

# 3D multimodal authoring in the Middle Years: a research project

By Annemaree O'Brien, Paul Chandler and Len Unsworth

In recent times, the phenomenal growth and spread of screen-based information sources such as video sharing, social networking, blogs, RSS feeds, search engines, web pages, wikis and a plethora of mobile communication devices offering immediate access to an extraordinary amount of online digital screen based content, has dramatically and fundamentally changed the meaning of communication in the 21st century. Within this prevailing and persuasive new media, screen-based landscape, communication is now primarily multimodal, where meaning is produced and received through combinations of different modes, broadly defined as written-linguistic, visual, audio, gestural, and spatial patterns of meaning (New London Group, 1996). Multimodal literacy, the reading and writing of multimodal texts, is essential to literacy education, now, and for the future.

The draft English National Curriculum (Australian Curriculum Assessment and Reporting Authority (ACARA), 2010) states that:

*through studying English students learn to listen, read and view, speak, write and create increasingly complex and sophisticated texts with accuracy, fluency and purpose (p. 1, our emphasis);*

and 'text' is defined as written, spoken or multimodal material (Acara, 2010, p. 4). For the first time, **'creating'** multimodal texts is included as a language mode alongside reading and viewing, listening and speaking, and writing. Acknowledging that writing is more than just producing print text is a critically important step in the construction of this new curriculum; however, what is not clear is what theoretical or pedagogic bases are available to support teachers in actually teaching students to 'create' or author multimodal texts.

To guarantee our students are able to competently use these powerful emerging communication forms, we need to ensure they are able to create or write multimodal texts, and be able to capitalise on the multiple resources available to do this. As educators, this means we need to know more about what students need to know to make informed multimodal semiotic design decisions when composing a multimodal text – and we need to know how to best teach this. The big question is 'how'? In an attempt to address this, we are currently engaged in an Australian Research Council (ARC) project titled *Teaching Effective Three Dimensional (3D) Authoring in the Middle School Years: Multimedia Grammatical Design and New Multimedia Authoring Pedagogy*. Through the specific focus on screen-based 3D animated multimodal authoring, the broad aim of the project is for students to develop their knowledge of a multimedia grammatical design; that is, an explicit knowledge of how the meaning-making resources of image, sound, movement and language can be strategically orchestrated to most effectively use multimedia in communicating ideas.

**Multimodal literacy, the reading and writing of multimodal texts, is essential to literacy education, now, and for the future.**

In this brief overview of the research project, we describe the development of a multimedia writing pedagogy focusing on how students can be effectively taught to compose 3D animations. This process is based on the premise that the development of clear, accessible teaching guidelines or a design framework (grammar) along with a supportive pedagogy will prepare students as effective multimodal authors, enabling them to make the most of the opportunities and affordances available. Students participating in the research are using a 3D animation software program called *Kahootz*, produced by the Australian Children's Television Foundation (ACTF), the industry partner in this project. Kahootz is an unusual animation production program in that it enables the user to create a new 3D animated text using and adapting a diverse set of 3D construction tools including characters, animals and buildings within a wide variety of 3D landscapes or 'worlds'; and adding animation, soundtracks and special effects. *Kahootz* is best described as a form of 'Machinima', a form of filmmaking in which films are constructed using existing visuals (usually from a commercial video game) for

locations, characters, and objects, with action played out and filmed within the game, and voice and sound added later. The choice of this 3D animation production context offers an opportunity to focus on an emerging and growing field in multimodal authoring using a popular software program widely available in Australian schools.

**This work showed that when grammatical design was taught, students made very sophisticated commentaries . . .**

Research underpinning the design of this study indicates that explicit teaching of grammatical knowledge has benefited school literacy development (Quinn, 2004; Sanchez, 2009; Schleppegrell, 2004; Torr & Harman,

1997; Williams, 2000), and, although grammars for exploring the co-articulation of image and text are just emerging (Kress & van Leeuwen, 2001), they are a research priority for improving multimedia literacy (Lemke, 2006). The need for explicit teaching of multimodal grammatical design has been emphasised in studies of middle school students' use of animation and digital video (Andrews, 2004; Burn, 2003). This work showed that when grammatical design was taught, students made very sophisticated commentaries on their reformulated movie texts (Burn & Durran, 2006); and student creative transformation of the uses of software facilitated their development of grammatical design knowledge (ibid).

Our research is seeking to determine the nature of the multimedia grammatical design knowledge that can inform multimedia authoring, and how and to what extent, this can be effectively mediated to students. Through our work we are generating such pedagogy, focussing on 3D multimedia authoring, encompassing the convergence of print, animation, image, sound and video. The research project focus is on 'middle years', and we have constrained ourselves to working with years five and six classes (VELS level four). The project has three phases. In year 1 (2009), a pilot study was undertaken with a Catholic primary school in a northern Melbourne suburb, where the teachers had little or no background with *Kahootz*. A government primary school, in an outer Eastern suburb, where the teacher had considerable experience with *Kahootz*, provided a valuable contrast and the experiences there contributed significantly to the learning we took into the second phase.

In year two (2010), four Victorian primary schools – three in Melbourne and one regional school – one school in Tasmania and one school in regional New South Wales are participating. The majority of teachers and students in all participating schools this year have limited or no previous experience with *Kahootz* and have undertaken training in the software as part of the project to assist them in this process of bringing the technology affordances and a conceptual literacy framework together in an integrated learning process. A significant part of this process is incorporating the role of working with the technology into a pedagogy which facilitates students producing a short but meaningful and complete narrative text; and providing a teaching and learning process which allows time for learning technical competences and software affordances as the tools required to construct multimodal meaning (Chandler, Unsworth, & O'Brien, 2010).

In 2009, through the pilot study, the researchers worked closely with the two classroom teachers and developed a pedagogic framework which was trialled by the teachers with their classes. From this work, we have documented insights into the kinds of skills students need, the kinds of compositional processes that seem crucial and the kinds of classroom practices that are facilitative of developing digital multimodal narrative authoring among novice primary school students. We have now created a draft multimodal authoring pedagogical framework and recommended teaching procedures to support multimodal authoring for students, with the aim for it to be user-friendly for teachers. The development of this initial framework and the subsequent analysis and review of the process and the products produced by the participating students, has contributed significantly towards the focus of the teacher professional development program and classroom resources now being trialled in the phase two classrooms in 2010 with a larger cohort of teachers and students.

The preliminary teaching and learning resources developed in phase one were refined and extended into two units of work for phase two, demonstrating and providing classroom teaching approaches to developing students' basic understandings of how to use the affordances of 3D multimodal authoring software to create effective digital animated narratives. These two units of work with comprehensive teachers' notes, video resources and student materials are central to work in classrooms currently in progress in 2010. The focus of

these learning materials is to introduce students to the system of choices for making meaning when working as 3D multimedia authors focusing primarily on the visual and spatial modes, and to some extent also the audio mode. In this process we have three aims:

Firstly, we are concerned with introducing students to the **system of design choices for making meaning** when working as 3D multimedia authors to build their skills and confidence with the basic multimodal building blocks or elements which they require to make decisions about communicating and designing meaning as a 3D multimodal author. We call these the 'design elements'. Our second interest is with **learning the software**, in this case *Kahootz*, so that the various multimodal design elements can be used as required. This process involves bringing the 'what' (e.g. design element) and the 'how' (e.g. software function) together in a simultaneous learning experience. Our third focus is **pedagogy**, the teaching and learning model which shapes the way this is taught, and considerable effort has gone into designing a robust, accessible process to support the implementation of this work.

In 2011, the project will enter its third and final phase with the phase two schools continuing with the project alongside additional new schools who will join for the first time. We are actively seeking participation from new schools for phase three in 2011, particularly where students and teachers are already familiar with the software program *Kahootz*.

Please contact Paul Chandler [paul.chandler@une.edu.au](mailto:paul.chandler@une.edu.au) for further information.

## References

Andrews, R. (2004) *The Impact of ICT on Literacy Education*. London: RoutledgeFalmer.

Australian Children's Television Foundation. (2008) *Kahootz 3.01* [3D animation software]. Melbourne: Australian Children's Television Foundation.

Australian Curriculum Assessment and Reporting Authority (ACARA). (2010) K-12 English Curriculum document Draft Consultation version 1.0.1. Accessed at: <http://www.australiancurriculum.edu.au/Documents/English%20curriculum.pdf>:> Australian Curriculum Assessment and Reporting Authority (ACARA).

Burn, A. (2003) 'Poets, Skaters and Avatars -- Performance, Identity and New Media' in *English Teaching: Practice & Critique*, 2 (2), pp. 6-21.

Burn, A., & Durran, J. (2006) 'Digital Anatomies: Analysis as Production in Media Education' in D. Buckingham & R. Willett (Editors), *Digital Generations Children, Young People, and New Media*. (pp. 273-293). New York, London Lawrence Erlbaum Associates.

Chandler, P. D., Unsworth, L., & O'Brien, A. (2010) 'Towards a 3D Multimodal Curriculum for Upper Primary School' in *Australian Educational Computing* 25 (1), pp. 34-40.

Kress, G., & van Leeuwen, T. (2001) *Multimodal Discourse: The Modes and Media of Contemporary Communication*, London: Arnold.

Lemke, J. (2006) 'Towards Critical Multimedia Literacy: Technology, Research and Politics' in M. McKenna, L. Labbo, R. Kieffer & D. Reinking (Editors), *International Handbook of Literacy and Technology* (Vol. II, pp. 3-14). Mahwah, N.J.: Lawrence Erlbaum.

New London Group. (1996) 'A Pedagogy of Multiliteracies: Designing Social Futures' in *Harvard Educational Review*, 66 (1).

Quinn, M. (2004) 'Talking with Jess: Looking at how Metalanguage Assisted Explanation Writing in the Middle Years' in *Australian Journal of Language & Literacy*, 27 (3), pp. 245-261.

Sanchez, J. (2009) 'Resources (Chapter 7)' in *Library Technology Reports*, 45 (2), p. 36.

Schleppegrell, M. (2004) *The Language of Schooling: A Functional Linguistic Perspective*, Mahwah, New Jersey and London: Erlbaum.

Torr, J., & Harman, J. (1997) 'Literacy and the Language of Science in Year One Classrooms: Implications for Children's Learning' in *Australian Journal of Language and Literacy*, 20 (3), pp. 222-237.

Williams, G. (2000) 'Children's Literature, Children and Uses of Language Description' in L. Unsworth (Editor), *Researching Language in Schools and Communities: A Functional Linguistic Perspective* (pp. 111-129). London: Cassell.

*The three authors of this article are working on the Australian Research Council project 'Multimedia grammatical design and authoring pedagogy', which is a collaboration between the University of New England, the University of Tasmania and the Australian Children's Television Foundation.*

**Paul Chandler** is Research Fellow in 3D Multimodal Pedagogy at the University of New England. He has previously been a teacher and administrator in Victorian government and independent schools, specialising in Information Technology, Science and teachers' professional development. Paul also teaches in undergraduate science education courses. His doctoral study considered the relationship between teachers' knowledge and use of technology in classroom contexts.

**Annemaree O'Brien** is undertaking a PhD in multimodal literacy and authoring pedagogy through the University of New England. Previously, at the Australian Centre for the Moving Image she was responsible for developing a range of innovative screen literacy and multimodal programs for teachers and students including digital storytelling and film making. Prior to this, Annemaree was the Education Manager for the Australian Children's Television Foundation, a senior regional curriculum consultant, university lecturer and teacher.

**Len Unsworth** is Professor in English and Literacies Education and Head of the School of Education at the University of New England, Armidale, Australia. His research interests include literacy and technology; visual literacy; literacy across the curriculum; children's literature; functional grammar and literacy; and multiliteracies. Len is the Principal Investigator of the 'Multimedia grammatical design and authoring pedagogy' project.