

Learning from research: Digitalising learning in tertiary settings



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The current educational climate is highly competitive, both for funding, and student enrolments. Tertiary institutions are looking for new ways to attract student enrolments and there is a high expectation among students for learning to be digitalised. Research has concluded that Learning Objects (LOs) are effective motivators and help to engage learners with content. It has also been suggested that LOs are most effective when incorporated in a blend of traditional and digital instructional methods.

Tertiary institutions are well positioned to incorporate LOs within existing units, thereby capitalising on the benefits such instructional tools offer by building on the more traditional methods pervasive within the field. This poster will present the findings from a school-based project conducted in Queensland, Australia which trialed LOs with middle-school secondary science students. The results from the study will be applied to the tertiary settings and it will suggest that LOs present as a useful approach for learners in tertiary settings.

Defining learning objects

A learning object is a self-contained block of learning that fulfils a single, stated learning objective. In general, learning objects can be launched and assessed independently. Based on open systems standards, they can be used within multiple learning management systems. To add to the complexity, learning objects employ a broad array of media ranging from simple text-based formats to sophisticated multimedia experiences. Indeed, learning objects can be delivered through any medium. For instance, they can take the form of an online lesson, a classroom-based seminar, or a role-play simulation. (ASTD & SmartForce, 2006, p.3)

Learning objects and motivation: A useful tool for tertiary institutions?

Many studies have reported on the impact of ICT and hence Learning Objects on learning and pedagogy in contemporary schooling contexts. The key conclusions regarding the impact of ICT on learning were:

- An improvement in pupils' motivation and attitude towards learning.
- An increased commitment to the learning task.
- Greater interest in the subject.
- Greater responsibility for learning demonstrated by the pupil.
- Evidence of sustained effort in difficult tasks (Cox et al., 2003, p.5)

The project

The research participants comprised a purposive sample of 5 classes of Year 9 students in a State High School, located in Brisbane. The project was designed to provide evidence of the efficacy of LOs for engaging middle-school students, particularly 'at risk' boys, in developing their relevant scientific literacies.

The learning objects: *Resistors* and *Waves*

The LOs used in this study were based on two distinct subject areas, Resistors, which introduced students to simple electronics and Waves, which was a computer simulation of a wave generator.

Method

A comparative field study methodology using both quantitative and qualitative data collection methods was employed. Data collection methods include the following:

- 2 online student questionnaires, for Waves and Resistors respectively
- 6 student focus group interviews, each group consisting of 3-5 students (mixed gender). 3 student focus groups were conducted each for Waves and Resistors, and consisted of 1 group 'low-achieving' students, 1 group 'average-achieving' students, and 1 group 'high-achieving' students.
- 3 teacher interviews

Results

- A total of 243 students participated in the trial sessions. Of these, 187 students responded to the online student questionnaires giving a high response rate of 76%.
- Overall, the gender profile of students who participated in the LO trials over two days comprised approximately 60% females and 40% males.
- Student participants were highly supportive of incorporating *Resistors*, *Waves*, and other similar learning objects in their science classes.
- In general, both LOs were found to have positive impacts on students' affective learning outcomes, including student engagement, motivation, persistence, choice and collaboration.
- Both learning objects scored highly with students in terms of their potential for promoting collaboration among peers, and allowing student choice in terms of providing a flexible environment where they could choose the activities they want to engage in, and learn at their own pace.
- Student participants generally found the LOs easy to work through, with clear instructions, and consequently did not require much help from teachers or friends in the completion of the activities.

Conclusion

The use of LOs in tertiary settings has the potential to increase student interest in the subject. As the results of the study showed, LOs have a positive impact on affective learning outcomes. Students from this study reported, regardless of gender or academic ability, experienced greater interest in the subject when using the LOs. These positive affective learning outcomes may translate into positive outcomes within tertiary settings. Tertiary settings are well situated to adopt LOs. With the current trend of online learning platforms, such as Blackboard® prevalent in tertiary education, for both internal and external students, placing LOs within existing units is highly feasible. These are pre-existing user-interfaces that are highly suited to hosting LOs for tertiary students to access easily and use.

Acknowledgement

This project was funded by an ARC Linkages Project: LP0454996

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Please cite as: Tan, J., Lee, K.T. & Duncan-Howell, J. (2007). Learning from research: Digitalising learning in tertiary settings. In *ICT: Providing choices for learners and learning. Proceedings ascilite Singapore 2007*. <https://doi.org/10.65106/apubs.2007.2866>

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