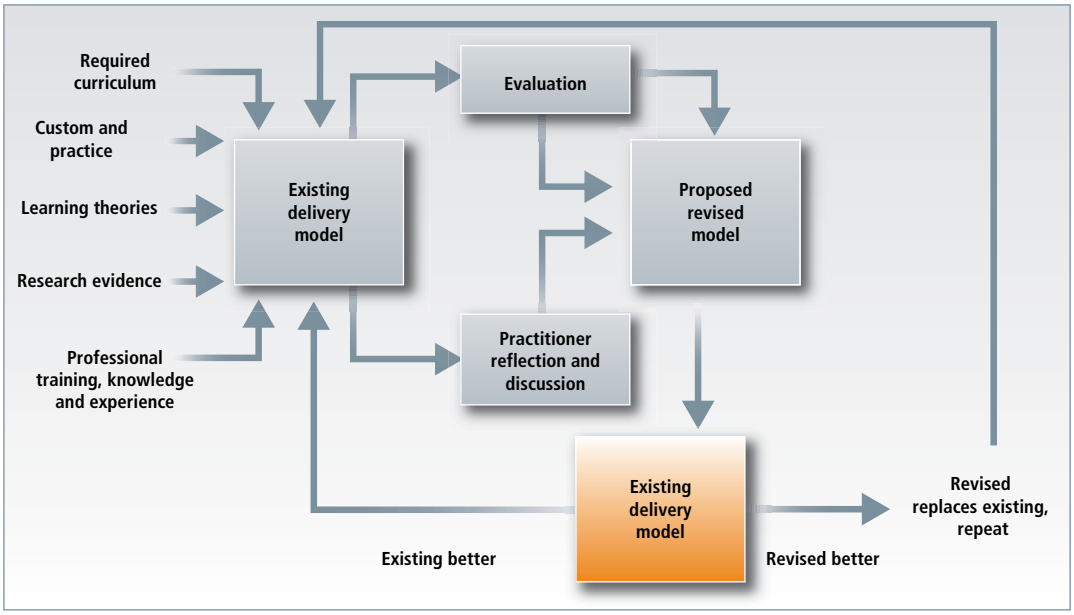
Pre and Post, or Before and After, studies which are frequently conducted in educational environments, collect data about the situation which exists before a project, trial or other intervention and compare this to the same data collected afterwards. These studies may or may not use a control group but are considered to provide stronger evidence if they do.
Historically controlled studies, also often used in education, this method compares a group of learners taking part in a project, trial or other intervention with a similar group of learners from the past who did not experience a similar intervention.

Cohort studies observe a defined group of learners, e.g. a class or year or sub-group, over time to seek associations between different interventions and subsequent outcomes. A 'prospective' study recruits the cohort before any intervention and follows them into the future, whilst a 'retrospective' study identifies a cohort from past records describing interventions received and studies their experiences and outcomes.

Evaluation as part of a continuous evidence-based improvement strategy

Some educators and policy makers believe that education delivery models should be more overtly 'evidence based'. It has been suggested (Comings J, 2003a) that in order to establish an evidence-based education system, delivery models should be continuously evaluated by external evaluators, and assessed by education professionals, drawing on their knowledge and experience. Proposals for revised models arising out of this exploratory and explanatory evaluation activity should then be compared with the existing delivery model, using a 'random assignment evaluation', and adopted or not dependent upon the results of the evaluation. The National Center for the Study of Adult Learning and Literacy at the Harvard Graduate School of Education in the USA has defined evidence-based practice as: "The integration of professional wisdom with the best available empirical evidence in making decisions about how to deliver instruction" (Comings J, 2003b).

Continuous evidence-based improvement approach to education evaluation



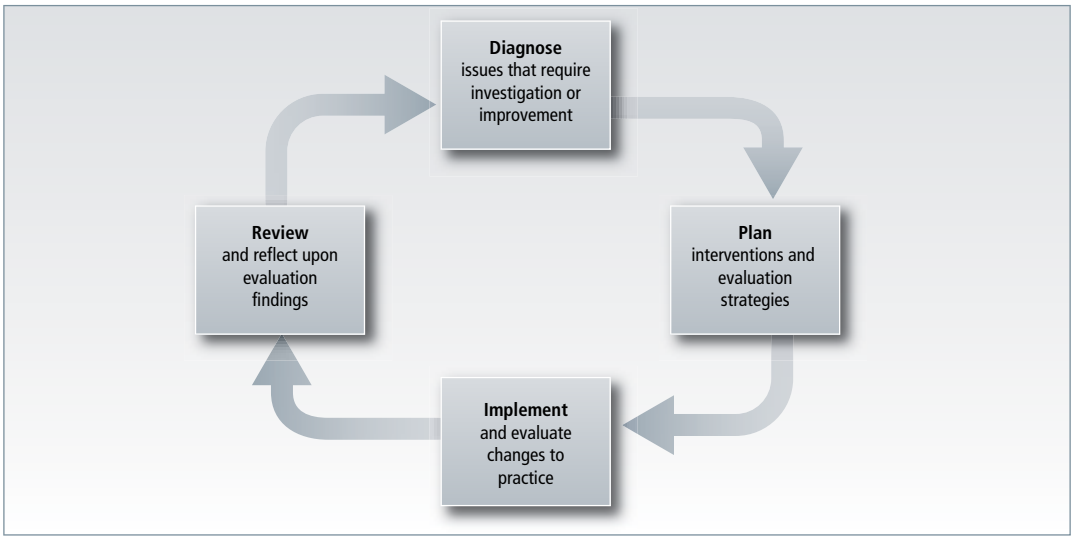
Source: GSMA, based on Comings, 2003

Action Research

Action Research also involves a cyclical process for improving practice which overtly recognises the importance of practitioner knowledge and experience. However, Action Research does not dictate the use of any specific research tools.

Action Research which is used in education, and has been used to evaluate mobile learning projects (e.g. m-learning and MoLeNET projects), has the fundamental aim of helping professionals (teachers and managers) to improve practice and to understand change processes.

An action research approach to evaluation



Action Research is about learning and improving and therefore feels like a very natural approach to evaluation in education. It is also a practitioner-led method which recognises the teacher's knowledge and experience.

Practitioner researchers involved in the UK mEducation initiative MoLeNET found that the action research approach "had delivered significant benefits as well as contributing to embedding mobile learning into practice and making continuation beyond short term funding more likely" (Attewell et al, 2010)

The data collection planning form and the practitioner researcher report template in Part 3 may be of assistance to practitioner researchers planning and reporting the findings of action research for evaluation purposes.

Evaluation Planning: Partner/Stakeholder Aims Profile NOTE: add or rename columns as required

	Industry Partner Type				**Education Partner/Stakeholder Type**								**Key Education Partner Aims**					**Key Industry Partner Aims**				
													Where several selected rank in order of importance (from 1 for most important)									
Partner/Stakeholder Name	Mobile Network Operator	Device Manufacturer	Publisher/Content Provider	Systems Supplier	School	College/University	Training/Adult Education Provider	Workplace learning provider	National/Regional Government	Local Authority	NGPB, National Agency	Charity/Not for Profit Company	Improve learner engagement	Improve learner experience	Improve teaching	Improve learning outcomes	More cost effective	Test suitability of products and services	Inform development of business models	Inform development of products/services	Introduce/position company in the market	Enhance company CSR reputation

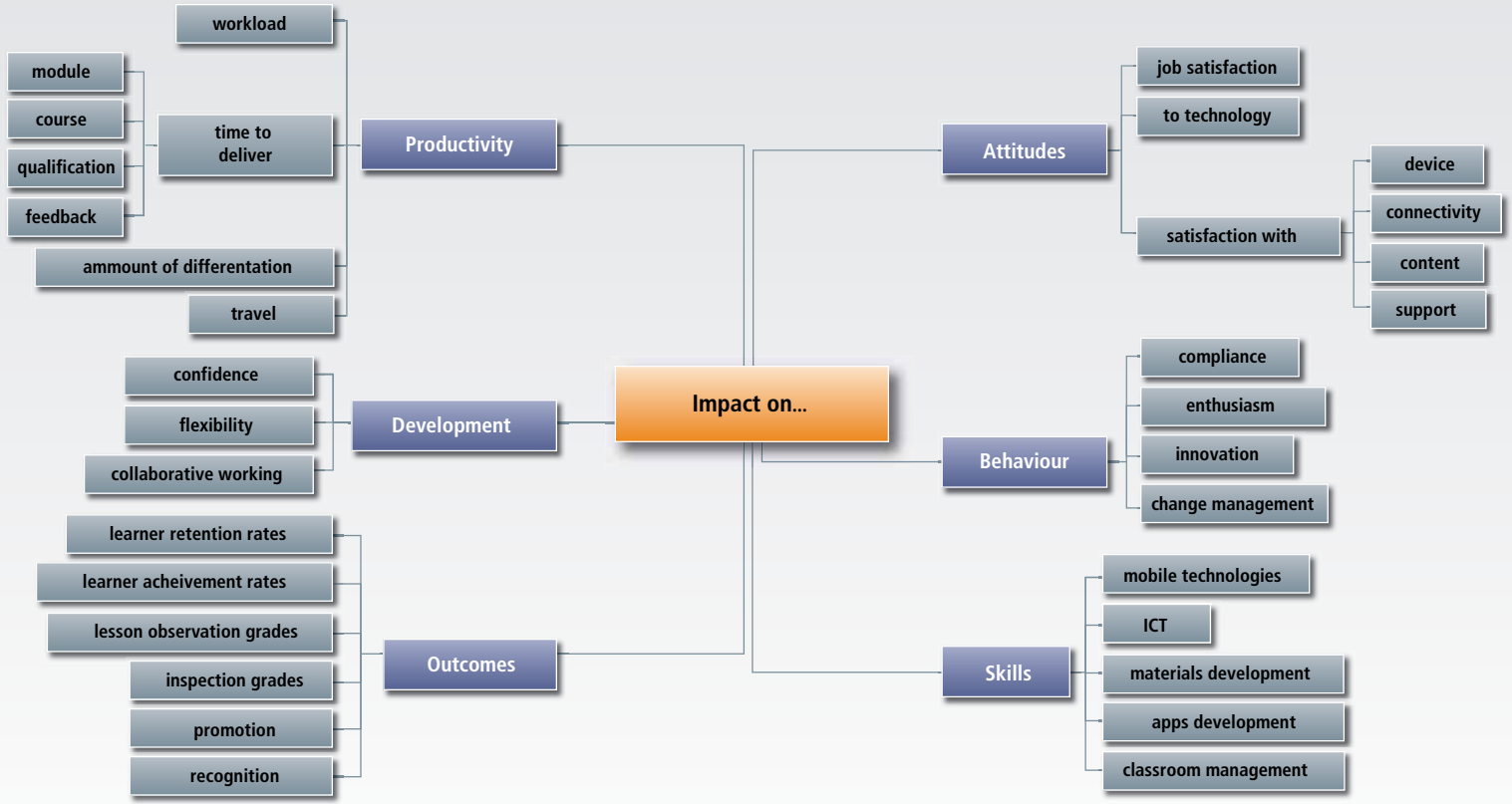
Evaluation Planning: Evaluation Question Data Collection Planning Form

Evaluation Question					
Information needed to answer the evaluation question (success indicators)					
Institution/s:			**Description of learner group/s**		**Number of learners**
Action Required	**Who by** (initials)	**By** (date)	**Data to be collected**	**Data source**	**Evaluation Methods**
Examples: Organise focus group Obtain exam results	 JA CSS	 10/06/13 30/09/13	 Learner feedback on use of tablets in class Results of exams	 Learners School MIS	 Focus group with facilitator + note taker Comparative analysis of results data

Evaluation Planning: Data collection map - Learners

Evaluation Planning: Data collection map - Teachers

Data collection from/about teaching staff to evaluate...

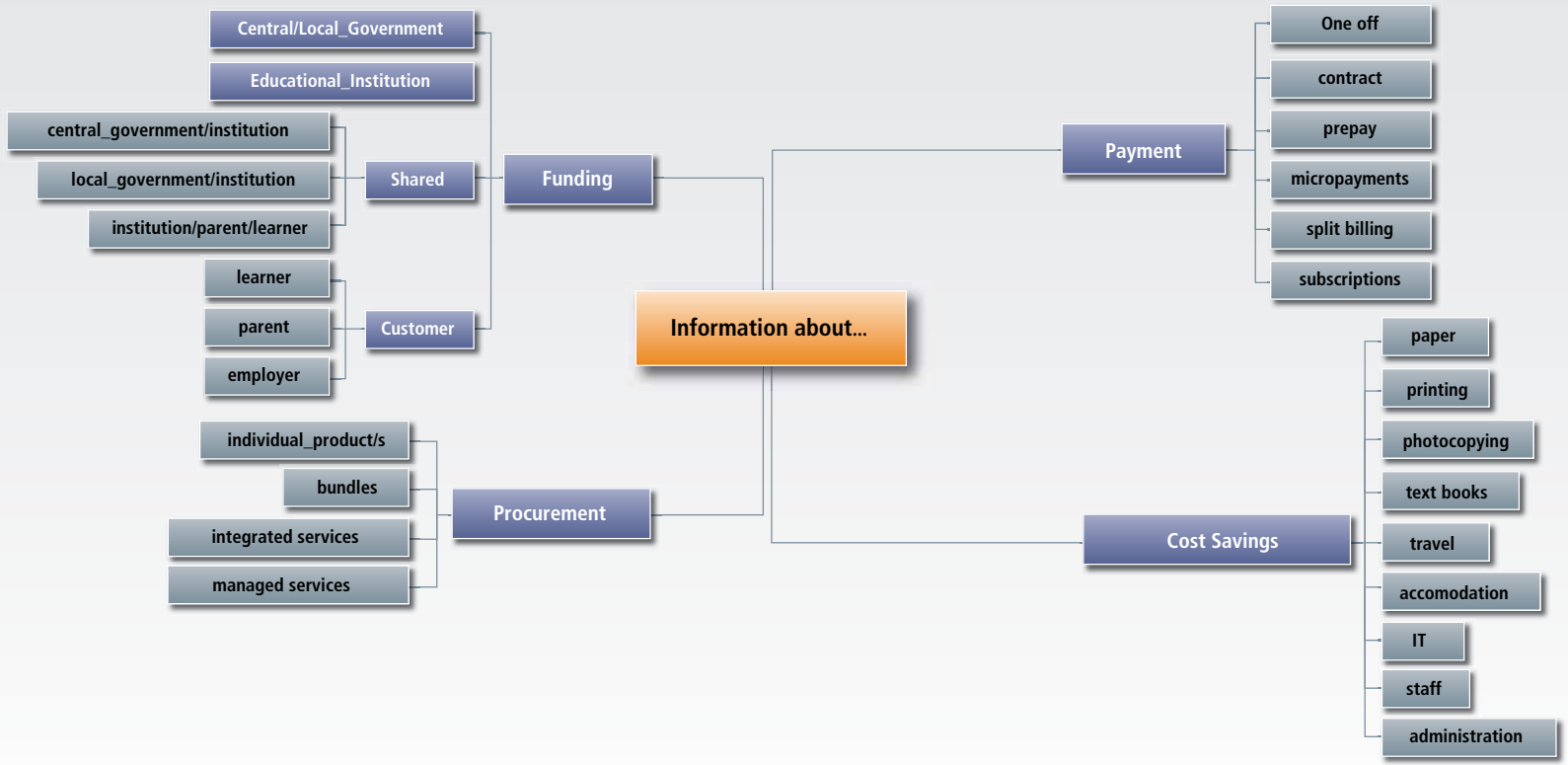


Evaluation Planning: Data collection map - Institutions

Data collection about institutions to evaluate...

Evaluation Planning: Data collection map – Sustainability, Business Models, Savings

Data collection about funding, payments and cost savings...



Example Data Collection Tool: distance travelled by institution

A method of obtaining an indication of changes over time in attitudes and levels of mEducation adoption, inspired by Venkatraman's 5 levels of business transformation through the use of IT (Venkatraman and Henderson 1993)[11] which has informed e-learning and e-maturity benchmarking in UK education.

A] Before a trial or implementation of mEducation ask staff within institutions involved to consider the attitudes and actions of senior management, teaching staff, the IT department and the situation in the institution as a whole and to indicate which of five statements most accurately describe their perception of the current situation in their institution related to the objectives of trialling or implementing mEducation

B] Repeat this exercise following the trial or implementation (it may also be repeated at key checkpoints during a long project or implementation)

C] Aggregate, compare and analyse the results from [A] and [B] to ascertain if there is a statistically significant difference between the results.

Senior management statements

1. SMT are against the use of mobile technologies for teaching and learning
2. SMT don't seem to be interested in using mobile technologies for teaching and learning
3. SMT are interested in mEducation but have not taken significant action yet
4. SMT are actively supporting a trial or implementation of mEducation
5. SMT have included mobile technologies for teaching and learning in their strategic plans

Teaching staff

1. The use of mobile technologies in class is banned
2. No teaching staff are using mobile technologies for teaching and learning
3. Some teaching staff are using mobile technologies for teaching and learning
4. Most teaching staff have at least tried using mobile technologies
5. All teaching staff are required to use mobile technologies for teaching and learning

IT department staff

1. The IT department does not support the use of mobile technologies for teaching and learning
2. The IT department is considering allowing the use of mobile technologies
3. IT staff are providing some support for specific mEducation projects
4. IT staff are actively involved in providing and supporting mobile technologies and related infrastructure to enable mEducation
5. The IT department has a strategy of supporting and embedding mEducation throughout the institution

The institution

1. Mobile technologies are not used for teaching and learning in any departments
2. Some small-scale pilots or implementation of mEducation are taking place
3. Several departments are using mobile technologies for teaching and learning
4. Most departments are using mobile technologies for teaching and learning
5. The use of mobile technologies is embedded into the culture of the organisation

11 3 Venkatraman N and Henderson JC (1993). 'Continuous strategic alignment: exploiting information technology capabilities for competitive success.' European Management Journal 11(2) pp139–49.

Example Participant Consent Form

Participant Agreement

This is an agreement between the {insert institution or company name} and a participant taking part in research activities associated with evaluation of the {insert title} project or service. The idea is to make sure we are all clear about the purpose of the research, that the participant is happy to take part and understands their responsibilities.

I acknowledge that:

- The aims of the project have been fully explained to me
- I have been given an opportunity to ask questions
- I wish to participate voluntarily and consent to do so
- Any information collected about me (eg from interviews, text messages, photographs, videos made by me, lesson observations etc) will be stored anonymously
- The results of the research may be reported in books, journals, at conferences, or using other media (eg on the Internet) but my name and personal details will not be disclosed
- I can withdraw from the project at any time and, if I do, any information obtained from me will not be used.

I agree that:

- I will look after any mobile devices and accessories which may be lent to me and do my best to ensure that they are not damaged, lost or stolen
- I will promptly report to {appointed member of staff} any technical problems which may occur
- I will actively contribute towards the research process
- I will be considerate to, and respect the privacy and feelings of, other people participating in the project. I will not send any messages or take/use pictures which might upset others
- I agree to provide research information requested, eg by completing questionnaires, taking part in interviews, photographs, videos etc
- At the end of the research, if required I will return all mobile devices and accessories which may have been lent to me by the date requested by my mentor

TO BE SIGNED BY THE PARTICIPANT
Name of participant:
Signed:
Date:

TO BE SIGNED BY PARENT/GUARDIAN (if participant is under the age of 18 or considered to be vulnerable)
Name of son/daughter:
Signed:
Name:
Date:

Example Practitioner Action Research Report Template

The Research question:

Abstract
(A paragraph including brief description of context, objectives, technologies used, general outcomes and key findings)

Keywords
(Please provide 5 or more keywords that are relevant to your research question and findings)

Technologies used (Please tick all that apply)

☐ **Smartphone** ☐ iOS ☐ Android ☐ Other ☐ **Feature phone** ☐ **Basic phone**

☐ **Tablet** ☐ iOS ☐ Android ☐ Other

☐ **Smartphone/tablet hybrid** ☐ **Netbook/UMPC** ☐ **eBook Reader**

☐ **Media/MP3/MP4 player** ☐ **Nintendo DS** ☐ **Sony Vita/PSP**

☐ **Voting system** ☐ **Scientific or environmental handheld**

Infrastructure used (Please tick all that apply)

☐ Mobile networks ☐ institutional wifi ☐ wifi hotspots ☐ LMS/MLE/VLE

☐ Mobile Learning Management System ☐ Mobile Device Management System

☐ Server based repositories ☐ Cloud based repositories

Project Overview

Project Aim/s and Objectives

Staff and other participants involved in the project

Example Practitioner Action Research Report Template cont.

Subject areas and levels studied by learners involved
Teaching and learning context (e.g. classroom based, workshop, salon, work based learning, home-based, fieldwork and excursions)
Teaching methods and learning activities used
Evaluation methodology (describe methods used, data collection tools used, how data was analysed)
Summary of outcomes and findings (Try to answer the research question, explain what the evidence collected shows in terms of key measurable outcomes and qualitative feedback, include key quotes that illustrate findings)
Conclusions and reflections on the research findings
Recommendations (Make recommendations for other practitioners and suggest implications for management, policy makers, employers and funders as appropriate)
Resources (cross reference to any pictures, podcasts, videos, lesson plans or other resources or tools created)

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