The Royal Society of Edinburgh
Interdisciplinary Learning for a Complex World
Draft Final Report
Exemplification of Interdisciplinary Learning: Conference Posters

One of the major challenges for the development and implementation of IDL in Scottish education has been a lack of a common understanding of what constitutes IDL (STEMEC Report 2016). In response to the conference questionnaire primary teachers identified "*conflicting understandings of what IDL is*" as the greatest challenge to developing and implementing IDL, while this was the fourth largest challenge for secondary teachers. Two priority approaches to addressing this challenge include the **articulation** of a clear understanding of what IDL is across our education system and the **exemplification** of good practice in IDL amongst practitioners. These approaches are interdependent.

Thirteen posters were invited for presentation at the conference to create good examples of what IDL might be and the diversity of contexts and approaches in which it might be developed. These are available at here. Bearing in mind the evidence of misunderstanding amongst many practitioners of what constitutes IDL and of the differences between IDL and multidisciplinary or thematic learning, poster presenters were asked to provide clear illustrative examples of IDL complying closely with a 'benchmark' definition provided in the conference 'starter' paper *Pillars, Lintels and Foundations*, supported where possible by relevant curriculum links.

In an introductory guide to the posters for delegates (available at the above weblink), some questions were proposed to stimulate thinking and provoke discussion about our understanding of what constitutes IDL and the extent to which the posters reflect and display IDL. Examples of key questions, which challenge our understanding of IDL, include:

Is Multidisciplinary Learning distinct from IDL or are these simply different points along a dimension?

Is it IDL when a topic is simply broken down into different disciplines?

What makes a good starting point for IDL?

Is using one discipline to learn in another IDL? - or does learning need to happen in both?

What is the key disciplinary knowledge and understanding being drawn upon and transferred?

Are knowledge, understanding and skills being developed and advanced in each discipline?

Do these together help to address the problem or advance knowledge and understanding?

Is the learning interdisciplinary? cross-curricular? multidisciplinary? – or a bit of each?

These questions should aid in engaging with the conference posters as exemplars of IDL.

The posters are characterized by a rich diversity of contexts, novel learning ideas and topics, themes, curriculum links and starting points. The learning summarised in the majority of posters was constructed around curriculum knowledge and understanding in two or more curriculum areas and/or subjects. The majority of these also referred to curriculum areas, subjects and learning outcomes (Experiences and Outcomes) at appropriate levels in the Broad General Education phase of CfE.

Of these thirteen posters, two adopted distinctively different approaches. One – in the area of Art and Design (Graeme High School, Falkirk) - took a fresh, thought-provoking approach to IDL in which the curriculum was essentially considered as a body of knowledge to be creatively explored,

leaving the directions for exploration open. Challenging conventional thinking about the nature, boundaries and starting points of IDL, the work explores the interfaces of Art and Design with other disciplinary areas through the use and re-use of materials. **The underlying idea is that creativity often requires interdisciplinary knowledge, yet the precise knowledge and ideas to be explored are left for the explorer to develop.** This novel approach challenges and broadens our thinking about the relationship between creativity and interdisciplinarity, the different ways in which these may be approached and relationships to the world of work (a topic also explored in workshop 3 "*Designing Future IDL Practice*"). **Further exploration of the role of IDL at the interface between Art and Design and other curriculum areas, including STEM, should open up wider thinking and debate about the starting points and routes for IDL development more generally.** The success of these approaches will depend on the development of a strong collaborative culture to promote the exchange of ideas within and amongst schools and their communities.

Two posters ("IDL in the Outdoors" with Boroughmuir High School and "Living with Volcanoes" with Nether Currie Primary School) explored the **use of outdoor learning contexts for IDL development and delivery. These projects, amongst others, represent a working out in practice of the four contexts for learning of CfE.** In the first of these S1 and S2 pupils and a team of subject teachers exploited a large outdoor public space (a local nature reserve) to provide the capacity, context and opportunity to collaboratively and creatively explore the interfaces between different subjects and curriculum areas, including for example STEM, social subjects, PE and food technology. The second used a large outdoor space to apply and deepen knowledge and understanding about volcanic eruptions and their impacts on communities developed in the classroom in STEM and social subjects (with specific links to relevant level 2 Experiences & Outcomes) and to acquire a suite of outdoor learning skills. Two University of Edinburgh PGDE student posters ('Fake Science' and 'Sustainability of Vanilla') also used outdoor learning to explore the roles of place, culture and history in curriculum-based IDL projects.

Other posters also describe projects involving external support partnerships within the local community in IDL development, consistent with the four contexts for learning of CfE. In an RSE-supported project, S2 pupils at Calderglen High School worked with the expertise of a large local tech company (NXP Semi-Conductors) to design and build a 'car of the future', with a strong emphasis on STEM and ITE, hands-on learning and a competitive design element. In 'Re-imagining Union Street in Aberdeen', primary pupils undertook learning and research work with archivists, architects, planners and retail businesses to create ideas for the regeneration of Aberdeen's famous shopping street.

The STEMEC Report (2016) encouraged the role of HE and FE in supporting IDL development by providing novel learning ideas, subject expertise and a legacy of innovative IDL projects. Innovative examples of this approach with a strong IDL element are demonstrated in the three posters from the University of Edinburgh's outreach and engagement courses, in which students worked in collaboration with teachers at Boroughmuir High School, Nether Currie Primary School and Mauricewood Primary School. Each of these projects is grounded in the curriculum (Experiences & Outcomes) and promotes the understanding of topical interdisciplinary problems, including sea level rise, climate change, deglaciation, evolution and extinction, and volcanic hazards. This approach has also been found to enhance the employability and career choices of participating senior HE students. These and related projects, with supporting teacher resources, are now available to download on TES connect via this link.

Skills for learning, life and work together with enterprise are interwoven with curriculum areas and learning outcomes in literacy, numeracy, health and wellbeing and technologies as central themes for the posters from Abercromby and Harrysmuir Primary Schools. The Abercromby project engages with parents, local businesses and other partners to build confidence, achieve goals and improve outcomes. At Harrysmuir, the IDL project emphasizes enterprise in the integrated preparation, costing and marketing of Christmas produce. The interplay of history and literature are explored in a novel context in 'Conflict – WW2' at Mauricewood Primary School (which explores propaganda) and Back to the Future at Colgrain Primary School (which engages parents and

grandparents in reconstructing the decades of the 20th century). Generic skills, such as researching and applying knowledge, critical thinking, communication and collaboration, are interwoven into these projects.

Timetabling IDL is recognised in the conference questionnaire returns as one of the major challenges for developing IDL, especially by secondary teachers. The majority of the projects represented in the posters appear to be largely integrated into the timetabled curriculum, while a few require time outside the timetabled curriculum. While there are dangers inherent in delivering IDL separately from the normal timetable (suggesting that IDL is distinct from – rather than integral to - disciplinary learning), a positive outcome may be an opportunity to exploit wider creative contexts such as outdoors and community engagement.

While the 'benchmark' definition of IDL provides an important guide in IDL development, the posters demonstrate that many creative variations in the approach to IDL, in its starting points, contexts and interpretation may be possible. Some latitude around what constitutes IDL might prove helpful during its development. The development of IDL in Scottish education is a journey in which the exemplification provided by the posters may offer useful waymarks.