A Research and Development Report
to
Becta
Learning and Teaching Scotland (LTS)
Scottish Qualification Authority (SQA)

July 2010

Assessment is for Learning through digital technologies
[e-scape scotland]

Executive summary of
findings, response and recommendations
for the *e-scape scotland* phase 2

from

University of Edinburgh

Summary

1. Over the past 10 years there has been growing interest and discussion around the disconnect between digital cultures in and out of school, the potential of the digital technologies particularly 'handhelds' and mobile devices as a teaching and tool, and the opportunities offered for more authentic e-assessment practices. Case studies and innovative projects, good practice guides and literature reviews on e-assessment are being shared across the education community (cf. '*assessment tomorrow'* and '*handheld learning'* conferences; Consolarium, LTS; Faux *et al*, 2006; Becta, 2007).

Assessment of learners engaged in creative design activity has proved troublesome and often results in artificial retrospective evidence being produced reluctantly by learners. The climate in education created by initiatives such as Assessment is for Learning and Curriculum for Excellence are encouraging teachers to review and adapt their pedagogical practices to meet the challenges, strive for authenticity, fitness for purpose and exploit potential of 21st century educational technologies to sustain motivation in learning and teaching. .

Given this context, *e-scape scotland* offered a timely, if somewhat small scale, exploration of these aspects combined.

2. Aims and objectives of *e-scape scotland*

The aims of *e-scape scotland* were established:

> To develop and extend an adaptation of the *e-scape* project which captures pupil performance, thinking and creativity, encompassing formative assessment strategies as learners work on design challenges and to provide a range of evidence of assessment through various modes of expression, providing learner access to flexibility and choice.

Objectives

- To trial and appraise the opportunities *e-scape* approach offers for supporting Assessment *for* , *as* and *of* Learning (AifL).
- To capture learner performance in real time scenarios as a means for recognising achievement and provide a range of evidence of assessment through various modes of expression, providing learner access to flexibility and choice.
- To provide proof of the *e-scape* concept in the learning and assessing process and how it may affect the iterative approaches to creative, critical thinking and communication.
- To contribute to modes of formative (and summative) assessment within the principles and purposes of Curriculum for Excellence, CfE.
- To collect evidence that will provide data to inform and support learner and teacher in terms of progression and transition.

The *e-scape scotland* project is situated directly in the work of TERU, Goldsmiths *e-scape* team throughout. The *e-scape scotland* approach adopts small digital devices (netbooks), in conjunction with continually developing bespoke *e-scape* software, to build an e-portfolio record. The e-portfolio approach allows the individual learner to record their progress, immediate thoughts and ideas in a range of modes such as audio, text, video, drawing, photo, and mind maps. The key difference between *e-scape* and *e-scape scotland* is in the nature of the purpose of the assessment evidence and approach. *e-scape* was initially devised for the purposes of summative assessment through a managed, structured, time dependent, standardised and scripted approach, as would be required for assessment *of* learning by national examination and awarding bodies.

The main thrust of *e-scape scotland* project is to explore the potential of the *e-scape* methodology in school classrooms where learning and 'Assessment is for Learning'(AifL) is the primary concern. *e-scape scotland* takes place in the context of sequential classroom learning and teaching sessions, where intervention, ongoing teaching and formative feedback is provided throughout the project. Teachers and learners can view and interact with the e-portfolios at any chosen time. The learners can navigate through an authored task at their own pace. Throughout *e-scape scotland* activities, teachers can access the developing e-portfolio during and between the sessions to provide feedback, prompts, encourage reflection and set targets for the learner in text or audio format. The learner can access the feedback from the e-portfolio on the device before, during or after the subsequent session.

From the outset of the *e-scape scotland* project, some of the participant teachers authored their design activities to suit the teaching and learning intentions, as identified by their school programme of work (see Appendix A1 and A2). All *e-scape scotland* activities include peer and self evaluations, reflection, review and target setting. They also all incorporate some common aspects of design and technology teaching and learning such as sketching, making models, exploring ideas, devising design specifications, considering clients and/ or user groups, testing, and collecting research data.

2. *e-scape scotland* research method

An action research approach was selected as the most approriate method (Baumfield, et al 2008). Volunteer teachers and school situated projects were devised in order to explore and trial feasible, innovative and useful formative assessment methods specifically of learner performance in creative design and technology challenges, using the e-scape methodology.

The development of the project based *e-scape scotland* activities (see Appendix A2) was also peculiar to the needs to the class groups, learners and schools. Therefore each school explored different scenarios, time frames, and sample groups. The variables were many and not of particular importance at this stage in the *e-scape scotland* pilot trials.

2.1 Data Collection

Collection methods included

- Observations
- teacher personal blogs and e-mail correspondence
- interviews
- review of evidence captured
- review of authored *e-scape* activities
- learner response; Each participant learner also provided personal responses to the approach and gave their opinion of the potential of *e-scape scotland* (e-survey where school was on GLOW and handwritten questionnaire otherwise Appendix E)

Observation and survey data was collected and compared between the different cases study sample schools. This included

- management and organisation of activity kits, hardware, software to schools
- activity type as authored by teachers and researchers and compliment CfE purposes, principles and specifics
- primary and secondary teacher response
- mode of capture embedded, preferred, degree of learner choice;
- learner response

3.Findings

Data gathered through the classroom implementation of the trial *e-scape scotland* activities were analysed and reviewed in terms of:

1. teacher reponse
2. learner response
3. software and technical aspects
4. housekeeping and management
5. general learning, teaching and assessing

4. Conclusion

It is evident that the *e-scape* approach has proved to be more than novelty of handheld mobile devices. It has been recognised that the approach can make a potential contribution in terms of supporting learning, teaching and assessment within the framework of principles of curriculum design and underpinning philosophy of Scotland's Curriculum for Excellence, CfE (2004) and CfETechnologies (2009) learning area.

The quality of the captured evidence has served as useful diagnostic and formative assessment on a number of levels. Although peppered with technical issues, the e-scape trials have been received positively in the case study schools, by learners, parents and teachers, particularly in relation to inclusion, personalisation of learning and differentiation.

The teachers noted that they were unsure as to the standard of comment and quality of literacy to be expected. Literacy (CfE 2009) is the repsonsibility of all teachers, the secondary teachers especially felt ill-prepared. The discussion between associate schools from the primary and secondary sectors over the eviednce in *e-scape* folio samples proved insightful. Talking, listening, reading and writing, in a wide range of genres and for a variety of audiences, purposes will form the basis of a summative judgment on achievement for each learner. The multi-modal evidence of *e-scape* allows achievment in CfE Technologies to contribute usefully. However, there is admission that further professional development is needed in this respect.

The Assessment is for Learning (AifL) strategies which were built into the authored *e-scape* activities and the modes of providing feedback (teacher prompts and questions, peer critique, self evaluation and target setting) served to broaden awareness of assessment *for*, *as* and *of* learning. Not only did they bring to attention the need to develop the learners' language of reflection on learning and ability to return to design criteria to be able to judge the success of their proposal, but the need to share with the learner how to improve and progress from where they are at. It is hoped that this novel addition develops pedagogies which enable the capture of creative thinking in real time for authentic and formative assessment and addresses some of the thorny assessment issues for classroom practice and practioners as identfied by McLaren(2007).

5. Recommendations

Recommendations for future developments were identified to progress the *e-scape* approach and pedagogy associated with the key messages of evidence capture, CfE, and AifL learned from the trials .

i)Share the teaching and learning activities as CfE Technologies P7-S3 developing practice illustrated digital case studies on Glow.

- Within these case studies, map the examples of collaboration, self and peer evaluation and provide commentary related to AifL and Health and Well Being;
- Make the range of multi modal expression tools to capture various types of thinking explicit and discuss advantages and issues;
- Highlight creativity, flexibility and learner choice in the planning and implementation;
- Demonstrate a range of approaches in using ICT to enhance learning;
- Indicate where the case studies contribute towards CfE Technologies (TECH), CfE Literacy (LIT) and CfE Science(SCI), Health and Wellbeing(HWB), Numeracy (NUM) etc. as appropriate.
- Demonstrate how to seek evidence and make judgements on performance and identify next steps using the range of evidence as presented and CfE Technologies assessment skill set.
- Illustrate the planning approach in terms of CfE principles of curriculum design- Challenge and enjoyment; Breadth; Progression; Depth; Personalisation and choice; Coherence; Relevance

ii)Audio as a method of assessing and learning about the learning of individuals has not been exploited much in general teaching and learning. *e-scape* system facilitated this capture and offers opportunities to promote the recording of learner justifications, statements, explanations and interviewing for differentiated learning and assessment purposes. The potential the ease of creating digital audio files by learner and teacher, for a range of purposes deserves to be developed and incorporated, particularly for inclusion and differentiation, personalisation and choice.

iii)Use selected samples of sound, text and video from the *e-scape scotland* trials to develop greater recognition of literacy (CfE LIT) in and through Technologies (CfE TCH). There is limited understanding of literacy by non- specialist and there is a need for illustrations of different genres of writing and literacy in action. Analysis of these illustrations and samples in terms of quality, expectations and progression would contribute towards developing a more critical understanding of Literacy across the Curriculum, with particular focus on Technologies, but the generic messages made explicit. Tagging specific samples with the formal literacy terminology and CfE notes would help teachers recognise the role of literacy and the range of literacy genres that can be developed and evidenced through Technologies.

iv)Create continuing Professional Development (CPD) opportunities to support teachers in their development of AifL and as required in relation to standards and expectations in literacy. Support teachers in using the 'trace of the thinking left behind' and the various strategies and experiences to engage learners in reflection, self evaluation, peer assessment to develop a broader repertoire of methods to develop successful learners. The *e-scape* trial data provides a starting point to develop critical analysis by teachers in review of assessment in CfE terms. i.e. What is evidenced in *e-scape* folios and what is not, but ought to be and how this might be achieved? Specific Technologies issues identified through the *e-scape* project which CPD may be required include language development and strategies of design critique and feedback to progress designerly thinking from initial concept spark, growing through modelling to synthesis of ideas into a proposal.

v)Continue to follow *e-scape* developments. There was particular interest in other *e-scape* projects happening elsewhere in the UK and internationally - particularly those trials where the *e-scape* system is working for outdoor learning.

vi)The development / redesign of *e-scape* interface –the interface for the authoring tool, and at point of use by learner, although function, requires significant improvement. The presentation of interface could be more intuitive, inviting and motivating, with greater scope for personalisation and customisation by the learner and provide opportunities for them to design their own 'skin'.

vii)The teachers agreed that there should be continuation of the trials. They want to benefit from their investment to date, and share the potential with colleagues. Further funding is required.

Deliverables

A complete set of activity materials for trials i.e.

- Examples of CPD teacher activities
- Samples of *e-scape* on line for exemplification of voice-file and video evidence
- Sample of responses from users (teachers and learners) on Glow.
- Examples of AifL strategies to be incorporated (including summative)
- Example of literacy in action in design challenges and Technologies experiences.
- Activity programme of work and lesson outlines referenced to CfE Technologies with view to extending to other learning areas and contexts.
- Software authored as adopted to meet requirement of the programme / assessment and intermittent access and input for learner by teachers.
- Sample of summative assessment used for diagnostic and profile evidence

July 2010 - a full research report to Becta, LTS and SQA

N.B
Full *e-scape* folios, with video and sound files can be accessed through MAPS. However, this is web-based and pass-protected. Multi-media representation of sample e-folio evidence has been built into ppt. presentations which can be made available on request from Susan V. Mclaren (susan.v.mclaren@ed.ac.uk)