

Working with wikis: Collaborative writing in the 21st Century

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Abstract Students in primary schools have been asked to construct both written and multimodal texts for assessment purposes for many years. However these texts have been created on paper usually as individual project. This paper reports on a multiliteracies project involving students collaboratively creating a multimodal information report using the affordances of a wiki. Students found the experience very rewarding, rating the change to the process of learning, the content (Antarctica) and the use of technology as the best aspects. Working with wikis provided the opportunity for students to engage with 21st century literacy practices. It also provided a space in the classroom to trial changes to a conventional pedagogy, curriculum and assessment practices.

Keywords: creating texts, multiliteracies, multimodal texts, primary, wikis

1 Introduction

An important problem today is how to design curricula to support students' composition of the texts of the 21st Century [1]. Teachers, parents and the general public increasingly view technology as an essential tool for initiating students into the social practices and texts of the 21st century. However, digital texts are not the same as paper-based texts [2, 3]. Print and digital texts differ according to the communication medium [4-6], highlighting both their similarities and differences. While research on reading and technology in the elementary years has acknowledged the relevance of traditional print-based literacies in the acquisition of new literacies [7, 8], the same research on written or multimedia texts and curricula design for creating multimedia digital texts in similar genres has not been as prolific.

In Australia, teachers have been trained about the organization and language features (grammar) of written texts based on their social purpose, as mandated in Australian English syllabi (see for example, [9, 10]), but they are less confident in supporting students multimedia text production using technology [11]. The medium we use to construct a text influences the choices we make, the tools we use and the modes we employ [12]. Such a shift may require teachers to 'invite participation' by bringing out of school experiences with writing into the classroom. As students create multimedia texts they will gain control over the construction of increasingly complex texts. But, how do the texts and the learning about them differ from written paper-

based texts? What do students think about the integration of multimodal text construction into the classroom curriculum, assessment and teacher's pedagogy?

2 Theoretical framework

The theoretical framework that serves as a foundation for the current study is drawn from the fields of *educational linguistics*, specifically a genre-based approach to teaching writing [13, 14], *semiotics* [3, 15, 16], *multiliteracies and multimodality* [17, 18] and *technology and literacy* [19-21].

Teachers in Australian schools have been using an explicit and systematic approach to the teaching of writing for the past 10 years. This approach which was based upon the linguistically informed genre-based approach to teaching writing [22] developed as part of the Language and Social Power project to improve the educational outcomes for students from poor backgrounds. Teachers use a curriculum cycle of deconstruction, building field knowledge, joint construction and independent construction of a written text (genre) integrated into the teaching and learning about a topic in social studies or science [23]. As part of this explicit approach, teachers have developed a meta-language, a language to talk about language, of written texts that they use with students in the teaching about a written genre. This knowledge places teachers in a position to consider how this knowledge impacts on the teaching of multimedia texts and what other classroom discourse needs to be added to or modified in the curriculum. The discussion of written texts prior to the teaching a specific genre also draws upon the field of semiotics. Multimedia texts, paper or digital, convey meanings using a range of modes and together construct the meanings a reader has to comprehend [15]. Discussing the construction of multimedia texts and developing a language to talk about them can inform teachers and students about how to compose similar texts and the process that is followed.

Intersecting with the area of semiotics are the theoretical frames of multiliteracies and multimodality [17]. Combined together, these two areas provide a meta-language to use in classrooms to unpack the meanings in multimedia texts and the ways these meanings are conveyed across different modes.

The final theoretical frame that informs this study is the work on technology and literacy. While there are many aspects of this area that are relevant to the project, the one most relevant is drawing upon students out of school experiences with technology to engage them in literacy learning [24, 25]. The writing students do out of school using technology might encourage students from a language background other than English, indigenous students and students from poorer backgrounds to write. Collaborative composition of a written text occurs in a classroom and impacts on student outcomes, so collaborative composition of a digital text may also have a similar impact.

3 Methodology

The current study utilized multiple case studies employing qualitative research techniques [26]. The qualitative techniques employed in the project were a combination of co-researching participatory action methodology [27]. The action research methodology enable the teachers and researcher to collaboratively plan, construct, evaluate and discuss the teaching strategies and practices employed to support students use and creation of multimedia digital texts. As part of the project, teachers considered how the features of the information report written genre were similar or different when transformed into a digital, multimedia text using the semiotic analysis of written and visual texts [28, 29]. We also discussed ways to work within the 'new learning environments' of the electronic medium, how to scaffold students' learning of multimodal text construction and working collaboratively in an on-line environment [30].

3.1 School context

The school is located an inner city suburb of Sydney, Australia. There were 11 classes as well as seven specialist teachers, including teacher-librarian, English as a Second Language teacher and support teacher for learning difficulties. The 260 students came from a range of different socio-cultural backgrounds. Students who first language was not English accounted for 73% of the school population, representing 29 different language groups. Of these students, 38% were Chinese speaking, and 42% of students have been learning English for three years or less. The school had 17 indigenous students.

3.2 Classroom Contexts

The project was undertaken across two primary classes: a year 5 (11 year olds) class and year 4/5 (10 and 11 year olds) class. One teacher was an experienced teacher (female) and the other was a 'new' teacher (male), having graduated the year before. Computers in class had access to the Internet either by direct connection (4 PCs in each class) or via wireless network if students were using the laptops (available from 2 trolleys with 14 laptops in each). The year 5 classroom also contained an interactive whiteboard (IWB) which was utilized frequently by the class teacher.

In collaboration with the author, the two classroom teachers, planned for the first iteration of the research. The topic was Antarctica and the genre was an information report. The multimodal information report was to be con-constructed by pairs or small groups of students using a class-based Wiki. A Wiki provides a safe environment for students to work on the information report as it is password protected and teachers can monitor students input. The wiki was set up for the students with the pages of content to be co-constructed and containing guiding questions for the content to be included on the page. Student were encouraged to assist other groups by offering

suggestions for content or links, but cautioned about changing other group's page without permission especially deleting work.

3.3 Data sources

Prior to the beginning of the project teachers assessed the students writing levels using the criteria-based standards framework from the NSW K-6 English syllabus . Base data was obtained from the multimodal paper-based texts students created in the previous term. Students completed a background survey about their ICT knowledge and experience.

Work sample data was collected every week during the implementation of the project. An audit trail was kept electronically by the wiki, which kept a history of changes for each page, noting when, who made the change and what was changed. Student focus group interviews and student questionnaire were used to ascertain students' views about the project and their process of creating written and digital multimedia texts. At the end of the project the teachers, in consultation with the author, created a criteria-based rubric for assessment of the process and product in order to grade each group's wiki page.

Other data sources were emails between the author and classroom teachers, minutes of meetings, notes from informal discussions, teachers' and author's documentation of teaching and learning activities, teachers' reflection about the project, and author's detailed observation field notes. The team shared strategies, thoughts and issues relating to the teaching-learning of multimodal texts (what worked and what didn't; challenges and changes) and how they were supporting their students to move from written to electronic text production.

These sources were mined for recurring themes using content analysis and the grounded theory approach [31].

4 Findings

For the purposes of this paper, the student data from one class will be used to discuss the results of the project from the students' perspective. From the questionnaire data, which was triangulated with the field notes and student interview data, students found the best aspects of the wiki project were (in order): 1. the *process* undertaken (54%), 2. the *content* learnt (23%), and 3. the use of *technology* (19%). The other 4% were general comments eg fun, learn new things. NB: Total n for students: 27; Total n for comments made: 122.

Students believed the best aspect of the process was the ability to work in different locations, not just at school (Table 1). Two students worked on their wiki page while they were overseas during the term3/term 4 school holidays. They also appreciated learning how to take notes from an electronic text, so they didn't plagiarise huge chunks of information from an internet site. They became more discerning of the information to copy as notes to place on their wiki page as they drafted their multimodal text. As one student commented:

our term 2 project we don't learn lot of skills but our term 3 we learn lots of skills. In term 2 project we didn't learn computer skills but in term 4 we can. Also learn other things we didn't know before like note taking We also do typing skills and its quite easier than just writing it. [don't get sore hand]

While students used images, audio and videos (and their link) in their wiki to create a multimodal information report, some students initially placed them on their page because they were interesting and they liked to click on the link (observation notes, teacher's comment). A lesson explicitly discussing the construction and placement of different modes of representation resulted in a change to the overall layout of the multimodal information report.

Table 1: Best aspect: Process [n=66]

	n	% Total	% Process
Location (anywhere)	13	11%	20%
To take notes	12	10%	18%
Compare work with others work	11	9%	17%
Working with others	9	7%	14%
Not carrying books etc around	5	4%	7.5%
Typing (is better/ is easier)	4	3%	6%
People help each other	2	1.6%	3%
No paper, use computer	2	1.6%	3%
Send emails to each other	2	1.6%	3%
Remember info more when type	2	1.6%	3%
Easy way to learn	2	1.6%	3%
Paragraph from notes	1	0.8%	1.5%
Putting in effort	1	0.8%	1.5%
Spelling improved	1	0.8%	1.5%

Students appreciated being able to compare their work with others and the input the teacher provided (focus group interview). The teacher's scaffolding of the content and process for each group was tailored to each group's needs. As two students commented:

*... the term 2 project our teacher only can see it once just to mark it but on our wikispace our teacher can see it more oftenly and they can help us with spelling and grammar
we got more help from our teacher*

Students also enjoyed working with a partner or in a small group, which was different to the pedagogy employed by the teacher up until this project. Previously the teacher had students working individually and was initially hesitant about the students working collaboratively and the quality of the work that would result. One student commented:

we worked together, we got more help from our teacher, we get to do as a whole class but our term 2 project we do by ourself we get help from our parents.

Students also enjoyed assisting others with the content of their wiki page.

We found this website for penguins. There were images (?) of penguins. like you had to click on it, it bring to this page about penguins. So we um ...we gave the um website to penguins and penguin 2. And they were delighted.

As would be expected, students appreciated learning about Antarctica (Table 2) and the information contained within the class wikispace on different pages. They found the knowledge they were gaining was important and very interesting. What was interesting about the area of content was the comments relating to 'know more' than if they were writing and that by creating an information report collaboratively using a wiki meant they could remember the information better than if it was a paper-based information report.

Table 2: Best aspect: Content [n=28]

	n	% Total	% Content
About Antarctica	11	9%	39%
Know more - than if writing - can remember info better	7	6%	25%
About specific section of wiki	6	5%	21%
New facts	4	3%	14%

The third aspect that was considered to be the best was the use of technology (19% of total). The technical skill students learnt was rated highly (Table 3). Students were asked to write in a different font colour during the note-taking stage and then in a third (or fourth) colour for the collaborative drafting of the written text. It was apparent after the initial introduction to tools of the wiki and the different representational modes that students could include: images, audio, and video, as well as the ability to link to other internet sites, that students found the ability to include these elements on their page an exciting experience. During the development of the wiki pages, they also felt these features enhanced the information on their page, made it like an internet site and meant they didn't have to write everything on their page.

Table 3: Best aspect: Technology [n=23]

	n	% Total	% Technology
Technical - fonts, colour, - add pictures/sounds/audio, - hyperlinking	9	7%	39%
Use of tech increased/ better	4	3%	17%
Website visiting	3	2.5%	13%
Improve typing	3	2.5%	13%
About wiki	3	2.5%	13%
Learn new thing about Internet	1	0.8%	4%

However, the technology was also considered the worst aspect of the project as well. If students were working on their wiki page simultaneously at school or at home they frequently 'lost' their work when one of them saved the page. This was extremely frustrating for students as they may have spent a half an hour or more adding information or other elements to the page. Student however became very adept at returning the page to its previous iteration by using the 'history' section of the site. They also adapted when working in class together by using only one computer and collaborating face-to-face on the creation of the information report. Each student would then decide on the section they would work on out-of-school.

5 Discussion

As a result of the wiki project, the students were provided with an introduction to a range of 21st century writing skills [1]. They successfully created a multimodal information report using the affordances of a wiki to collaboratively construct the text. In addition, the pedagogy, curriculum and assessment also underwent change as the teacher adjusted to the integration of the electronic medium into her classroom program. The whole class, teachers and author learnt from the experience of working with a wiki.

The results reflect the ways in which students became aware of multimodal texts and contributed to developing students multiliteracies [17]. The wiki pages, ie the technology, provided the opportunity to manipulate and create multimodal text that 'looked' professional. The learning around using a wiki formed part of their multiliteracy skill set, which included developing their interpersonal skills. Some groups began with images or audio or video, then they focused on the written text to complement these. Others began with gathering the written information, focusing on gathering written notes. The multimodal nature of the text opened up greater possibilities for constructing a text beyond writing and pictures (drawn or printed in colour) [21][25]. This change particularly appealed to students who found print literacy a challenge and rarely completed a task if it included an extended piece of writing. These students felt confident to create meanings across modes.

Teachers also they learnt alongside the students about multimodal texts, wikis and multiliteracies. They modified their own discourse as changes occurred to the curriculum, assessment and pedagogical choices in the classroom. For example, the assessment rubric, which was developed collaboratively by the teachers and researcher included process as well as product criteria.

The pedagogy extended the teachers' understanding of explicit teaching of written texts [23] into explicit teaching of multimodal texts [30]. Students were familiar with the creation of paper-based information reports, which included written and visual texts, but not the creation of an electronic collaboratively constructed information report, which could include written, still and moving images and sound texts. The classes became sites of learning, with explicit teaching about: hyperlinks, inserting different types of texts, co-constructing a text on-line, the adaptation of the word processing tools in the wiki, and how different modes complement each other and carry meaning (layout).

After the project, the reflections of the teachers and researcher acknowledged that more critique of the visual mode would be important for the next iteration of teaching/learning. The possible layouts and discussion of options would have enhanced the final product. However, the wikispace was limited in relation to potential layouts and another form of on-line collaborative tool might be necessary to address this issue, such as a Internet site creation space. Another area for consideration was involving students in the assessment process, getting them to self assess using the same or similar rubric as the teachers.

6 Conclusion

If we are going to prepare students for writing in the 21st century, opportunities need to be provided in classrooms that can initiate them into the skills, affordances and processes of learning using an electronic medium. This paper reported a study involving the use of a wiki space to engage students in collaboratively creating a multimodal electronic information report. Students took responsibility for the learning, regulating their time and negotiating roles, information and the construction of their information page on the class Antarctic wiki. They came away with a different view of learning, an insight in using technology for creating a multimodal text – the highs and the problems, and a belief that they learnt more about the content area through their experience with working with wikis.

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