Exploring the R2D2 model for online learning activities to teach academic language skills

Helen Cartner
Faculty of Applied Humanities
Auckland University of Technology
Julia Hallas
Centre for Educational and Professional Development
Auckland University of Technology

This paper explores the R2D2 model for online learning activities – a cycle of Read, Reflect, Display and Do. Its application to an English for Academic Study programme, provides a framework for the development of a constructivist environment which supports collaborative and active learning experiences in a blended space. Using a questionnaire, students evaluated four learning activities based on the R2D2 model. Although limited in terms of its data gathering method, the evaluation of the R2D2 model was an initial enquiry into its perceived benefits by students. Analysis suggests that the results were favourable, giving insights into the importance to learners of real-life activities, which assist the learning of academic skills for vocabulary acquisition, pronunciation, note taking and presentations.

Keywords: blended learning, R2D2 model, academic language skills

Background

The English for Academic Study (EAS) programme at the AUT School of Languages and Social Sciences, is designed to prepare English as an additional language (EAL) students for further university study. In semester 1, 2009, one of the four papers in the programme, the Listening and Note Taking paper, was modified to use technology more seamlessly within the blended spaces of a classroom and the Blackboard LMS, and was redesigned to incorporate the R2D2 model of online learning activities. This paper focuses on the Listening and Note Taking paper, discussing how the model supports the facilitator's philosophical approach to learning and teaching and presents the findings of the student evaluation.

The need for English for Academic Study type programmes in Universities has been supported by the work of prominent researchers who have investigated students' needs and programme design (Carson, 2001; Hyland, 2000; Zhu, 2004). A study involving 5000 students in Hong Kong universities, found that students lacking basic language competence, lose confidence as they struggle to accomplish language tasks (Evans & Green, 2007). Difficulties could be traced to specific aspects of academic writing and academic speaking, as well as inadequate receptive and productive vocabulary. Another important area for English as an additional language (EAL) learners is understanding and properly using academic vocabulary. Learners who use academic language and concepts to read, understand and respond clearly in writing and speaking modes, are more likely to be successful in their University studies (Coxhead, 2006; Nation & Gu, 2007).

On completion of the AUT English for Academic Study (EAS) programme, the majority of students apply for courses within the Schools of Hospitality, Arts, Business, Applied Science, Creative Arts, Social Sciences, Health or Education. Before designing the EAS programme, staff surveyed each School to investigate the types of learning activities students would typically engage in. Giving oral presentations, predominantly using MSPowerPoint, was one learning activity frequently cited as being used for both formative and summative assessment. To encourage students to develop proficiency in these skills, they were incorporated into the Listening and Note Taking paper. Along with this information and recent research findings, the EAS programme was designed to develop language requirements, academic

literacy, the socio-cultural demands of their prospective fields of study (Turner, U, Cartner, Jenner, & Mann, 2009), and technology skills.

In the Listening and Note Taking paper 2008 evaluations, students requested that the classroom based paper have more of a technology focus in order to improve their skills. To align her learning and teaching philosophy more closely, the facilitator wanted to continue to cultivate a constructivist learning environment, to support collaborative and active learning experiences. Social constructivist learning strategies encourage students to participate in collaborative experiences, actively seeking out new information and relating it to current knowledge, thereby constructing new knowledge (Hallas, 2008). In particular, the facilitator wanted to provide real world contexts for learning, and opportunities for students to be able to reflect on their learning processes and outcomes - the goal being autonomous student learning. The issue was finding a suitable model which could be applied to meet the needs of the students and the facilitator. Lefoe (1998) suggests that instructional design models often lack effective strategies to design constructivist learning environments, because constructivism focuses on learning rather than instruction.

The R2D2 model for online learning activities

Bonk and Zhang (2008) describe their model as a framework for the design of online learning environments and activities providing "…*a lens that might be positioned over the top of one's instructional design approaches*" (p. 4). This corresponds with a constructivist learning viewpoint, as the model emphasises what the students can do, rather than a sequence of steps the instructor should do (Bonk & Zhang, 2008). Their model is cyclical, consisting of four phases: read, reflect, display and do:

1. *Read*: is aimed at auditory and verbal learners, encouraging exploration, fact finding and information acquisition.
2. *Reflect*: is aimed at reflective and observational learners. This stage deliberately emphasises reflective processes through thoughtful deliberation of models and examples.
3. *Display*: focuses on the visual learner, helping them understand content, and to build their own knowledge base.
4. *Do*: gives kinaesthetic learners hands-on experiences.

The model draws on ideas from Kolb's learning cycle (1984), McCarthy's 4MAT system (1987), and Fleming & Mills's VARK (1992), and was designed specifically to address the following issues: the shift from f2f to blended learning; the shift from teacher-centred to learner-centred learning; variations of students' learning preferences; diverse student backgrounds and experiences; generational differences; the crucial need for hands-on experiences in online learning environments; more emphasis on reflective activities by emphasising writing processes and activities compared to previous models and the application of emerging learning technologies (Bonk & Zhang, 2008).

Applying the R2D2 model

The Listening and Note Taking paper is delivered in a blended learning mode consisting of two hours of students learning with computers, two hours of face to face (f2f) classroom based learning and six hours of independent study per week. Students utilize English language learning software programmes, MSWord and MSPowerPoint, and activities facilitated through the Blackboard LMS. The paper requires students to learn writing skills using MSWord, communication skills using email, discussion forums or blogs, collaboration skills in physical groups and online wikis, presentation skills using MSPowerPoint, Internet search skills for topic research, speaking skills by creating audio files and listening skills through the use of podcasts and online video. Four activities were created for students based on the R2D2 cycle and are briefly described.

Activity 1 - Read: auditory and verbal learners.
The purpose of this activity is for students to develop a knowledge of academic words in Coxhead's (2000) academic word list (AWL) and to practise speaking them. In a language learning context, *knowledge of a word* means for example, how to spell it, use it in context, pronounce it correctly, and know its parts of speech. Each week, students learn 30 academic words. Using a multimedia application in the Blackboard LMS, students click on each word in order to see it written, hear it spoken and see and hear the word used in a sentence related to academic study. Finally, students practise pronouncing the words and using them in academic sentences.

Activity 2 – Reflect: reflective and observational learners.
This activity builds on the first and provides the opportunity for self reflection and facilitator feedback. Once students have practised speaking the academic words, they are required to record a selection using an audio file recorder, e.g., Audacity, and to post the audio files in the discussion forum. The facilitator provides feedback to each student about their audio recordings. Students listen to each other's files, reflecting on their pronunciation and usage of the words and are able to provide feedback to each other in the forum. The facilitator encourages students to use questions to develop their metacognitive abilities - an act of deliberately evaluating one's own thinking and learning. Fogarty (2002) describes the metacognitive process as a learner who knows that they have fully comprehended something when in a moment, they become aware of what one is learning and how well one is learning it. Once students have had time to reflect on their work and feedback, they may modify their audio files if they wish. Finally, each student is required to select five audio files for summative assessment purposes.

Activity 3 – Display: visual learners
The main purpose of this activity is for students to self-direct themselves to learn how to use MSPowerPoint. A rubric which sets out the learning outcomes is provided to guide students in their learning processes. Initially, the facilitator scaffolds the learning process by leading an analysis of the design of MSPowerPoint slides, including examples of previous students' work. In keeping with the Display phase of the R2D2 model, a blog containing visual based learning activities, examples and links about the topic, is provided for students to utilise. Students are also expected to learn and apply Internet search skills to find and share resources relevant to the activity.

Activity 4 – Do: kinaesthetic learners
This final activity is based on the last phase of the R2D2 cycle, which asks students to apply what they have learned to a real-life situation. The real-life context for these students is to investigate options for further study at University. Therefore, the activity requires students to work collaboratively to research relevant University study options and to present them using MSPowerPoint to the class. This activity carefully combines all of the listening and note taking skills learned to date. Practising their English, students have to organise themselves into groups according to students with similar future study plans. A rubric setting out the learning outcomes is provided to guide students with their learning processes. Students use the Internet to research possible study options and present the information in MSPowerPoint slides. Each group member must speak when giving the presentation to the class. All students are required to practise listening and taking notes on each presentation. The presentation and note taking is part of summative assessment for the paper.

Method

The aim of the survey was to gather data about students' perceptions of the learning activities based on the R2D2 model. Approval for the student evaluation was obtained from the AUT Ethics Committee to gather and store data using the Blackboard LMS survey manager. The survey took place in the last week of the semester (June 2009). An invitation to take part in the survey was posted online and students completed it in their own time. Out of a possible 50 enrolled students, 66% (n=33) completed the online survey. Question 1 was used to gather quantitative data about student demographics and questions 2-5 were used to gather qualitative data about the learning activities. The qualitative questions were structured to collect rich descriptions of student learning preferences that reflected diverse backgrounds and experiences. A limitation of the evaluation is that only one data gathering tool was used to identify the usefulness of the model in terms of its application to a blended and constructivist learning environment. To strengthen the research, it would be useful to compare qualitative data with activity rubrics and student outcomes.

Findings and discussion

Question 1: Demographics – for statistical purposes, please tell us your gender, age group and nationality.

The age ranges of the students were 18% between 16-19 years of age, 33% between 20-24 years of age and 39% between 25-35 years of age. A majority of the participants were female at 60%. Of the 24 who responded to the question relating to nationality, 12 were from China, five from Korea, two from Iran and then one each from Turkey, Somalia, Fiji, Taiwan, Thailand, Samoa and Burma.

Question 2: In the Reading / Listening activity you can listen to and read sentences and definitions for the academic words lists. What did you like best about this activity and why?

For this question 32 out of 33 students responded. A majority of students found the combination of reading and listening academic words advantageous for learning and used the words *memorization* and *repetition* in a positive light. This method for acquiring new vocabulary is advocated by both Nation and Gu (2007) and Coxhead (2006). Students described the results of the activity in terms of it benefiting, enabling or enhancing their listening and speaking, or that it made it easier to get the meaning. Half commented that it was useful to hear an academic word pronounced correctly. *"It is useful because pronunciation of a new word is a key part of vocab learning for us who are non-native English speakers",* and *"...while I listen to and read sentences and definitions for the academic word lists I can learn how to pronounce the words and how to use them correctly".* Students also used terms such as *improved, enjoyed* and *helped* when commenting on listening for pronunciation. Twelve students specifically mentioned that it was a good way of developing a knowledge of the academic words in each list. Two of the students specifically commented on the relevance of this activity to their future study plans with one referring to the need to know academic words at University and the other the need to "…*apply these reliable skills and knowledge gained to achieve good grades in future courses".* Only 1 student commented they didn't like the activity, but didn't say why. Students suggested that the activity could be improved by providing more example sentences and longer passages of text.

Question 3: In the Reflection activity you recorded your academic words and sentences in an audio file and posted them online for teacher feedback. What did you like best about his activity and why?

For this question 31 out of 33 students responded. Twenty-seven students stated that they found the activity useful for the following reasons: eleven students liked to get facilitator feedback and twelve students stated they found it useful to check their own pronunciation against the model audio file. Although students liked to receive lecturer feedback, the activity facilitated the development of skills related to metacognitive reflection. Students made the decision to evaluate their own thinking and learning (Fogarty, 2002) without being told, suggesting that students are not just relying on the facilitator for feedback, but that they are beginning to develop autonomous learning skills. In a majority of cases the tone of the responses signalled that students were motivated to complete the activity. One student commented that they thought the feedback was great because students can look back at their recordings whenever they choose to and that they "have a chance to do it again and again". A representative feedback comment is: "Very useful because you get good feedback so if you didn't do very well in the first one you can make the next one even better, as they say practice makes perfect". The privacy and individuality of feedback on student accents was also commented upon.

Four students didn't find the activity useful because they were nervous about recording, and didn't like hearing their own voice. This suggests that the facilitator could spend time building confidence in having students listen to their own voice. The model is represented as a cycle, each phase flowing to the next, however, as acknowledged by Bonk and Zhang (2008), each phase can address more than one component at the same time. This activity describes an example, where the recording of the audio files could address aspects of both the Reflect and Do phases. However the activity's main aim was as a reflection opportunity.

Question 4: In the Display activity you learned how to create a PowerPoint presentation. How helpful will this skill be to you in the future?

A majority of students found learning how to use MSPowerPoint software very useful, suggesting that it was a good opportunity with one example being "… these skills will benefit us a lot for next semester, even for the rest of our lives". Students reflected on possible design choices with "What kind of PowerPoint would a teacher like? What colours? How complicated, and Which is most popular in the BA?" Even students who already had some knowledge of the software mentioned that they had added to their skills. Some students mentioned they would like to spend more time learning the topic.

Question 5: In the Doing activity you worked in a group to research your further study plans and created a PowerPoint presentation for the class. How helpful was this activity to you?

There was a 100% (n=33) response rate for this question. Overwhelmingly students felt the real-life aspect to the activity was beneficial. "It was wonderful for me". Twelve students specifically mentioned that the authentic aspect of researching their study options was useful to them in determining what and where they would study next semester. Two students mentioned that doing the research for the activity was good because they would never do it in their own time. Five students mentioned that the experience of working in a group was useful. In contrast, three students said that some group members did not contribute to the group work and one said they would have preferred to have made their PowerPoint

individually. Out of the 33 students, only one student said that the activity was not useful to them, but did not say why. "It's really helpful for the next step of my life in my study plans. Now I know how to create PowerPoint and how to present and stand in front of an audience. And also get involved with other students is major thing in group work".

Using the R2D2 model was straightforward due to its easy to follow format. The model matched the facilitator's philosophical approach to design where students are actively engaged in learning activities that meet their needs for understanding and using academic vocabulary in real-life contexts relevant to further study. Activities three and four were found to have relevance and real-life application for the learners. Giving oral presentations, predominantly using MSPowerPoint was relevant as it met the formative and summative assessment criteria listed in the survey of Schools that the EAS students apply for. In this paper, positive comments by students indicate a high level of confidence which supports a study by Evans& Green (2007), suggesting that if students find it too difficult to complete language tasks at University, their confidence diminishes.

Conclusion

This paper has focused on using the R2D2 model of online learning activities for the Listening and Note Taking paper, in an English for Academic Study programme. The facilitator used the model as Bonk and Zhang (2008) suggest, by applying it as "*a lens*" over her philosophical approach to learning and teaching. The model has emphasised a learning process which places the student at the centre of the design process enabling them to be engaged in the active processes of Reading, Reflecting, Displaying and Doing. A strength of the model is that it magnifies two phases – reflection and doing, which are often overlooked in blended environments. Facilitator and student feedback provided a scaffold to understanding and task completion and towards a move between independent and dependent spaces for learning. Additionally, the model has been easy to use as the cyclical learning process is one that occurs naturally in every day life. Although limited in terms of its data gathering method, the evaluation of the R2D2 model was an initial enquiry into its perceived benefits by students. With such positive results, the facilitator is encouraged to continue using and evaluating the model in future semesters.

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Authors: Helen Cartner, Senior Lecturer, Faculty of Applied Humanities, Auckland University of Technology. Email: helen.cartner@aut.ac.nz
Julia Hallas, Flexible Learning Advisor, Centre for Educational and Professional Development, Auckland University of Technology. Email: julia.hallas@aut.ac.nz

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