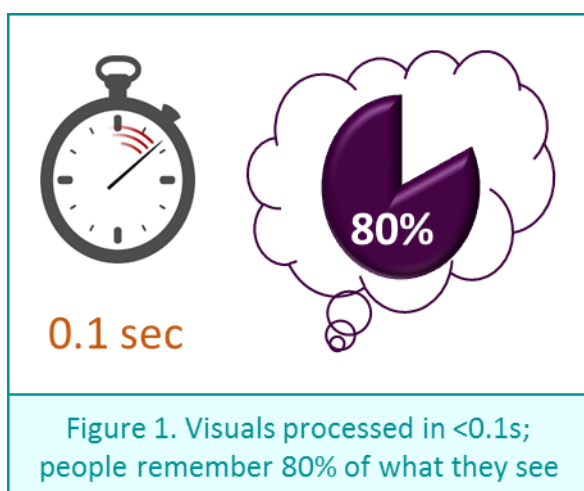


## Visualising your research with infographics: theory and practice

### Introduction

Infographics provide a great way of communicating insight in reports, on social media, in presentations, or posters. Visuals are processed within one tenth of a second, and people remember 80% of what they see (Semetko and Scammell, 2012); therefore visualised data presentation is a faster, more effective and more reliable method of engagement with an audience. It is becoming increasingly important to effectively engage non-specialist audiences in research, and public engagement was a key theme of the Vitae conference in September 2016. 'As the notion of impact gets high on every academic and institution's agenda, innovative research dissemination formats are everybody's concern.' (Dessart, 2017). Initiatives such as the 3 Minute Thesis<sup>1</sup> competition, where entrants have just one slide to present their research, have made concise, visual representations of research even more significant. Our workshop responded to the Vitae conference theme of 'Developing researchers for knowledge exchange, enterprise, public engagement and research in policy making' by highlighting the importance of communicating research in accessible ways to a non-specialist audience, fostering creativity in our approach to generating impact.

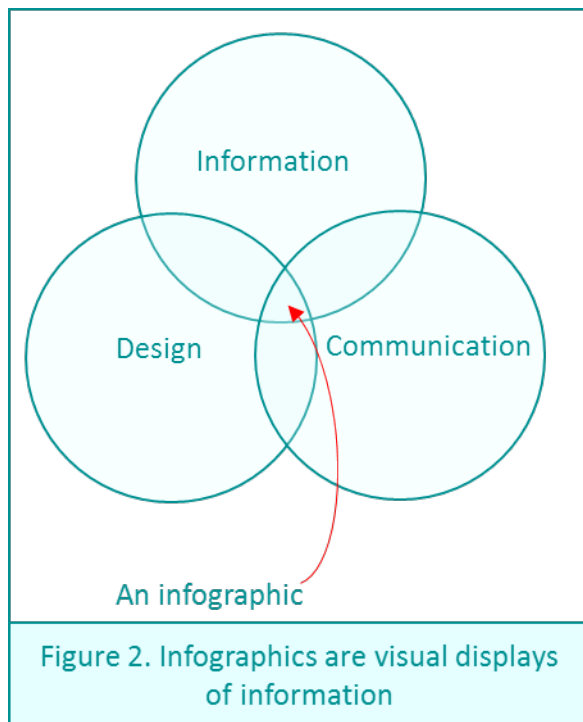


But what is an infographic? There are many definitions, including: '...visual displays in which graphics (illustrations, symbols, maps, diagrams, etc.) together with verbal language communicate information that would not be possible otherwise' (Meirelles 2013, p11). Another definition, 'infographics represent data and ideas visually, in pictures, engaging more parts of the brain to look at a problem from more than one angle' (Krauss, p10), helps us to consider the value of infographics as a way of viewing information and research differently. Put simply, infographics are visual displays of information, and terms such as data visualisation are often used interchangeably with that of infographic.

---

<sup>1</sup> Further details at <https://threeminutethesis.uq.edu.au/> (Accessed 03/07/17)

As researchers, there is no shortage of material to work with; qualitative as well as quantitative. However, there is little guidance available to demonstrate how to get started and how best to use infographics, particularly in research. The research poster has long been a staple format for some disciplines; however these can often lack the immediacy of a well-designed infographic due to large amounts of textual detail.



Our Vitae workshop, delivered with Sandy Sparks from the University of Warwick and infographics designer and consultant Lulu Pinney, sought to explain how, when and why infographics can be useful for researchers. The workshop introduced the key principles of infographics as well as sharing a case study based on Sandy's implementation of infographics training for researchers at the University of Warwick.

This paper will focus on the part of the workshop delivered by Mhairi and myself, where we offered participants the chance to critically evaluate some infographic examples in the form of graphical abstracts, then to take a 'hands-on' approach to creating and reflecting on their own paper-based infographic.

### Contextualising infographics

These primarily visual forms of representation and communication fit into the wider learning and teaching context of multimodal literacy, where the affordances offered by a variety of modes, including imagery, are explored in contrast to the often monomodal world of education.

'Collectively the chapters suggest that there is no monomodal communication, and set out to challenge the implicit assumption that speech and writing are always central and sufficient for learning,' (Jewitt and Kress, 2003 p2). Our workshop sought to apply this multimodal literacy approach in a researcher development context.

This emphasis on non-textual modes of communication to enhance researcher development is supported by the work of the East Midlands Writing PAD Centre, where we seek to engage students ‘...through creative and playful learning experiences, with an emphasis on visual and kinaesthetic techniques,’ and to ‘provide students with learning experiences which stimulate creative thinking and new connections’ (Writing PAD East Midlands Manifesto).



Figure 3. Excerpts from the Writing PAD Manifesto

The use of visual media in a research student setting is explored by Barrett and Hussey (2015): a number of student case studies around using visualisations as an aid to doctoral writing and thought processes are analysed. Creatively exploring and communicating research projects through visualisations are seen here as valuable aids to reflection, discussion and originality: ‘the student by drawing a visual of their project is working in uncharted territory, this provides a sense of ownership through personalising the PhD thesis’ (2015, p52).

Our Vitae workshop arose from a previous collaboration, a <sup>2</sup>[“Reframing our approach to scientific writing”](#) workshop, where the two of us worked together to introduce imaginative, visual perspectives on learning and teaching scenarios which were usually highly text-based. We discovered that this creative approach proved highly engaging not only in Art & Design, but across disciplines and levels (including work with Research students at our <sup>3</sup> [Creative Connections Conference](#)).

The work that we have been involved in with the De Montfort University (DMU) Graduate School (the Research Poster and 3 Minute Thesis Competitions) has also contributed to our growing interest in the use of the visual, not only to communicate research, but also as a vehicle for reflection and dialogue.

---

<sup>2</sup> This workshop involved asking Biomedical science students to investigate a topic visually using a series of concentric frames on a large sheet of paper

<sup>3</sup> This conference for DMU research students introduced a number of visual and tactile techniques designed to encourage reflection, analysis and creative thinking



Photos taken at the Vitae conference



(Top) Reframing workshop; (Bottom) Creative Connections Conference

### Pedagogic Rationale

Pedagogically, infographics have many benefits: not only can they be used to enhance engagement and draw in the reader; the speed at which information can be conveyed is faster when presented visually rather than in a purely textual format. Moreover, infographics can help the researcher to reflect on their research project by offering a fresh perspective on their work and considering it from a different angle. Our take on Infographics provides a very “active” learning experience: this hands-on approach fosters thinking through making, providing a different engagement with the topic for the researcher. In ‘Making is Connecting’, David Gauntlett writes about the concept of ‘Everyday Creativity’ and puts forward the idea that ‘through making things and sharing them in the world, we increase our engagement and connection with our social and physical environments.’ (2011, p2).



Much like a research presentation, the principal aim of a good infographic is to tell a visual story. When used in the context of presenting research, this creates a connection between the topic, or story, and the reader. Infographics are often referred to as data visualisation because they provide information in a visually engaging way, which is much more readily understood by the reader than a dry series of statistics. David McCandless pioneered this idea of creative data visualisation in his book, “Information is Beautiful”, where he presents a variety of information in accessible and visually innovative ways.

#### Delivering the Workshop – Key Principles

We were keen to present our workshop in a multimodal format, striking a balance between fun, interactive activities and informative factual presentation, by exploring alternative ways of both presenting and reflecting on research.

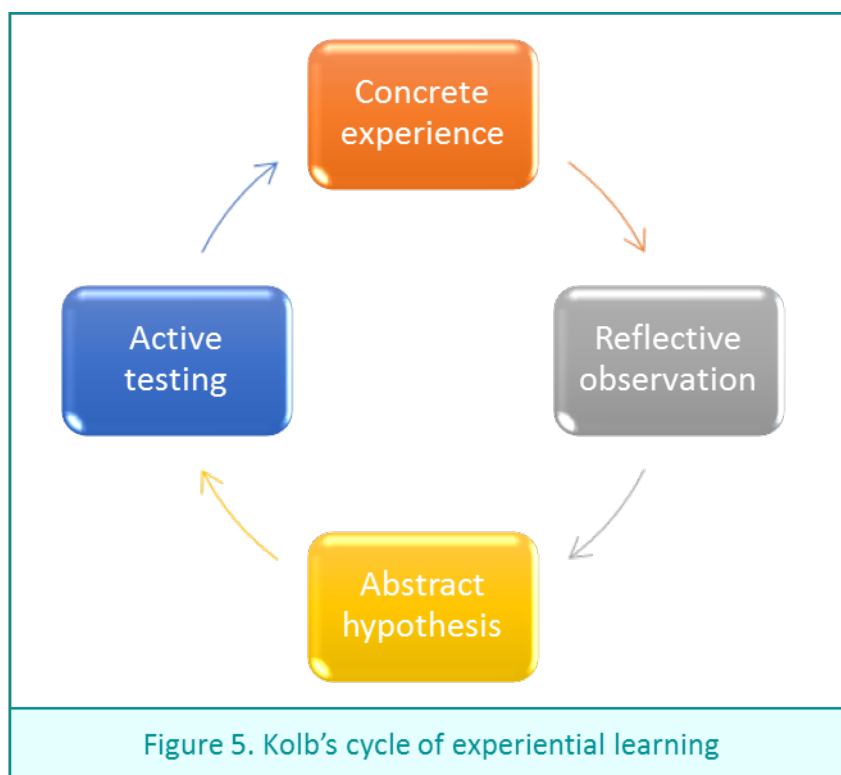
We introduced the topic by giving participants examples of graphical abstracts (Elsevier 2017), asking them to reflect on the advantages and disadvantages of conveying a concise summary of research visually. Views on the effectiveness of graphical abstracts were mixed – some felt it was effective, whilst others found them lacking sufficient detail to be used as a standalone summary.

Following the <sup>4</sup>presentations on what infographics are used for and how infographics training is implemented in practice, we then invited the participants to create their own infographic to illustrate a current project they were working on. Applying Kolb’s experiential learning cycle (Figure 5: [experience, reflect, conceptualise, experiment](#)), this provided participants with an opportunity to experience learning through making.

---

<sup>4</sup> The other contributors to the presentation were Sandy Sparks from University of Warwick and freelance consultant Lulu Pinney

The results were wide and varied, and we were struck by how engaged the participants had become with their own “stories” – it was hard to get them to stop! We summarised the session by asking them to feedback how they felt about the process, and then asked them to circulate around the room and reflect on other participants’ infographics.



### Conclusions/Reflections

The positive and enthusiastic feedback received following the Vitae workshop has been echoed by two further infographics sessions at DMU for researchers.

The applied, experiential nature of the workshops was key: participants could immediately put the principles of infographic best practice into action. ‘Actually putting into practice what is being taught,’ and the ‘practical experience of trying it out,’ were viewed as some of the best things about the workshops.

We aimed to give participants the tools to create visual information and develop creative, multi-modal approaches to the dissemination of their research, and attendees commented on the way that they could apply what they had learnt in both a training and research context: ‘Learning: I want to use more animals/craft stuff in my workshops,’; ‘I could see immediate value and use in my own research’.

Peer learning was a valuable part of the infographics workshop experience: both research students and staff appreciated the opportunity to share and discuss their ideas: ‘Interesting to meet others and hear their thoughts,’; ‘Seeing other people’s ideas and visual research’. The workshop also sought to provide experience in peer reviewing and critically evaluating example graphical abstracts, analysing their effectiveness at communicating information. Attendees valued the chance to apply



critical analysis skills in this new visual area: ‘Everyone interprets infographics differently! Visual, simple is best’; ‘Looking at everybody’s infographic and discussing what works’.

Transferring a research project into a visual mode can provide useful opportunities for reflection, offering the chance to look at your research from a fresh perspective: workshop participants commented that infographics provided ‘a very useful and transferable process and thinking tool.’

Following the Vitae infographics workshop, Lulu Pinney was invited to conduct a session with DMU PhD students, where they could apply her infographics design principles to an existing project: either a research poster or 3 Minute Thesis slide. This was very well-received and will feed into the researcher training programme next year.

We also delivered a session similar to the Vitae workshop, but without Sandy and Lulu’s input, for Early Career Researchers at DMU. Participants engaged enthusiastically with the ‘hands-on’ activity, and we gained useful insights for further workshops (for example, we are considering one on creating a graphical abstract).

### Future Perspectives

Research students and staff attending the above workshops also suggested further development workshops on topics including ‘visualising conference papers’, ‘visualising qualitative data’ and ‘using infographics in teaching’, demonstrating that this visual approach to research has much potential.

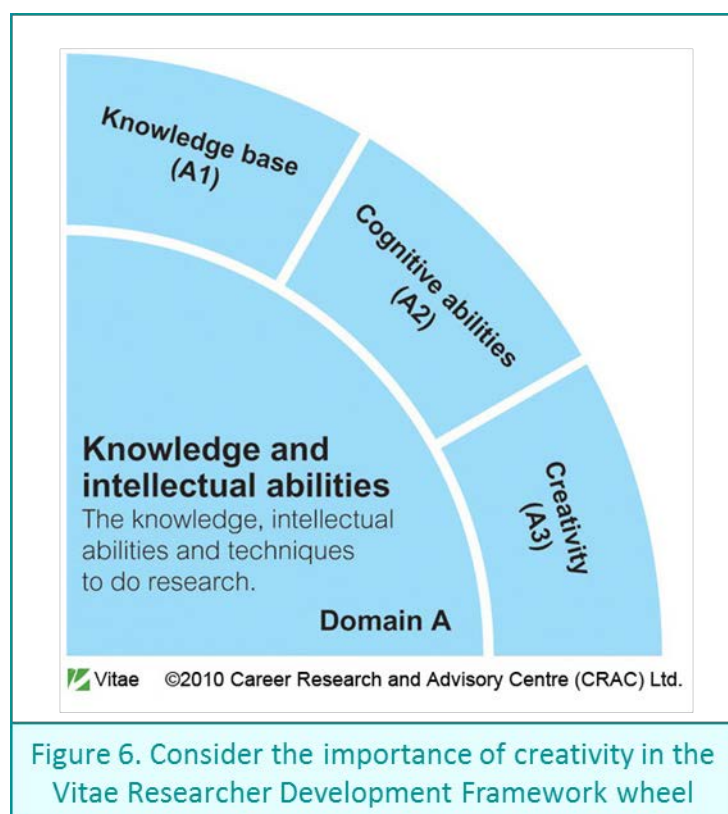


Figure 6. Consider the importance of creativity in the Vitae Researcher Development Framework wheel

Furthermore, re-thinking researcher training in the fullness of time to consider the importance of creativity in the Vitae Researcher Development Framework (see Figure 6) and looking more widely at visualisation for researchers will enable us to have a positive impact on researcher’s abilities in

knowledge exchange, public engagement and enterprise. Ken Robinson, in discussing how to meet the challenges of the 21st century, states that 'Our best resource is to cultivate our singular abilities of imagination, creativity and innovation' (2011, p47). Taking a visual approach to researcher development could take us one step closer to that aim.

#### Useful Resources to Create your own Infographic

<https://piktochart.com>

<https://about.canva.com>

<https://www.easel.ly>

<http://www.freepik.com>

#### References

Barrett, T. and Hussey, J., (2015) 'Overcoming problems in doctoral writing through the use of visualisations: telling our stories', *Teaching in Higher Education*, 20(1) 48-63.

Dessart, L., (2016) 'From paper to picture: creating an infographic from your research', *Journal of Marketing Management* available at <https://www.jmmnews.com/paper-picture-creating-infographic-research/> (accessed 31 March 2017)

Dessart, L., (2016) 'Capturing consumer engagement', *Journal of Marketing Management* available at <http://www.jmmnews.com/capturing-consumer-engagement/> (accessed 31 March 2017)

Elsevier (2017) Graphical abstracts available at <https://www.elsevier.com/authors/journal-authors/graphical-abstract> (accessed 31 March 2017)

Gauntlett, D., (2011) *Making is Connecting: The Social Meaning of Creativity, from DIY and Knitting to YouTube and Web 2.0*, Cambridge: Polity Press

Jewitt, C. and Kress, G., (2003) *Multimodal Literacy (New Literacies and Digital Epistemologies)*, New York: Peter Lang Publishing Inc.

Kolb, D., (1984) *Experiential Learning*, London: Prentice-Hall

Krauss, J., (2012) 'Infographics: more than words can say', *Learning and Leading with Technology*, February.

McCandless, D., (2009) *Information is Beautiful*, London: William Collins

Meirelles, I., (2013) *Design for Information*, Rockport Publishers: Massachusetts

Pinney, L., (2017) *Telling Information* available at <http://lulupinney.co.uk/> (accessed 31 March 2017)

Robinson, K., (2011) *Out of Our Minds: Learning to be Creative*, Chichester: Capstone Publishing Ltd.

Semetko, H. and Scammell, M., (2012) *The SAGE Handbook of Political Communication*, California: Sage Publications Inc.



University of Warwick (2016) Introduction to Infographics available at [http://www2.warwick.ac.uk/services/ldc/researchers/events\\_news/ras\\_events/intro\\_to\\_infographics/](http://www2.warwick.ac.uk/services/ldc/researchers/events_news/ras_events/intro_to_infographics/) (accessed 31 March 2017)

Writing PAD East Midlands (2016) Creative Connections 5th July at DMU (1): a postgraduate research student perspective available at <http://writingpad.our.dmu.ac.uk/2016/07/19/creative-connections-5th-july-at-dmu-1-a-postgraduate-research-student-perspective/> (accessed 31 March 2017)

Writing PAD East Midlands (2017) Infographics: the power of visual presentation – PGR Workshop with Lulu Pinney 8th March 2017 available at <http://writingpad.our.dmu.ac.uk/2017/03/22/infographics-the-power-of-visual-presentation-pgr-workshop-with-lulu-pinney-8th-march-2017/> (accessed 31 March 2017)

Writing PAD East Midlands (2016) Manifesto available at <http://writingpad.our.dmu.ac.uk/manifesto/> (accessed 31 March 2017)

Writing PAD East Midlands (2016) Reframing our approach to scientific writing available at <http://writingpad.our.dmu.ac.uk/2016/02/05/reframing-our-approach-to-scientific-writing/> (accessed 31 March 2017)

Writing PAD East Midlands (2016) Vitae 2016 conference workshop: “Visualising research using infographics” 13th September 2016 available at <http://writingpad.our.dmu.ac.uk/2016/09/19/vitae-2016-conference-workshop-visualising-research-using-infographics-13th-september-2016/> (accessed 31 March 2017)