

Students Participating in the Learning Design Process Using LAMS

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This paper outlines the “Student Learning Designers Using LAMS” Project which evaluated students as designers of learning activities and addressed some of the issues that teachers may encounter when attempting a similar implementation themselves. LAMS was chosen as the design tool with which the students would work. Its flexibility allowed them to explore new ways of learning and enabled them to produce a wide diversity of designs. The ‘students as designers’ approach challenges transmission models of pedagogy and requires teachers to relinquish some control to their students so that they might have the space to play and discover how to learn. This project demonstrated that when students were empowered to design their own learning activities, they can deeply engage in the learning process.

Keywords: Students as designers; LAMS; Learning design; peer learning.

Project Overview

The “Student Learning Designers Using LAMS” Project took a problem-based learning approach and involved five teachers and approximately 165 students from five schools. A key element of the design of the project was that the students were asked to take a significant amount of responsibility in planning for, and creating, their own learning. During the project, the students produced 230 learning designs. Research data was collected from teachers and students via a pre-project survey and video recorded post-project interviews.

Project Objectives

The project was designed to determine the value and format of a larger project where students would use LAMS to create and share learning designs. It aimed to:

- Evaluate the value of LAMS as a tool to provide an efficient means of involving students in learning design and therefore provide an opportunity for them to have ownership over the design and creation of the learning experiences;
- Analyse the depth and variety of the designs provided by students when access to authoring software is provided;
- Determine the key teaching and learning opportunities afforded by student authoring projects.

Students and teachers were asked to look beyond their current approach to teaching and learning, and analyse the attitudes and conceptions that inform that approach. The project-based learning approach taken in this project required students to take a fundamentally more active role in planning and creating their own learning. Understanding how they might do this is a complex and multi-faceted problem. It was not just a matter of helping the students think up relevant and authentic learning tasks, their teacher’s role was to provide students with carefully considered scaffolds that enabled them to achieve beyond what they could as individuals with the resources before them.

Encouraging Student Engagement

Throughout the project, the teachers and students developed a highly engaging, customised learning environment that fostered student independence, initiative, teamwork, thinking skills, metacognitive skills and diversity. Within this environment, the students collaborated to design effective learning activities. Their design task required them to use higher order thinking processes and reflection, not just the lower order thinking skills normally used when they are simply required to reproduce knowledge.

Kimber & Wyatt-Smith (2006) cite eight strategies to foster deep learning and encourage active engagement with students. All of these were observed during the project:

- Independent learning, negotiated between student and teacher;
- Personal development;
- Problem-based learning
- Explicit reflection by students on their learning;
- Independent group work;
- Learning by doing;
- Developing learning skills; and
- Project work.

In order that the students could design their own learning activities, the teachers in the project had to relinquish some control. This resulted in their students being:

- Given the initiative;
- Allowed to choose from a diversity of sound methods;
- Work in teams on authentic, real-world tasks;
- Utilise the features of advanced technologies; and
- Allowed to persevere until they reached appropriate standards (Reigeluth, 1996).

Initial Survey Questions

The pre-project survey questions were designed to determine the students' understanding about how and why they learn the way they do and why teachers make the decisions they do.

The questions were:

1. What makes it easier for you to learn?
2. What makes it harder for you to learn?
3. What skills does a learner use to learn well?
4. What do you think is important for the teacher to think about when they are designing a learning experience for you?
5. Do you learn everything from your teacher?
6. How do you feel about being the teacher and creating learning for other students?
7. Why do you think that the teacher made the decisions they did about what to teach?

Initial Survey Findings

The pre-project survey identified the following key themes:

- Most students didn't identify cognitive skills as a key factor in learning. Most identified communication skills, such as listening, as the most important factor in learning (metacognition).
- A significant number of students identified "organising groups" as a key role of the teacher (classroom dynamics).
- Students identified they required a wide variety of types learning experiences to learn well (learning design).

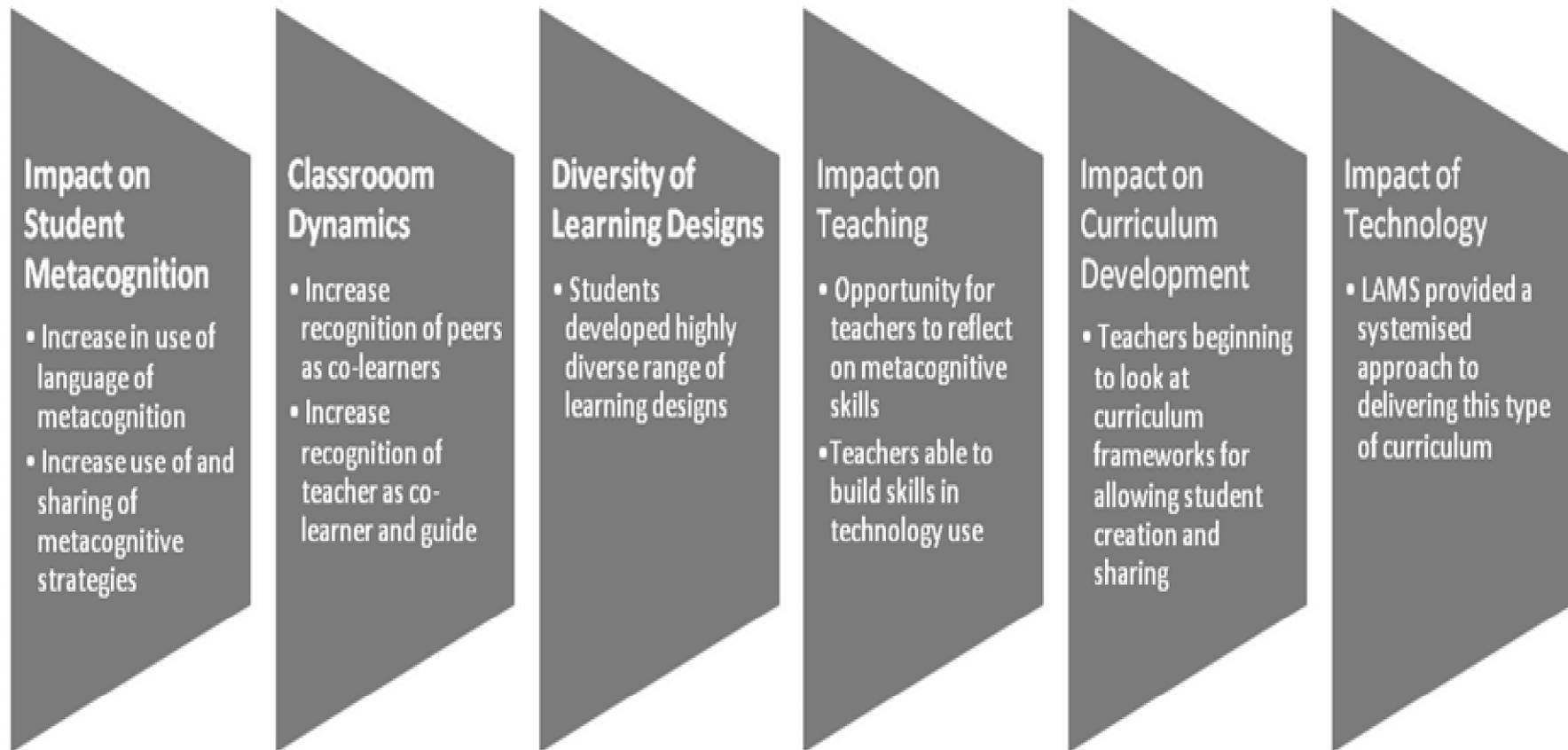


Figure 1: Summary of project findings (Gotlieb, 2009)

Learning with Technology

Technology can readily be used to create a communal ‘problem-solving space’ for explorations of subject content (Jonassen, Peck & Wilson, 1999). The rise of Web 2.0 technologies has enabled students to create, design and publish new knowledge with immediate results (Chang, Kennedy & Petrovic, 2008). This has helped students understand how knowledge is generated, used and transmitted and has peaked their interest in learning activities that involve creating and sharing their own content. Therefore, the students were quite open to the idea of authoring their own learning activities in LAMS.

The project utilised LAMS software as a workspace for the students’ design activity. LAMS provided an overall structure, a means of sharing designs and also provided a spring board for investigating further technologies, eg. The Pixlr drawing tool. LAMS proved easy for the students to learn and the scope of their learning activities were limited only by their imagination. The teachers frequently adopted a teaching approach that built on their students’ trial-and-error method to learning with technology. This was noted as one of the greatest areas of opportunity in the project. The students excelled at picking up the new technology in different and interesting ways and the teachers found they learnt from the students in this area. This also helped create an environment where the control of the learning process was more student-centred.

Students generally understood how to structure a basic learning task using the technology, eg. provide some information and then check learner understanding using questions. However, they often needed lots of support in understanding the relationship between the LAMS software and other technology (such as how to find copyright free images or finding interactive resources or websites).

Reciprocal Peer Learning

Throughout the project, students worked collaboratively and there were many opportunities for students to learn with, and from, their peers. A reported benefit of working through another learning activity was that students picked up new ideas from each other. Students learnt a great deal by explaining their ideas to others. They develop skills in organising and planning learning activities, working collaboratively with others, giving and receiving feedback and evaluating their own learning (Boud, Cohen & Sampson, 1999).

In this project, peer learning was a two-way, reciprocal learning activity. In “reciprocal peer learning”, students within the group act as both teachers and students, simultaneously learning and contributing to other students’ learning. This contrasts with “peer teaching” where the roles of teacher and student are fixed and there is a clear and consistent differentiation between the teaching and the learning role (Boud Cohen & Sampson, 2001). There are a number of advantages for students when they learn from classmates: they usually know each other, they face the same challenges in the same context, they can talk to each other in the same language and they are more relaxed about asking each other what may appear, in other situations, to be silly questions. Several teachers commented that engaging students in this way had positive impacts on their self-esteem.

Peer learning values cooperation over competition and there is an appreciation for the varied experiences and backgrounds of student. Peer learning approaches have been promoted to foster certain types or aspects of valuable life-long learning skills, such as:

- collaboration, team work, and being a member of a learning community;
- critical enquiry, reflection and exploration when the authority of the teacher is not immediately present;
- communication and articulation of knowledge, understanding, ideas and skills; and
- taking responsibility for identifying their own learning needs and planning how these might be addressed (Boud et al, 1999; Longaretti, Godinho, Parr & Wilson, 2002).

One of the key challenges was for the teachers to let go of their control of their students’ learning for at least some of the time and let peer learning take place. Only by doing this, could the students be given

the space to play and discover how to learn. However there are group management and pedagogical challenges to be faced when implementing these types of teaching and learning approaches.

The Teacher's Role

The presence of the teacher was clearly evident throughout the project. Initially the research team set criteria with students on what would be a good learning design but the teachers needed to have further discussions with students to identify where they hadn't completely understood the criteria, or didn't know how to design to meet the challenge. It was noted that for those students who were not autonomous learners, it was really important for the teacher to scaffold the learning activities so the students were able to achieve and focus on learning the metacognitive and communication skills necessary for this type of work. The teachers needed to be able to identify gaps in the students' skills and knowledge, and provide scaffolding to help get the students to the next level.

Students unfamiliar with peer learning can become confused about what they are supposed to be doing. They might miss opportunities for learning altogether, and can fail to develop the skills expected of them. Students who are already effective learners tend to benefit disproportionately when everything is left to chance (Boud et al, 2001). This highlights the need for a flexible learning task that provides learning opportunities for students of all levels to participate.

In this project teachers sometimes saw a need to "formalise the informal" to realise the potential benefits of peer learning so that all students could benefit from it, not just those who were already proficient learners. For example, the teachers provided criteria for the learning designs, taught metacognitive and communication skills, provided feedback on the learning designs and provided some instruction on the use of the technology.

Teachers often think that what they do is necessarily more important for student learning than other activities in which they engage. Although the importance of the teacher was clearly demonstrated in the project, teachers had to be careful not to place themselves in the position of mediating all the students needed to know. This may not only create unrealistic expectations, but teachers can potentially de-skill their students by preventing them from effectively learning from each other (Boud et al, 2001).

Recent research (Chang et al, 2008) has noted that resistance to the change in the teacher's role is not only felt by the teachers. Students have also voiced a reluctance to accept the shift away from teacher-centred learning. It was interesting to note that the high school students in the project were more reluctant to give peers feedback (either positive or negative) than were the primary school students. Have the older students been conditioned to the status quo, or are they at a time in their lives where they don't want to upset their peers? A question worth pursuing.

Students as Designers

In the learning design environment, students were not merely receiving information: they were using the technology to engage in a constructive learning process. As designers, students are given the opportunity to be creative and pursue their goals actively (Lui & Hsiao, 2002). This project demonstrated that students as young as Year 5 are able to make decisions (with varying degrees of guidance) about both content (what to learn) and pedagogy (how to learn it), (Reigeluth, 1996).

Designing learning is a complex task. Caver, Lehrer, Connell & Erickson (1992) identified five categories of critical thinking skills they observed students exhibiting when they were designing multimedia environments. These thinking skills were also observed to be taking place in this project:

- Project management;
- Research;
- Organisation and representation;
- Presentation; and
- Reflection.

When students were given the opportunity participate in a discussion with the researchers in their role as learning designers (with equal status with their teachers), they rose to meet the challenge and provided insightful comments, eg. How can groups be used to pull together individuals of similar or different interest?; What constitutes a 'good' answer?; How and why we provide feedback.

There is no doubt the students were actively engaged throughout the project, however, just being allowed to do something that is not a usual part of school learning, and/or being recognised for creating something clever, is enough to keep students motivated and on task (Prensky, 2007). Hence novelty may have been a factor for the high level of student motivation observed. This project observed similar student behaviour to that reported by Liu & Rutledge (1997), and that was that while students were highly motivated in many respects and were on task, the critical design skills of planning and time management were not easy for them to acquire.

The table below most effectively summarises the advantages of using students as designers of learning and it also outlines some disadvantages, some of which that the teachers in this project also discussed in the post-project interview.

**Table 1: Advantages and Disadvantages to Students as Designers and Teachers
(Murphy, Harvell, Sanders & Epps, 1999)**

Instructional Design Considerations	Advantages to Students	Disadvantages to Students
Collaboration	Can learn from each other. Synergy results from 2 minds working together. Can share workload & responsibilities "Many hands make small work"	Only as strong as the weakest link. Too many chiefs, not enough Indians. Difficult for some students to deal with responsibility for leadership Major amounts of time are necessary.
Relevance	Empowers learner to connect theory & hypotheses to actual/ practical context. Adds realism to learning process. Provides pride in ownership of product Allows for constructive learning	If it's the wrong track, it's a waste of time.
Learner control	Encourages diversity. Encourages multiple approaches to solutions. Allows for more sophisticated approaches. Encourages self-confidence. Allows control of own pace & time	Can produce off-task results. Lack of direction can occur when losing sight of objectives Procrastination can result.
Technological preparation	Provides advance notice of content, context, and applications to be used. Increases familiarity & ease with technology.	May intimidate the less well informed or skilled. May get lost & overwhelmed by "information overload."

Conclusion

The “Student Learning Designers Using LAMS” project clearly demonstrated that the act of designing can facilitate deep learning in the classroom. It enabled students to be independently engaged in investigation, work autonomously and collaboratively, and it also provided their teachers with rich opportunities for key teaching moments. The researchers evaluated the process of students as designers of learning activities and addressed some of the issues that teachers may encounter when attempting a similar implementation themselves. The flexibility of the LAMS software allowed them the students to explore new ways of learning and enabled them to produce a wide diversity of designs. This ‘students as designers’ approach challenges transmission models of pedagogy and requires teachers to relinquish some control to their students so that they might be given the space to play, discover how to learn and deeply engage in the learning process.

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