

Association for Information Systems

AIS Electronic Library (AISeL)

ACIS 2012 Proceedings

Australasian (ACIS)

2012

A Preliminary Evaluation of the Use of Graphic Novels in Teaching Information Systems

Ashley Aitken

Curtin University, ashley.aitken@cbs.curtin.edu.au

Gillian Hatt

gillian.hatt@hatken.com

Follow this and additional works at: <https://aisel.aisnet.org/acis2012>

Recommended Citation

Aitken, Ashley and Hatt, Gillian, "A Preliminary Evaluation of the Use of Graphic Novels in Teaching Information Systems" (2012). *ACIS 2012 Proceedings*. 93.

<https://aisel.aisnet.org/acis2012/93>

This material is brought to you by the Australasian (ACIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in ACIS 2012 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact elibrary@aisnet.org.

A Preliminary Evaluation of the Use of Graphic Novels in Teaching Information Systems

Ashley Aitken
School of Information Systems
Curtin University
Perth, Australia
Email: a.aitken@curtin.edu.au

Gillian Hatt
Perth, Australia
Email: gillian.hatt@hatken.com

Abstract

As a result of declining student numbers, and poor satisfaction ratings, an introductory information systems unit was completely redeveloped. A number of innovative initiatives were designed and implemented and the unit has seen a significant improvement in student satisfaction rates. This paper describes the development of a series of graphic novels as a strategy to both increase student engagement with the unit content and enhance the attainment of learning outcomes. It also discusses how the graphic novels were used in lectures, workshops, and competitions to increase student engagement (with varying degrees of success). Students have generally found the graphic novels to be a valuable learning resource. There is a paucity of studies on the impact of graphic novels as a teaching tool, particularly within the context of higher education, and this research is a contribution to this evident gap in the literature.

Keywords

Graphic novels, Information Systems, teaching, student engagement.

INTRODUCTION

Business Information Systems (BIS100) is a very large first-year unit in the School of Information Systems at Curtin University that introduces (mostly) business students to Information Systems (IS), Information Technology (IT) and Logistics and Supply Chain Management (L/SCM). BIS100 is one of the common core units undertaken by all first year students from all Commerce majors (for example, Accounting, Marketing, and Business Law) in the Curtin Business School. As a result, many students have little or no interest (at least initially) in IS or IT. Most are first year students and new to university study, which is an additional challenge. There is also a large cohort of international students from the South-East Asia, enrolled on the Bentley Campus, for whom English may not be their first language. BIS100 is also taught in a number of onshore and offshore locations by partner institutions (Mauritius, Penang, Sarawak and Singapore, as well as in Sydney).

Over the last decade the unit has struggled with poor student satisfaction rates and, like many other IS courses, a decline in the number of students wanting to study IS and IT. One of the authors led a substantial redevelopment of the unit in 2009 in an attempt to improve outcomes for students, particularly satisfaction rates (as determined by the student survey feedback instrument called eVALUate that is administered to all units at Curtin University) but also to increase the number of students choosing to major in IS, IT or L/SCM. Since the redevelopment, the unit has seen a substantial increase in satisfaction rates amongst both on-campus and online and distance education students as well as at partner institutions. BIS100 adopts a blended approach to learning, encouraging and requiring on-campus students to use the online facilities as well as face-to-face sessions.

A range of educational technologies to facilitate, engage, and enhance student learning are employed in the unit (see Aitken & Hatt 2012a, Aitken & Hatt 2012b). With such a diverse student group identifying common motivating factors for student engagement can be quite complex. One of the key areas of focus in the unit has been student achievement of the learning outcomes for each learning topic. This is facilitated by providing a significant number of learning resources and learning experiences, in order for students to achieve the learning outcomes. This paper will discuss the development and implementation of a series of graphic novels (teaching material in a comic strip format) as an innovative and hopefully engaging pedagogical resource within the unit.

LITERATURE REVIEW

Although the origin of the term “graphic novel” is the subject of debate (Sims 2010), many writers define Will Eisner’s “A Contract with God, and Other Tenement Stories” (1978) to be one of the most important early examples of the graphic novel genre. Graphic novels emerged from the comic book movement in the 1960s, particularly from writers wanting to employ the comic book format to address more mainstream or adult topics (O’English, Matthews & Lindsay (2006)). A graphic novel consists of a usually sequential number of cells (the unit of content of a graphic novel) that contain drawn or stylised images, speech bubbles and/or annotations. Thompson (2012) indicates that graphic novels combine text and pictures equally in order to convey a narrative. It is the association and compatibility between words and images that are important to achieving a successful graphic novel. Baetens (2001) indicates, however, that there has been a “deeply rooted suspicion towards the medium in [the] American academy.” Weiner (1996) comments that the “sophistication of the American comic book/graphic novel may be the most underrated literary movement in recent United States history.” The inspiration to create the graphic novels for this unit came from reading Kathy Sierra’s blog and the “Head First” series of professional training books for software developers (Sierra & Bates 2005), as well as “The Adventures of an IT Leader” by Austin, Nolan & O’Donnell (2009).

Recent studies cite the benefits of using graphic novels as a pedagogical tool. For example, engaging students who are visual learners, and presenting complex concepts in a simpler format. Shipwright et al (2010) describe the creation of a graphic novel to teach research literacy skills entitled “Citizen Researcher”. The results from their study indicate that students had a very satisfactory learning experience and that they made statistically significant gains in their research literacy competency scores. Cross (2012) suggests that there is a strong correlation between the use of graphic novels and student engagement, additional learning outcomes, and effective application of course themes to life experience, amongst university students. Miller (2012) also states that graphic novels can assist student engagement since they can be used as a tool to differentiate instruction. For example, case studies used in business courses are often presented as a page or two of textual content, possibly with some figures. Such documents may not be perceived as overtly interesting or attractive to first year students. Thus, although lecture and textbook content can provide longer textual versions of case studies, graphic novels can be developed and employed to summarise and overview such case studies (as done in this unit).

Shipwright et al (2010) and Callahan (2009) indicate that whilst there has been an emergence of literature on the uses of graphic novels in curricula, there is a paucity of studies that address the impact of the graphic novel as a teaching tool. It is also apparent that there is virtually no research that looks at the use of graphic novels within the context of teaching and learning in higher education (focusing instead almost totally on high school education). Having consulted the very limited literature on this topic, we concur with this view and see this research as a contribution to the literature on this subject.

APPROACH

The motivation for using graphic novels was primarily to make the unit material more interesting and engaging to first year students. Some have preconceptions before they begin the unit that IS and IT will be a somewhat dry and dull subject (and, of course, it can be if presented in such a manner). The graphic novels were therefore an attempt to present the curriculum in a more innovative and appealing format so as to increase student engagement with the unit content. We hypothesised that the use of graphic novels in BIS100 would encourage greater student engagement, and that it would appeal to different types of learners (e.g. visual learners). It was also hoped that the graphic novels would encourage students to familiarise themselves with (and work towards achieving) the learning outcomes in a more incremental manner throughout the duration of the unit, rather than a last minute swot for the test and exam. The development and dissemination of a series of graphic novels was considered to be an innovative way of summarising the lecture content and case studies that are used in the unit. However, it was not clear whether students would perceive the potential benefits in this way. In this paper we will discuss some of the preliminary findings arising from our research. In particular, whether students felt that they were a valuable learning resource for BIS100, and how many of the graphic novels they read over the course of a semester. The term IT will be used collectively (from now on) to refer to IS, IT and L/SCM.

The approach taken to redeveloping BIS100 and implementing new initiatives (such as the graphic novels) was a combination of action research and design science methods. Academics regularly plan their courses, assess their students, reflect on the outcomes and plan for the next delivery of the course. This is a natural fit with the action research method (Brydon-Miller 2003, Kemmis & McTaggart 2000, Mills 2000). Design science research aims to solve a particular type or kind of problem by developing a new or improved solution artefact(s) (Hevner et al 2004). Whereas traditional science aims to build models and theories of the environment and judges them by their explanatory power, design science aims to build artefacts (including models, theories, systems, courses) and judges them by their utility. A preliminary evaluation has been undertaken and is reported in this paper.

However, further work would need to be undertaken to significantly confirm the utility of the artefact that is described (a series of graphic novels) to a more general context, e.g. in different IS units in different contexts.

Therefore, the problem we sought to address was to increase both student engagement in BIS100 and enhance student attainment of the learning outcomes by developing a new solution artefact (a series of graphic novels). It was determined that student achievement of learning outcomes could be facilitated by providing innovative learning resources in the form of graphic novels. The criteria used to assess the utility of the artefact were: 1) whether students believed the graphic novels were a valuable learning resources, 2) engagement with this form of unit content (for example, the frequency students read the graphic novels), and 3) whether students thought that the learning resources in the unit (of which the graphic novels were one a component) helped them to achieve the learning outcomes. The first two criteria were measured through an online worksheet in the Blackboard Learning Management System, which students are required to complete during week ten of the semester. The two survey items in the worksheet relevant to this research are: 1) "Overall the graphic novels were a valuable learning resource for BIS100", and 2) "Approximately how many of the graphic novels did you read for BIS100?" Students were asked to indicate their level of agreement with the first (using a five-point Likert scale) and to select from a range of numbers for the second. The third criterion was taken from student feedback reported in Curtin University's eVALUate survey results for BIS100 and quantifying whether students thought that the learning resources in the unit (of which the graphic novels were a component) helped them to achieve the learning outcomes. Although these surveys were not anonymous, students were informed that the responses were used to obtain a better understanding of how the teaching materials are perceived by students and to improve the unit. The research discussed in this paper will be based on responses from students enrolled in BIS100 on Curtin University's Bentley Campus (the main campus) only.

Production and Use of the Graphic Novels

A member of the instructional design team that assisted in the unit redevelopment was aware of the use of graphic novels for teaching and learning, and thought that their use would be both interesting and advantageous to students. It was initially contemplated that all the teaching and learning materials for the unit may be in a graphic novel format. However, the time and effort required to do this meant that this would be very difficult to achieve and there was lack of support for this effort from some team members. As a compromise it was decided to use graphic novels as supplementary material and to evaluate how the students perceived them as a unit resource. The graphic novels were produced using the "Comic Life" software (produced by Plastiq.com and available for recent Macintosh and Windows operating systems). The software was more than adequate for the production of the graphic novels themselves, although the photographs and images used in the graphic novels had to be pre-processed using Photoshop and other image processing software. A minor issue arose from the slight differences in font metrics on Windows and Macintosh computers but this was easily overcome with some extra editing.

A team of nine staff produced the graphic novels: three academics, four instructional designers, and two graphic designers (although the academics, instructional designers, and graphic designers often took it in turns to work on alternate graphic novels and were only working a small number of hours per week on this project). Each graphic novel was developed over a three to four week period. This involved: 1) the academic(s) proposing a topic and content message with a suggested storyline, 2) the instructional designer(s) taking the proposal and developing a storyboard sketches, 3) the academic(s) and instructional designer(s) meeting to discuss the storyboard sketch and making any amendments before starting to shoot the required images, 4) the instructional designers and graphic designers gathering local talent (staff and students), setting up makeshift sets, and photographing images for the graphic novels, 5) the graphic artists then processed the images, obtained other stock images, and worked with the instructional designers to create the graphic novels in the "Comic Life" software, and 6) the academics finally reviewing the graphic novels and suggesting minor changes (usually only to the text) to the graphic novels. The final graphic novels were produced as Adobe PDF documents (of around 7MB each). The graphic novels have also been adapted for use in general education and promotional material for the School of Information Systems, e.g. a School calendar, and for use at educational and promotional events, e.g. large A2 laminated colour prints of the graphic novels used as posters at careers events and exhibits.

Pedagogy

It was initially suggested by one of the instructional designers that the graphic novels be made more central to the unit, e.g. to use them in exercises and, for example, to get students to draw themselves in a particular scenario in a graphic novel within the first lecture as part of an interactive introductory task. Whilst this was a good idea it did not fit within the planned approach to the unit or the time available in the lectures and workshops (given the amount of content that is covered). Instead it was decided to use the graphic novels primarily as supplementary material for the unit. In this way if they were not perceived to be beneficial they would probably have little effect on the student evaluations of the unit, but if they were considered to be of

relevance they could contribute to its success. The graphic novels were therefore developed as additional material provided to students to assist in their learning, above and beyond the lecture and workshop material (of which there is a significant amount) and the textbook. Although the graphic novels were not used in any formal or informal assessment within the unit a number of competitions (with prizes) based around the graphic novels were run in the first presentation of the unit. These were not a part of the unit assessment and as such they were optional for students. Although the numbers who entered into the competitions were small the results will be discussed later in this paper. The aim of the competitions was to attempt to engage students further by getting them involved in the informal production of graphic novels and also to introduce another pedagogical aspect of their use within the unit.

The Graphic Novels

A total of ten different graphic novels were produced summarising the learning units and case studies. An additional learning unit focussed on a case study of the Dell Computer Company. However, this was a case study of a different kind than those forming the main content of the unit, and was not the subject of a graphic novel. Each graphic novel consists of one double-sided A4 page, and was distributed at each lecture and also available in the unit resources that students can download (for free) or purchase printed and bound.

The titles of the ten graphic novels and their focus were: 1) The Value of IT and Unit Overview, 2) What are Information Systems and Technology Infrastructure? 3) Creating Business Value with IT, 4) Creating Business Value with Information Systems, 5) Creating Business Value with Information, 6) Creating Business Value on the Demand Side, 7) Creating Business Value on the Supply Side, 8) Creating Business Value with Enterprise Resource Planning, 9) Creating Business Value with Technology Infrastructure, and 10) What's in IT for me?

As can be deduced from the titles some of the graphic novels also had a marketing aspect (e.g. "What's in IT for me?" was used at the end of the semester to encourage students to take a major or double major within the School). Others were more introductory, e.g. the first graphic novel was an introduction to the unit staff and an overview of the suggested study routine. All of the other graphic novels focussed on the "creating business value" aspect of the unit, and of those five were related to the case studies.

The graphic novels also introduced various IS and IT professional roles that the characters were given. For example, the role of an IT Master (portrayed as a super hero) played by a senior female staff member, and of the inexperienced IT apprentice played by a junior male staff member. Other roles include IT Manager, Business Analyst, Systems Architect, Supply Chain Specialist and, of course, students. The explanation of the various professional roles and careers in IS, IT and L/SCM was a significant goal of the unit overall, so including them in the graphic novels was important and helpful.

The graphic novels were employed for a number of pedagogical purposes. One use was as an introduction to the unit, introducing the key staff members and the suggested study routine. Another was to introduce key processes (e.g. the process for creating business value with IT – see Figure 1 for an example of this). Another was for the actual case studies themselves – the front of the graphic novel detailed the particular case study and the back of the graphic novel detailed the solution (following the taught process – see Figure 2 for an example of this). Finally, another use was for promoting study in IS, IT, and L/SCM (see Figure 3 for an example of this). In particular, the last graphic novel was used to encourage students to choose one of these areas as their major.



Figure 1: A Process-Related Graphic Novel – Creating Business Value with IT

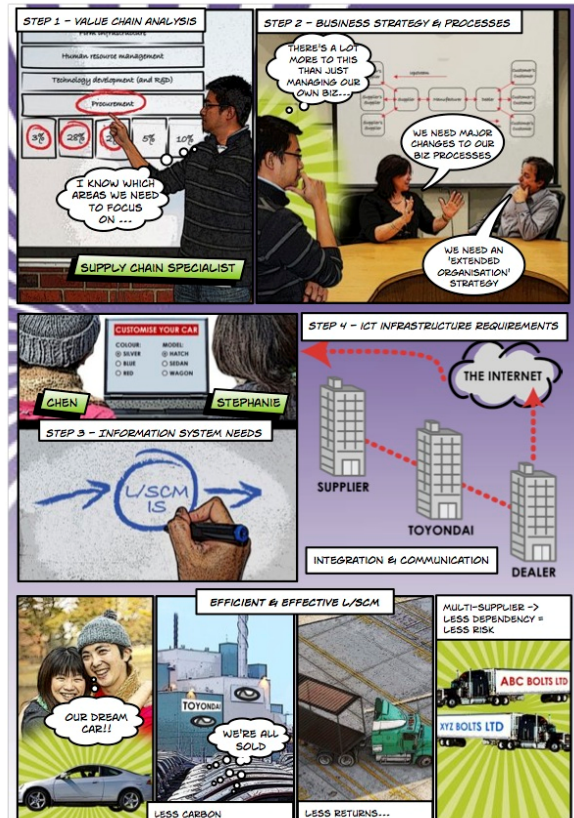


Figure 2: A Case Study Graphic Novel – Creating Business Value on the Supply Side



Figure 3: A Promotional Graphic Novel – What’s in IT for me?

FINDINGS

The redeveloped version of BIS100 has been presented six times at Curtin University’s Bentley campus (plus three times in an accelerated format for the Summer School teaching period) and five times at a number of partner institutions around Australia and in SE Asia. The presentations at the Bentley campus include students who attend campus and students taking the unit in an online or distance education mode. The break down of results that will be described in this section are for the Bentley campus only, and cover the period from Semester 2, 2010 (when survey feedback from students about the graphic novels was initiated) until Semester 1, 2012.

Table 1. “Overall the graphic novels were a valuable learning resource for BIS100” (Bentley Campus)

| Response / Semester | 2010-2 N=355 | 2011-1 N=351 | 2011-2 N=177 | 2012-1 N=313 |
|-----------------------------------|-----------------|-----------------|-----------------|-----------------|
| Strongly Agree | 10.4% | 8.5% | 5.0% | 12.7% |
| Agree | 37.9% | 33.3% | 38.4% | 32.9% |
| Neither Agree nor Disagree | 31.3% | 30.1% | 32.2% | 37% |
| Disagree | 8.3% | 11.3% | 11.8% | 11% |
| Strongly Disagree | 5.3% | 3.4% | 6.2% | 2.2% |
| Unanswered | 6.5% | 13.1% | 6.2% | 3.1% |

Students who are enrolled in BIS100 complete online worksheets on a weekly basis. Table 1 shows the responses (from students enrolled at the Bentley campus) to the following statement made in the worksheet for Week 10: “Overall the graphic novels were a valuable learning resource for BIS100.” As can be seen from the data in Table 1, a substantial number of students agreed or strongly agreed (over 40% in all teaching periods) that the graphic novels were a valuable learning resource for BIS100. For such a novel teaching and learning resource (something that most students would not have seen before) this response is both positive and understandable. Many students, however, were also unsure about the value of the graphic novels (over 30% in all teaching periods). This may also be due to their novelty, i.e. the students had not experienced the use of graphic novels and teaching and learning before and didn’t know what to make of them.

Table 2 gives an indication of the extent to which students were reading the graphic novels in the unit.

Table 2. “Approximately how many of the graphic novels did you read for BIS100?” (Bentley Campus)

| Response \ Semester | 2010-2 N=355 | 2011-1 N=351 | 2011-2 N=177 | 2012-1 N=313 |
|----------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| All of them | 14.9% | 13.9% | 9.0% | 13.4% |
| Most of them | 26.8% | 18.2% | 24.2% | 25.2% |
| A few of them | 33.1% | 34.7% | 31.6% | 38.6% |
| One of them | 9.5% | 11.6% | 9.0% | 7.6% |
| None of them | 9.2% | 8.8% | 19.7% | 11.8% |
| Unanswered | 6.2% | 12.5% | 6.2% | 3.1% |

It is evident that there is almost an even split (around 30+% each) between students who read most or all of the graphic novels and those who only read a few. Considering that each graphic novel consists of one double-sided A4 page, it was quite surprising that a number of students had read only one (possibly the first one handed out) of the graphic novels, or none at all. This may be due to the fact that they were not a required part of the learning within the unit (much like learning unit summaries are encouraged but not required). This also provides an explanation for why some students disagreed or strongly disagreed with the statement that the graphic novels were a valuable learning resource. The explanation being that they had read either very few, one, or none, of the graphic novels. Students also provided qualitative feedback on the use of graphic novels in BIS100. Some comments from the worksheet in week 10 included:

“The comics were awesome – helped in my revision process”

“The comics aren’t helpful and incredibly large waste of paper and ink”

These show the almost diametrically opposite views that exist with regards to the graphic novels. The following qualitative feedback was also received from students in response to the question, “Please comment on the most helpful aspects of Business Information Systems 100” in an end of semester evaluation instrument. They are generally much more positive, perhaps as a result of more students having actually read and considered them in more detail in preparation for the final examination:

“The comics were awesome, helped in my revision”

“I enjoyed doing the worksheets, and in the lecture you get the graphic novel which is so amazing, I made a book out of it”

“I think the graphic novels definitely aided my understanding of the case studies”

“Workshops, worksheets and lecture slides, comics”

“Excellent use of teaching aides including lecture slides, textbooks, graphic novels”

“The comics made things easier to comprehend, especially initially in the unit to get an idea of what it was about”

“The helpful aspects of the BIS unit is the use of comics to summarise the case studies”

Overall we have been quite surprised that students have not made more reference to the graphic novels in qualitative feedback over the past six semesters. This might be due to the large number of resources that are provided in the unit, the fact that the graphic novels were not a mandatory or fully integrated part of the teaching and learning, or because the students did not see the graphic novels as an innovative way of presenting the content. Cynically speaking, this also could be because they have not yet had to read through many long (and sometimes dull) textual case studies.

Since the implementation of the redeveloped form of the unit in Semester 2, 2009, there have been significant improvements in the student satisfaction rates with the unit overall, as determined by the end of semester eVALUate scores. For further details regarding the range of initiatives, such as, more details about the goals and unique approach of the unit, as well as the implementation of collaborative elearning projects, and how the unit was redeveloped, see Aitken and Hatt (2012b). Table 3 shows students general agreement (agree or strongly agree) with the following quantitative items across all locations where the unit is taught: 1) The learning resources in this course help me to achieve the learning outcomes (LR), 2) Overall, I am satisfied with this course (OS). eVALUate data is not available for Semesters 1 and 2, 2008 and 2007 data relates to presentations

at the Bentley Campus only. On average the eVALUate surveys for the results detailed below attracted a 36% response rate from an average student cohort of around 1000 students each semester.

Table 3. Curtin University eVALUate Student Feedback Survey Results for BIS100 (All locations)

| Period | Learning Resource | Overall Satisfaction |
|-----------------|--------------------------|-----------------------------|
| 2007-01* | 68% | 55% |
| 2007-02* | 74% | 63% |
| 2009-01 | 79% | 73% |
| 2009-02 | 81% | 78% |
| 2010-S1 | 85% | 77% |
| 2010-S2 | 86% | 82% |
| 2011-S1 | 84% | 82% |
| 2011-S2 | 89% | 79% |
| 2012-S1 | 87% | 84% |

* Data for Bentley Campus only

It is evident from this data that there has been a significant improvement in student satisfaction rates since the inception of the redeveloped version of the unit in Semester 2, 2009. Most significantly for the purposes of this research there has been substantial agreement amongst students that the learning resources are useful in achieving the learning outcomes (mid to high 80 percents) and the overall satisfaction moving from always less than eighty percent (earlier significantly less) to high seventies and generally higher than eighty percent. The series of graphic novels that were produced were just one of a range of learning resources and initiatives that were implemented in the new version of the unit which may have contributed to this increase in student satisfaction with the unit (Aitken and Hatt 2012a, Aitken and Hatt 2012b).

Graphic Novel Student Competition

During the first presentation of the redeveloped version of the unit in Semester 2, 2009, a number of competitions were run for students enrolled in BIS100 at the Bentley Campus. These competitions included the creation and posting of videos to YouTube promoting the unit as well as a number of tasks related to the graphic novels. These initiatives were an attempt to create engagement with unit content through the graphic novels and to enhance their pedagogical utility. The competitions were not a part of the formal assessment and thus participation was optional for students. In the first competition students were given the front and back page of the ERP and Supply Chain Management graphic novels (before the complete graphic novel had been released). In some instances the back page had images but no text inside the speech bubbles, in other instances the back page had no images or text. Students were asked to complete the graphic novels with a pencil or pen (or electronically if they wished – a demonstration version of the “Comic Life” software was available for download) – to create either: 1) the best educational graphic novel, or 2) the best comedic graphic novel. This competition was sponsored by McGraw-Hill – the publisher of the custom textbook used in the unit, who provided an A\$125 book voucher for each prize. In the second competition, sponsored by IBM Australia, the students had a chance to win an iPod Touch (32GB with \$50 iTunes Store music voucher) by producing an entire graphic novel related to BIS100. The graphic novel was required to be in line with one of the following three themes: 1) an advertisement for BIS100, 2) BIS100 and your degree, or 3) BIS100 and your life or career.

Unfortunately, there was a very poor response rate from students to these competitions despite the chance to win some significant prizes and repeated encouragement to participate. Out of more than six hundred students, less than a dozen students submitted entries to the competitions, and the quality of entries ranged from poor to average (although this characterization may be due to high expectations from the judges). Reasons for the poor participation could include: 1) the fact that students were not required to complete the task, 2) the unfamiliarity of most students with the use of graphic novels for educational purposes, and 3) the possible lack of artistic, educational, or comedic skills amongst these students (or at least the confidence to express these skills).

DISCUSSION

On average over the past four semesters, 43% of students have agreed or strongly agreed that the graphic novels have been a valuable learning resource in BIS100. Having said that, the authors and staff who worked on the redevelopment of BIS100 have been quite surprised that both the graphic novels, and the graphic novels competition have not generated more of a “buzz” amongst the students. Over the several semesters that the redeveloped unit has run there has been relatively little reference to them in qualitative feedback. On average between 8% and 19% of students have not looked at a single graphic novel, and this may explain why some students disagreed that they were a valuable learning resource in the unit. BIS100 has a very large amount of unit material and resources and since the graphic novels were considered supplementary materials this may not have encouraged students to consult them. Due to printing costs the graphic novels were not always printed in colour, which may have contributed to their loss of appeal to some students. It was also apparent that some of the academic staff involved with the unit might not have fully agreed with the utility of graphic novels for teaching and, as a result, may not have promoted them widely to students in lectures, perhaps also due to time constraints.

A Report of a Committee of Inquiry into the Changing Learner Experience in higher education in the United Kingdom (CICLE 2009) found that many younger students are still seeking traditional pedagogical approaches in higher education, based upon their recent school experience. Perhaps the idea of presenting unit content in the form of a series of graphic novels was considered inappropriate and “non-traditional” for many first year and typically younger students. A similar perception may also be the case for some staff members. Another issue that the report raises is the idea of “boundaries” for younger students in the context of “web space,” for example, personal space (messages), group space (social networking sites such as Facebook) and publishing space (blogs and social media sites such as You Tube). Using any of these spaces for the purpose of university study may be considered a violation of these boundaries for some students. We might hypothesise that institutionally developed graphic novels for learning at the university level, might also be perceived by some students to be crossing a boundary. This is in the sense that graphic novels might be read more generally by students outside of university study commitments in their own “personal” leisure time.

CONCLUSION

A substantial number of students thought that the graphic novels were a valuable learning resource. There was an even split (around 30+% each) between students who read most or all of the graphic novels, and those who read only a few. There was a significant increase in the number of students who reported that the unit learning resources helped them to achieve the learning outcomes. Although the findings reported here are based on a preliminary study, it would seem that the solution artefact created (a series of graphic novels) did help to address the problem of increasing student engagement in an introductory IS course.

Despite this there is a paucity of literature on the use of graphic novels in a higher education setting. This may be due to preconceptions (amongst both staff and students) about the appropriateness of using graphic novels as pedagogical tools in this context and the significant extra effort required to produce them. This paper is a contribution to the literature on the use of graphic novels within the context of academia, and for teaching introductory IS, IT, and L/SCM units. Although the development of the graphic novels was an enormous effort requiring a considerable range of skills, time and effort it is felt that it was beneficial pedagogically.

Future research will concentrate on building a better understanding, through further quantitative and qualitative research, into 1) exactly what students (and staff) may perceive useful (or otherwise) about the graphic novels, and 2) how they can better assist pedagogically in the achievement of the unit learning outcomes. This will also address the utility of the artefact that was devised in this research (a series of graphic novels) and it’s applicability both in different IS units throughout a curriculum, and in different contexts (such as the different cultural contexts in offshore locations where they are also used in BIS100).

REFERENCES

- Aitken, A., & Hatt, G. 2012a. “Students Taking Notes and Creating Summaries Together (or Not),” A. Herrington, J. Schrape, K. Singh (Eds.), *Engaging Students With Learning Technologies*. Perth, Western Australia: Curtin University.
- Aitken, A., Hatt, G. 2012b. “Creating Value in an Introductory IS and IT Unit” *Proceedings of the Australasian Conference on Information Systems ACIS 2012 – “Location, location, location“*, Geelong, Australia, 3rd December – 5th December 2012, (forthcoming)
- Austin, R.D; Nolan, R. L, & O’Donnell, S. 2009. *The Adventures of an IT Leader*, Harvard University Press, Boston, Mass.

- Baetens, J. 2001. *The Graphic Novel*, Leuven University Press, Leuven, Belgium.
- Brydon-Miller, M., Greenwood, D. & Maguire, P. 2003. "Why Action Research?" *Action Research*, 1 (1), 9-28.
- Callahan, R. B. 2009. *Perceptions and use of graphic novels in the classroom*, Unpublished doctoral dissertation, Ohio University. Retrieved on 11th December 2011. Available at: www.cehs.ohio.edu/resources/documents/callahan.pdf
- Committee of Inquiry into the Changing Learner Experience (CICLE) 2009. *Higher Education in a web 2.0 world. Report of an independent committee of inquiry into the impact on higher education of students' widespread use of Web 2.0 technologies*, Retrieved 10th September 2011. Available at: <http://www.jisc.ac.uk/media/documents/publications/heweb20rptv1.pdf>
- Cross, A. 2012. "The Graphic Narrative Project: Reading and Making Graphic Narratives in the College Classroom Setting," *Proceedings of the 2nd International Conference on Human and Social Sciences*, Tirana, Albania, 23rd – 24th March 2012.
- Eisner, W. 1978. *A Contract with God*, W. W. Norton & Company.
- Hevner, A.R., S.T. March, J Park, and S. Ram. 2004. "Design science in information systems research". *MIS Quarterly*, 28, 75-105.
- Kemmis, S., & McTaggart, R. 2000. "Participatory action research." In N. K. Denzin & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research* (2nd ed., pp. 567–605). Thousand Oaks, CA: Sage.
- Miller, A. 2012. "Student Engagement – Using Graphic Novels in the Classroom," *Edutopia – What Works in Education*, Available at: www.edutopia.org/blog/graphic-novels-comics-andrew-miller
- Mills, G.E. 2000. *Action research: a guide for the teacher researcher*. Merrill, Upper Saddle River, NJ.
- O'English, L., Matthews, J. G., & Lindsay, E. B. 2006. *Graphic Novels in Academic Libraries: From Maus to Manga and Beyond*. Available at: <https://research.wsulibs.wsu.edu:8443/.../graphic%20novels.doc>
Accessed 1st May 2012
- Shipworth, S; Mallory, D; Atack, L; & Demacio, P. 2010. "An Online Graphic Novel: Students' Experiences and Research Literacy Gains," *Journal of Online Learning & Teaching*, Vol. 6. No, 3, September 2010.
- Sierra, K., & Bates, B. 2005. *Head First Java*, O'Reilly Media.
- Sierra, K. <http://headrush.typepad.com> (Blog).
- Sims, C. 2010. "The secret origin of the 'graphic novel': Where Eisner heard the term," *Comics Alliance*, Available at: <http://www.comicsalliance.com/2010/12/06/graphic-novel-term-earliest-use/>, Accessed 14th May 2012
- Thompson, J. 2012. *Graphic Novel* available at: <http://lucian.uchicago.edu/blogs/mediatheory/keywords/graphic-novel/> Accessed 7th May 2012

ACKNOWLEDGEMENTS

The graphic novels were developed under the leadership of Ashley Aitken. The authors would also like to acknowledge the tremendous assistance of the instructional designers and graphic designer from the Online Teaching and Learning Facility (OTLF) within the Curtin Business School at Curtin University and the many local talent that appeared in the graphic novels.

COPYRIGHT

Ashley Aitken and Gillian Hatt © 2012. The authors assign to ACIS and educational and non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to ACIS to publish this document in full in the Conference Papers and Proceedings. Those documents may be published on the World Wide Web, CD-ROM, in printed form, and on mirror sites on the World Wide Web. Any other usage is prohibited without the express permission of the authors.