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Paul Aleixo and Claire Norris

The Comic Book Textbook

There is now a growing body of research that supports the use of comics as resource materials in teaching (e.g. Aiken, 2010; Aleixo & Norris, 2007; Cheesman, 2006; Sloan, 2009; Williams, 2008). However, the idea of comics as a medium with which to educate has not received the same attention.

In an increasingly visual society, the use of photographs and illustrations in instructional material is very important (see for example, Goldstein, Bailis & Chance, 1983 and Hartley, 1994). Given the illustrated nature of comics, it seems perhaps surprising that this medium has been largely avoided in the creation of instructional/teaching material.

The problem seems to stem from the poor literary reputation of comics in the U.K. This is despite the garnering of some more recent attention in the form of major book awards given to comics. In addition, more and different comics and graphic novels have been published so that there has been a dramatic increase in the availability of different types of comics (or 'graphic novels') in bookshops, libraries and schools. It is now possible for adults and children to enjoy comics that cover a variety of topics and genres.

Despite these issues, the idea of placing a sequence of images next to each other (with or without accompanying text) is often used to 'teach' a number of skills from flat pack furniture construction to airline safety. Additionally, many school textbooks use short comic strips to illustrate key elements of a discipline (e.g. Wilkes, 2003). Furthermore, there are a number of successful examples in health education (e.g. Gillies, Stork & Bretman, 1990). All of these could be defined as 'comics' (see McCloud, 1993 for an interesting discussion on the definition of comics). Clearly, therefore, the power of images to instruct is recognised in certain areas of life.

The lack of exploration of comics as textbooks is probably because there tends to be an assumption that progression in literacy is exemplified by less and less reliance on illustrations and more and more on the written word alone. In other words, it is assumed that sophistication in readers is demonstrated by reading words alone no longer accompanied by any images. Therefore using comics to teach or instruct may be considered a retrograde step by somehow 'dumbing down' the subject matter.

However, supporters of comics and graphic novels (see for example Eisner, 1992 and McCloud, 1993) have attempted to explain that comics are not simply words accompanied by pictures. Instead a great deal of sophistication can be achieved by the skilful combination and interaction of the two on the same page. In others words, in comics, the impact of words and pictures can be greater than the sum of its parts.

Research and Instructional Comics

Hartley (1994) in discussing how best to create instructional texts, suggests that cartoons alongside textual material are effective for enhancing the affective parts of learning, such as engagement and motivation, but not effective for comprehension. However, Hartley also suggests that there is little research in the area of using comics to present a 'simplified' method of instruction.

This view appears to contradict that of other authors more versed in the use of comic books (e.g. see McCloud, 1993). Sophistication is possible in comics. The strength of comics appears to be to get across effectively and concisely (sometimes complex) ideas (see also Dittmer, 2010). Furthermore, comics can give the impression of 'ease', thus readers may approach difficult subject matter that they otherwise would have avoided.

Mallia (2007) carried out a preliminary study attempting to directly investigate the effectiveness of comics as an instructional medium. He compared the effectiveness of comics in teaching an aspect of Maltese history in comics, illustrated text and text alone in 14- and 15-year-old participants. He found no significant differences in the recall and imaginative use of the material, showing that comics can at least impart the same information as a text. However, even though he did not systematically measure this, he reported that the participants enjoyed the comics and illustrated material more than the text only version. He argued that the pedagogical possibilities of the format of comics would be to engage the interest in readers and yet not diminish the recall and use of the material when compared to the text-only or illustrated versions of the material.

Whilst Malia's study is preliminary and can be criticised on some methodological grounds, it does suggest that the possibility of comics material for direct instruction would benefit from further investigation.

Psychological Theory and Instructional Comics

Clearly, further, formal empirical research is needed to fully support the use of comics as an instructional medium. Despite this, the use of comics as an instructional medium could be hypothetically supported by reference to a number of psychological theories and concepts. For example, dual coding theory (e.g. Paivio, 1971, 1986) suggests that the mind codes symbolic information in both a visual and a linguistic code, hence comics that employ both visual and linguistic cues could therefore maximise the way in which information enters memory. Other, similar, concepts and theories could provide testable, theoretical bases for the use of comics in instruction.

Griggs & Koenig (2001) and Schallert, Anderson & Goetz (1988), amongst others, have reported studies into student use of various aspects of different textbooks. Overall, they have found that readers ranked those features, such as chapter outlines, discussion questions, and review exercises (that are generally considered pedagogically important) low in estimated use. Marland et al. (1990) suggested that reader use of textbooks generally showed that students made little attempts to understand a textbook in depth. These findings suggests that any narrative developed by an author in a textbook is lost given that students use textbooks in an ad hoc manner rather than in their entirety. Perhaps using the comic book medium to produce textbooks is one way to increase the level of involvement and engagement with ideas and concepts.

Hartley (2004) suggested textbooks are constantly changing and that in future readers/students may interact with educational material via multimedia presentations involving many more graphics and colour. He also reported work by Wetten & Wight (1992) that suggests that British produced textbooks lag behind their American counterparts in the amount of graphics and colour they employ. Hartley appears to be suggesting that textbooks need to include more images and colour in order to motivate and engage readers. One suggestion is that the medium of comic books is ideally placed to provide both of these aspects whilst including graphics and images as an integral part of their approach. Clearly, the issue of amount of detail and complexity possible within a medium which inherently uses forms of visual and textual

'shorthand' is one for further debate (and one that we feel should not underestimate the power of comic books to put across complex ideas). Nevertheless, it seems that there are many points in favour of the creation of instructional texts in comic book format that clearly and concisely convey educational material for a number of levels and ages.

Examples of Instructional Comics

Below are a few suggestions of currently available comics that 'educate':

~ 'Understanding Comics: The Invisible Art' by Scott McCloud. This book looks at the history and inner workings of comic books entirely in comic book format.

~ 'Google Chrome' by Scott McCloud. A 38 page online comic book explanation for Google's open source web browser
http://www.google.com/googlebooks/chrome/

~ 'Optical Allusions' by Jay Hosler. Created by a biologist, it details the workings of the visual system. Hosler has also produced two other 'educational' comic books: 'Clan Apis' (about honey bee behaviour) and 'The Sandwalk Adventures' (about Darwinian evolution).

~ Books by Larry Gonick including 'The Cartoon Guide to Sex'
http://www.harpercollins.com/browseinside/index.aspx?isbn13=9780062734310

~ 'Biological Psychology: An Illustrated Survival Guide' by Paul Aleixo and Murray Baillon. An attempt to teach undergraduate students in a 276 page 'comic book' that explores the possibilities of comics as a teaching medium.
http://eu.wiley.com/WileyCDA/WileyTitle/productCd-0470871008.html

References

Aiken, K. (2010). Superhero History: Using comic books to teach U.S. history. *OAH Magazine of History (April)* 41-47.

Aleixo, P. & Norris, C. (2007). Comics, Reading and Primary Aged Children. *Education & Health*, 25(4), 70-73.

Cheesman, K. (2006). Using comics in the science classroom. *Journal of College Science Teaching,* January/February, 48-51.

Clark, J. M. & Paivio, A. (1991). Dual coding theory and education. *Educational Psychology Review,* 3(3), pp. 149-170.

Dittmer, J. (2010). Comic book visualities: a methodological manifesto on geography, montage and narration. *Transactions of the Institute of British Geographers,* 35 (2), 222-236.

Eisner, W. (1992). *Comics and Sequential Art.* Princeton, WI: Kitchen Sink Press.

Gillies, P. A., Stork, A. & Bretman, M. (1990). Streetwize UK: a controlled trial of an AIDS education comic. *Health Educ. Res.* 5 (1): 27-33.

Goldstein, A., Bailis, K., & Chance, J. (1983). Do students remember pictures in psychology textbooks? *Teaching of Psychology,* 10 (1) 23-26.

Griggs, R. A. & Koenig, C. S. (2001). Brief introductory textbooks: A current analysis. *Teaching of Psychology*, 80 (1), 36-40.

Hartley, J. (1994). *Designing Instructional Text (3rd ed.)* Logan: Kogan Page.

Hartley, J. (2004). *Designing instructional and informational text.* In D. H. Jonassen (Ed.) *Handbook of Research in Educational Communications and Technology (2nd ed.).* Mahwah, N.J.: Erlbaum (pp. 917-947).

Jacobson, S. & Colón, E. (2006). *The 9/11 Report: A Graphic Adaptation.* Hill & Wang.

Mallia, G. (2007). Learning from sequence: The use of comics in instruction. *ImageText: Interdisciplinary Comics Studies, 3.*

Marland, P., Patchling, W., Putt, I., & Putt, R. (1990). Distance learners' interactions with text whilst studying. *Distance Education,* 11 (1), 71-91.

McCloud, S. (1993). *Understanding Comics: The invisible art.* Northampton, MA:Tundra.

Paivio, A. (1971). *Imagery and Verbal Processes.* New York: Holt, Reinhart & Winston.

Paivio, A. (1986). *Mental Representations: A Dual-Coding Approach.* New York: Oxford University Press.

Schallert, D. L., Alexander, P. A. & Goetz, E. (1988). *Implicit instruction of strategies for learning from text.* In C. E. Weinstein, E. Goetz, & P. A. Alexander (eds.) *Learning and Study Strategies* (pp. 193-214). San Diego CA: Academic Press.

Sloan, W. M. (2009). No laughing matter: Comic books have serious educational value. *Education Update,* 51 (10), 1-3, 7.

Wilkes, A. (2003). *Folens History Book 1: Invasion, Plague and murder. Britain 1066-1485.* Dunstable, UK: Folens.

Williams, R. M. (2008). Image, text, and story: Comics and graphic novels in the classroom. *Art Education,* November, 13-19.