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Purpose – The purpose of this paper is to explore the extent to which learning styles influence tertiary students' preferences for flexible delivery and assessment methods in higher education.

Design/methodology/approach – A voluntary self-administered questionnaire was distributed within three core undergraduate courses. A total of 891 students responded to the survey, across a range of locations, representing a response rate of approximately 45 per cent

Findings – Results reveal that learning styles do not appear to influence students level of preference overall for flexible delivery methods and assessment approaches. However, there remain a significant percentage of students who report that they do not want all course delivery to be online. The findings generally suggest that there are changing expectations of students in relation to delivery and assessment in tertiary education

Research limitations/implications – The research has been conducted at undergraduate level in business disciplines and therefore may not adequately represent the opinions of postgraduate students, or students from other disciplines. In addition over 75 per cent of respondents fall within the Generation Y category, which means that these results may not be generalisable to older populations of learners.

Practical implications – Demonstrates to educators the importance of considering learning styles when developing, delivery and assessing courses, and reinforces that very few students desire entirely online courses.

Originality/value – The paper focuses specifically on the preferences of students in relation to assessment and delivery via technology and identifies critical considerations for course developers.

Article Type: Research paper
Keyword(s): Learning styles; Worldwide web; Communication technologies; Students.

## Introduction

The percentage of students enrolled in external and flexible modes of tertiary study in Australia has doubled over the last 20 years (DEST, 2001, 2 006) with the highest concentration of students enrolled in management and commerce Bachelor's degrees (DEST, 2006). In order to manage these changing student demographics many universities have turned to web-based and technology-enhanced approaches to course delivery to improve student learning. More particularly, some Australian universities have been designated as centres for distance education, such as Central Queensland University (CQU), the focus of this study. Distance education, which often relies on web-based and flexible delivery approaches, may be the only alternative for access to higher education for students who have imposing environmental factors such as work, disability, childcare or geographic constraints (Queensland Tertiary Admissions Centre, 2006). For the purpose of this study, the term flexible delivery refers to students who are exposed to a range of course delivery and assessment methods utilising at least one method of on-line delivery, regardless of whether the student engages in a classroom based academic program or receives other non-web based supplements. On-line delivery, for the purpose of this study, refers to materials and assessment that are downloaded from or viewed on the web and web-based technology is the medium used to deliver instruction and assessment, such as Blackboard or WebCT.

The aim of this paper is to explore the preferences and expectations of the contemporary higher education student mix, which increasingly experiences the use of technology and various models of delivery and assessment within their learning environment (Phipps and Merisotis, 1999). In particular, the focus is on the preferences of learners and how learning styles may impact upon reactions to flexible delivery and assessment methods. This study was part of a wider research project aiming to determine perceptions and expectations of students in large core undergraduate courses in business disciplines. Initial findings from this research concluded that effective use of web-based technology achieved a number of outcomes. It assisted to engage students with the material in a way which best suited them; it required adequate thought be given to technical support; it benefited distance and non-English speaking students; it facilitated the testing of knowledge and understanding and it improved the overall learning experience of students (Kehoe et al., 2005).

This paper begins by reviewing the ever-growing literature in the field of technology-enhanced learning and provides a number of varying views on the extent to which it should be used to capitalise on advantages and accommodate learning styles. The

study is then described and the key findings and implications for educators are highlighted.

## Literature review

Distance learning via flexible delivery enables students to engage in asynchronous learning. Asynchronous learning is deemed beneficial, as flexibility and self-paced learning for students reduces costs for universities. Flexible delivery modes can involve a range of technologies, including two-way interactive video, two-way audio, web-based asynchronous communication and other supplements (Phipps and Merisotis, 1999). The students within the sample also engage with what Phipps and Meritotis (1999, p. 33) term as "other technology", which account for only 9 per cent of communication media used in their analysis of distance education literature.

A number of researchers have reported that whilst the delivery of online courses enhances student learning in some respects, they caution against using the technology without adequate regard for the learning outcomes being sought (Buckley, 2003; Lawther and Walker, 2001; Willett, 2002). Mariani (2001) noted that new technologies including discussion boards (or lists) should only supplement traditional teaching. There are also warnings that the teaching should drive the technology, not vice versa (Petrides, 2002). Muir (2001) argues that online content is still much in line with traditional teaching delivery within the classroom. However, Muir (2001) does concede that although the traditional content of readings, lectures, discussion boards and the like, are valuable and should be included, educators need to develop different activities to cater for different learning styles and pedagogical strategies need to be incorporated into each element so all learning styles are addressed.

Although there is a growing body of literature with regards to various aspects of the technology used and the teaching and assessment delivery, literature concerning the actual preference of students to use web-based technology and its implications appears to be absent. It has been suggested that the explosion of new technology in higher education, requires educators to be cognisant that it may lead to a change in the way students learn and potentially change the role of educators to more of an advisory rather than an instructing role (Teichler, 2001).

## Rationale for study

Phipps and Merisotis (1999) stipulate that there has only been a modicum of distance education research conducted in the area of undergraduate business degrees. The majority of research has been conducted in the areas of humanities, social sciences and mathematics/science. Only 20 per cent of research into distance education has been conducted using undergraduate business students as the sample. In addition, Phipps and Merisotis (1999) propose that one of the inadequacies of distance education research is that there is a lack of theoretical and conceptual frameworks.

The escalating and rapid rate of technology growth has meant that many “best practices” are based on assumption, personal intuition and traditional teaching methods. Empirical research within this area appears to be limited (Dennen, 2005). The rationale for this study reinforces the argument that the crucial element lies within the development and delivery of the content via distance education (Phipps and Merisotis, 1999) and the preference of students to use this technology and its implications. To enable continuous improvement within the delivery and assessment of flexible delivery models, including online delivery and assessment, the development and delivery of these models must be underpinned by quality practice and sound empirical research.

O'Malley (1999) argues that often new educational technologies, such as web-based learning are implemented without any assessment of impact on students and in his model of student perception suggests that prior educational conditions, perceived characteristics of online learning and characteristics of the student influence the perceived effectiveness of online learning. These factors have been developed into a model of contemporary education effectiveness, shown as Figure 1. This model identifies attributes of the learner as an individual, and attributes of the course and its delivery as impacting upon student learning and subsequent outcomes. This paper focuses specifically on the students' learning styles and the impact on experiences in the three courses utilising technology-enhanced delivery and/or assessment.

As tertiary educators, in order to meet the ever-changing needs of our students, we are in a continual process of evaluation and review. We need to be aware as Laurillard (1993) notes not only of our subject, but the ways in which it is understood and misunderstood and experienced by our students.. As educators using technologies, it is important to consider the relationships between the technology and teaching strategies so that we can better design courses. The challenge is to meet the learning needs of individuals and the groups within a student cohort.

With regard, in particular, to the composition of the student cohort there is growing recognition that the split between the three generations: Baby Boomers, Generation X and Generation Y, now widely recognised to be present within the workforce (Gardyn, 2000; Hill, 2002), may also prove a challenge for learning institutions. Research into the differences between the Baby Boomer generation and Generation X, has shown significant differences include Generation X preferring to work alone, being more orientated towards technology, and possessing higher levels of education (Booth, 1999, as cited in Rodriguez et al., 2003). Generation X are described as “independent problem solvers and self-starters, technologically literate, responsive, focused, lifelong learners, ambitious and fearless” (Bova and Kroth, 2001 p. 58). These traits have significant ramifications for educators, and highlight that even though we can generally assume a level of comfort with technology, as previously highlighted we also need to be prepared for different approaches and behaviours in the learning environment (Teichler, 2001).

With the more recent addition of Generation Y (also known as the Nexters, the Net Gen or Internet Generation), and a further shift in expectations, those in academic positions (comprising significantly of the Baby Boomer generation) are coming under increasing criticism for failing to recognise these important changes (Hill, 2002). This

latest generation to embark on a tertiary education bring with them distinctive learning preferences and, in particular, visual and kinaesthetic learning styles (Manuel, 2002). They are a generation with the aptitude to become accustomed instinctively to a range of information technology procedures, even though their understanding of the technology may lack depth (Oblinger and Oblinger, 2005). In this particular sample, with over 75 per cent in the Generation Y category, it is imperative that consideration is given to the unique needs of such a cohort.

Within the context of these significant changes in the learning environment, both within the increasing use of technology, and the changing learning behaviour and approaches of students, the key issue being addressed in this paper is how technology impacts on students with different learning styles and the students' preferences of web-based technology choices. A range of researchers utilise the concept of learning style in both the educational and organisational learning and development literature. It is common to see this concept operationalised and understood in a variety of different ways. In fact, Sadler-Smith (1996) points out that there is a lack of a generally accepted model for or understanding of learning styles in the literature. It has been widely recognised that regardless of the measure used, making learners aware of their learning styles and how to accommodate this in the learning environment reaps significant benefits to learning outcomes (Fleming, 1995; Sadler-Smith, 1996; Schellens and Valcke, 2000; Vincent and Ross, 2001). Likewise, it is considered important that educators understand not only the concept of learning style but also have insight into their own learning style and the potential impact on the way in which they design and implement learning strategies.

## Research aims and questions

Although there is an abundance of research discussing web-based flexible delivery and asynchronous learning networks; the historical development of software-based teaching and learning at times appears to be driven by technological, economic, sociological and demographic changes, rather than being a product developed based on understanding the needs of the learner. This research was therefore aimed more specifically at analysing the needs of the learners as a starting point for the development and implementation of flexible delivery and assessment approaches.

The main research questions for this study are:RQ1. What mix of flexible delivery and traditional teaching methods do different learners prefer and is this influenced by learning style? RQ2. What are the preferences for types of assessment and is this influenced by learning style?

## Methodology

This study utilised a voluntary self-administered questionnaire that was distributed during classes in each of the courses. It was provided to external students via mail and

electronically. The survey was comprised of a number of different sections relating to: student's personal information and demographics; responses to a range of general questions relating to preferences; a group of statements relating specifically to the development of generic skills in tertiary education and feedback on the particular alternate delivery and assessment methods used in each of the three courses. The statements used within the survey were based upon findings from a previous qualitative exploratory study assessing students' reactions to the use of non-traditional forms of delivery and assessment (Tennent et al., 2004).

An additional section within the survey contained the previously validated VARK questionnaire (Fleming and Mills, 1992) and was used to assess learning preferences. The VARK model by Fleming (1995) determines an individual's preferences for learning and identifies the individual's orientation to learning in terms of visual, aural, read/write, kinesthetic or multi-modal orientation. The VARK assessment was chosen as it was designed and delivered specifically within the tertiary education sector, was brief enough to be included within a larger survey, but comprehensive enough to give sufficient information regarding the learning preferences of individual students.

Table I provides a brief description of each of these preferences within the VARK instrument and the implications for the learning environment.

By identifying the orientation of each student, it was considered important to determine whether or not preferences and experiences of online and flexible delivery and assessment approaches differed depending on learning preferences. The learning styles of the respondents were assessed and the breakdown is shown in Figure 2. It is important to note that due to the small size within the sample of students reporting Multimodal approaches, this group is not included in any further analysis due to the likelihood of it skewing the findings.

For this particular analysis, a group of statements in relation to students' reactions to and expectations and perceptions of alternative delivery and assessment methods were chosen for analysis against learning styles.

## Sample

The courses researched are all introductory-level, core, undergraduate courses in the Faculty of Business and Law at CQU. This study intentionally chose courses from the three different disciplines of management, law and accounting, utilising three different forms of alternative delivery and/or assessment in order to analyse the students' engagement and reactions. It was believed that these courses provide a unique opportunity to review the online education experience by considering the three differing but complementary forms of online engagement and assessment. The respondents fell into one of four categories:

Distance education (those students enrolled via external/distance mode).
Rockhampton (those students enrolled on the campus located in Rockhampton, Queensland. This was the original campus and has larger enrolment numbers than the

other campuses located in regional Queensland catering predominantly to domestic students).
Regional (those students enrolled on a regional campus in Queensland, located at Mackay, Gladstone, Emerald and Bundaberg).
Australian International Campuses (those students enrolled on a campus catering only for International students, and located in cities throughout Australia).
Figure 3 shows the spread of respondents within these four categories.

The accounting students were used as a pilot study and were surveyed in the first term. The Law and Management courses were both surveyed in the second term. The population frame consisted of all students enrolled in at least one of these three undergraduate level courses. A total of 891 students responded to the survey, across a range of locations, representing a response rate of approximately 45 per cent. Specifically, the management course utilises online assessment via multiple choice quizzes and discussion lists; the law course utilises a flexible form of material delivery via online lecturers, and the accounting course utilises online tests and discussion lists for assessment purposes.

The research provided the opportunity for coverage of a broad range of students, across a number of disciplines, utilising different approaches considered to be flexible delivery and assessment. A range of online instructions and assessments have purposefully been used to support the argument that a variety of methods and modes exists for the flexible delivery of student learning. This also serves to reinforce the importance of the research questions which aim to develop an understanding of the preferences and implications of flexible delivery. It is recognised that flexible delivery methods using on-line technology are not homogenous, however, it is also argued that flexible delivery methods appear to be implemented on the assumption that student learning styles are homogenous. This reinforces the need to understand the preferences of students to use web-based technology and the implications of this type of flexible delivery and assessment for students.

## Findings and discussion

Overall findings suggested that the largest percentage of respondents (almost a third) had a preference for read/write learning, indicating that use of lists, headings, readings, textbooks and the like will cater for these students. The second highest percentage of respondents preferred a kinesthetic approach to learning, meaning that the students will appreciate the opportunity to learn by doing, and putting into practice concepts they have learnt. It is suggested that this overall spread of results will have implications for the students' acceptance levels of flexible delivery, engagement and assessment methods in their courses. For example, it could be anticipated that those who have a preference for aural learning gain more from the lecture slides presented online with a voiceover, than those who have a kinesthetic preference.

More specifically, five statements were chosen from the survey to be cross-tabulated with learning styles. The statements address issues such as preferences for choice of delivery method and choice of assessment, preferences for group as well as individual

assessment, and outlook on self-paced learning. Whilst at first examination, these statements may not all appear to relate specifically to technology-enabled teaching practices, they have significant implications for alternate delivery methods, as all of these can be enabled by technology and have all been used to some extent in the courses included in this study.

Table II shows the cross tabulation of the level of agreement with the statement, “I don't prefer a course that has all online/ web-based materials” by the different learning styles. It can be seen that there are no huge variations in the level of agreement among the different learning styles. Interestingly, most of the sample ranked between “agree”, “neutral” and “disagree” accounting for about 80 per cent of the students, despite their learning styles. Only 11 per cent strongly disagreed that they did not prefer all online or web-based material. In addition, it should be noted that the proportion of students that declared neither agree nor disagree is slightly higher than the other statements discussed in this paper, suggesting a certain ambivalence to this delivery method. This situation indicates that the learning styles do not influence directly the preference for an online course among the surveyed students. This assumption is confirmed with the results of the one-way ANOVA $F(3, 845)=1.43$, $p=0.23$, ns, that corroborates that significant differences do not exist among the different levels of agreement with this statement.

Providing additional reinforcement of this finding, another question sought to address this same issue in a different way using the statement, “I would prefer the traditional lectures/study material to alternative delivery and assessment methods”. There were likewise no significant differences between learning styles in relation to this statement.

Table III shows the cross tabulation of the level of agreement with the statement, “I prefer to have a choice between web-based or printed materials” by the different learning styles. 53.4 per cent of all students across all learning styles agreed with this statement, with an additional 23 per cent being ambivalent. It can be observed that there were no important variations in the level of agreement above. Nonetheless, it should be noted that students with an “aural” learning style “strongly agreed” considerably less than the others, and this could indicate that these students prefer to have this choice slightly less than students with the other learning styles. The result of the one-way ANOVA was also found not to be significant $F(3, 857)=1.26$, $p=0.29$, ns, indicating that the means of the agreement level among the different learning styles do not vary significantly.

Table IV shows the cross tabulation of the level of agreement with the statement, “I appreciate the opportunity to complete a course at my own pace and at a time that suits me” by the different learning styles. The results of the Chi-square test were found to be significant, $\chi 2=(12, N=860)=26.07$, $p=0.01$, indicating that the variations in the level of agreement among the learning styles were significant. In fact, it can be noted that students with “aural” learning style were considerably less likely to “strongly agree” with the above statement and also they were more likely to be “neutral” compared to the other learning styles. This situation suggests that students with “aural” learning style generally value less the opportunity to complete a course at their own place and at a time that suits them. Considering that those with an aural learning preference learn best from listening and discussing information (Fleming,

1995), these students are more likely to be the ones gaining most from lectures and tutorials, and hence the traditional approach to delivery is accepted by them.

The one-way ANOVA that was conducted was found to be significant, $F(3, 856)=2.85$, $p=0.04$, indicating that at least one significant difference between the means about agreement level exist among the different learning styles. Looking at the means there is a considerable difference between the level of agreement between students with "visual" (=1.89) and "aural" (=2.09), suggesting that students with a kinesthetic learning style tend to appreciate flexibility in university courses more than 'aural' students do.

Table V shows the cross tabulation of the level of agreement with the statement, "I think it is important to have group assignments as well as individual assessment" with the different learning styles. As educators, the responses were quite surprising to us. Anecdotally and traditionally, group assessment has been disliked by undergraduate students for a range of different reasons. It can be seen however, that a vast majority of respondents despite their learning style either "agreed" or "strongly agreed" with the above statement (in fact, 61.8 per cent of the total population). Only 16.6 per cent disagreed or strongly disagreed. In considering this finding, we need to be mindful however of the age demographic of this sample, with 75 per cent of respondents falling into the Generation Y category; which may also be an indication of a changing shift in orientation and attitude towards such learning strategies.

It can also be observed that people with the "kinesthetic" learning style "strongly agreed" slightly more than the others, suggesting that for these students the group assignments are considered more important than for the students with other learning styles. The kinesthetic learner has a preference for "hands-on" learning involving experience and the ability to practice and become involved (Fleming and Mills, 1992). It has also been noted that this preference is in fact multi-modal in that a range of senses may be used in the process of experience and practice. Therefore, this finding is consistent with a hands-on approach, given that group work encourages the use of interaction amongst students and the ability to discuss topics in a variety of ways.

However, the results of the chi-square test were not found to be significant, verifying that there were no significant variations in the distribution as a function of the learning styles. Consistent results were found in the one-way ANOVA which also indicated that there were not significant differences in the means of the level of agreement with this item among the different learning styles.

Table VI shows the cross tabulation of the level of agreement with the statement, "I would like the opportunity to choose the assessment which best suits me" by the different learning styles. The results of the one-sample Chi-square that was conducted were found to be significant. This indicates that there are significant variations in the level of agreement with the above statement as a function of differences in learning styles. Consistent results were found when the one-way ANOVA was conducted, indicating that there were significant differences in the means about the level of agreement with this statement among the different learning styles. In fact, Scheffe post-hoc comparisons showed that "kinesthetic" students (=1.73) would like significantly more to have the opportunity to choose the assessment which best suits them than "read/write" students (=1.93). This finding is not surprising when

considering more traditional forms of assessment predominantly cater to the "read/write" preference using methods such as assignments and exams. In comparison, those with a preference for a more hands on learning such as kinesthetic, tend to be less considered in such traditional approaches. The fact that across all styles, this preference is also strong may also be reflective of the predominantly younger generation within this cohort, who are more likely to have been exposed to alternate assessment methods in prior learning environments such as their secondary education.

## Conclusions

Returning to the research questions, the results presented in this paper enable a number of conclusions to be drawn. The first question asked what mix of flexible delivery and traditional teaching methods do different learners prefer and is this influenced by learning style?

It is pleasing to note that learning styles do not appear to influence students level of preference overall for flexible delivery methods and assessment approaches. Given the move towards online learning for both on-campus and distance students, this is a reassuring finding. However, there remain a significant percentage of students reporting that they do not want all course delivery to be online. This provides reinforcement to the claim by Mariani (2001) that new technologies should only supplement more traditional forms of teaching.

It would also appear however, that as might be expected, traditional forms of delivery serve to meet some students' expectations and cater to their needs. Specifically, those with an aural learning preference are less likely to desire flexible delivery methods, indicating that as could be expected, the more traditional forms of delivery are acceptable for their needs. Finally, those with a kinesthetic preference are more likely than those with a read/write preference to favour being offered a choice of assessment. Again, this would indicate that traditional forms of assessment such as assignments and exams have catered sufficiently to some needs more than others.

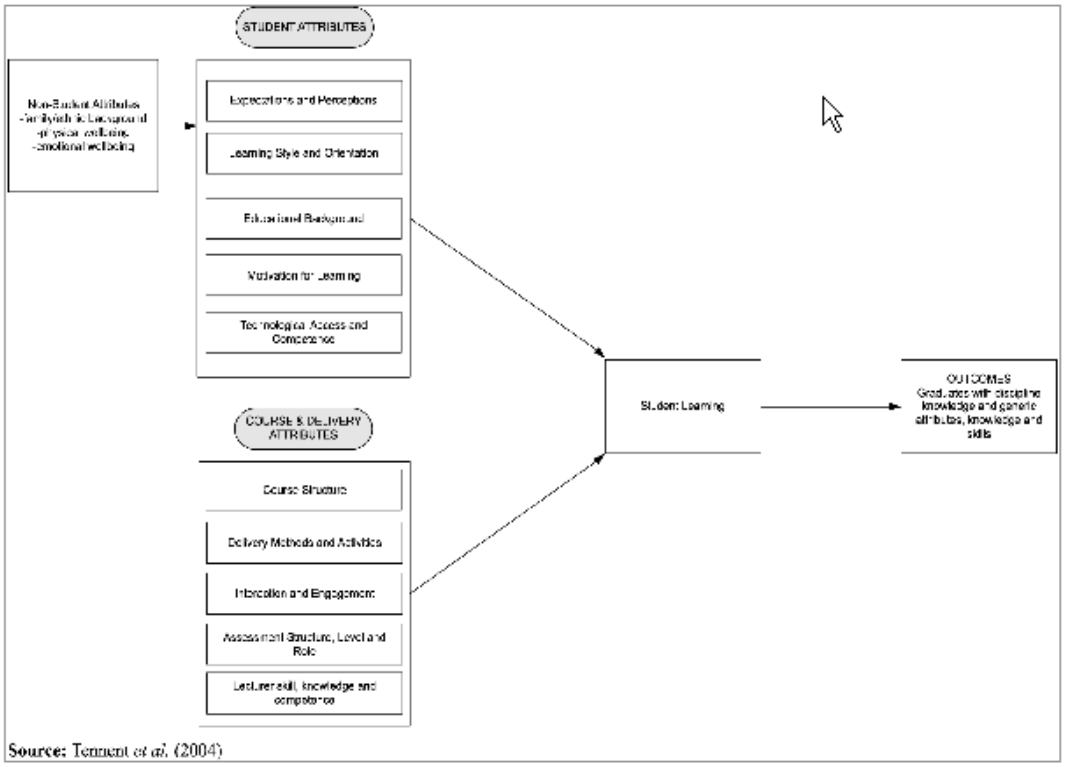
The second questions asked "what are the preferences for types of assessment and is this influenced by learning style?" There has also been an overall shift to a preference for the inclusion of group assessment within courses. This is surprising, given the general opposition to group assessment traditionally encountered in tertiary students. It is possible that as our students represent more predominantly generations X and Y, they have a more accepting attitude towards the concept of group assessment. The kinesthetic learning style in particular reflected a slightly higher preference for this form of assessment than other learning styles. Group processes have been conducted successfully online previously (Windeknecht, 2003, 2004) and it is suggested that these methods could be further explored given the increasing openness to group assessment.

These finding on the whole, suggest that there are changing expectations of our students in relation to delivery and assessment in tertiary education. Whilst it appears

that learning styles do impact upon these expectations and preferences, it is also noted that the particular cohort within this study were showing early indications of a general shift in preferences for their learning environment. This may also be influenced by the significantly younger respondents and the fact that Generation Y was strongly represented in the sample. It may be the case that students don't have an inclination to "prefer" online delivery – it is just expected, particularly within Generation Y.

There are many other areas that could be researched further based upon this research. Consideration of other demographics such as age, marital status, previous education and first language spoken may also impact upon student reactions towards and expectations of flexible delivery and assessment methods. The challenge for all educators from these results is to try to accommodate learning styles whilst catering to changing expectations in a broader sense. Technology provides a vehicle by which we can address changing needs, but it is clear that students still wish to engage in a meaningful way with those facilitating their learning and with their fellow students. The challenge is to find ways to firstly continue to monitor students in order to detect shifting expectations, and secondly to use flexible and online delivery and assessment methods to assist us to meet the challenges these expectations provide.

**Figure 1** Contemporary education effectiveness model




**Source:** Tennent *et al.* (2004)

**Figure 2** Spread of student learning styles

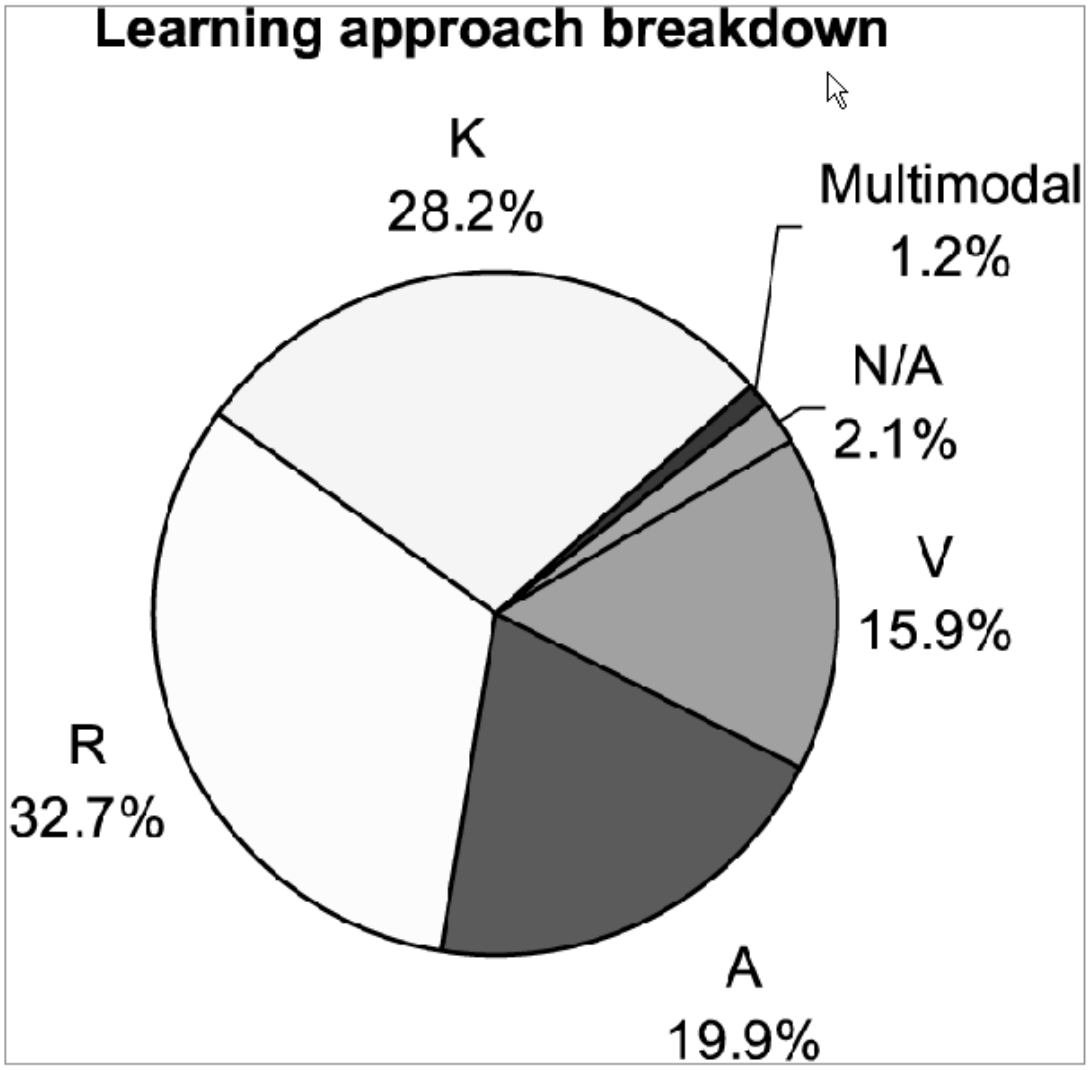


**Figure 3** Survey responses by campus

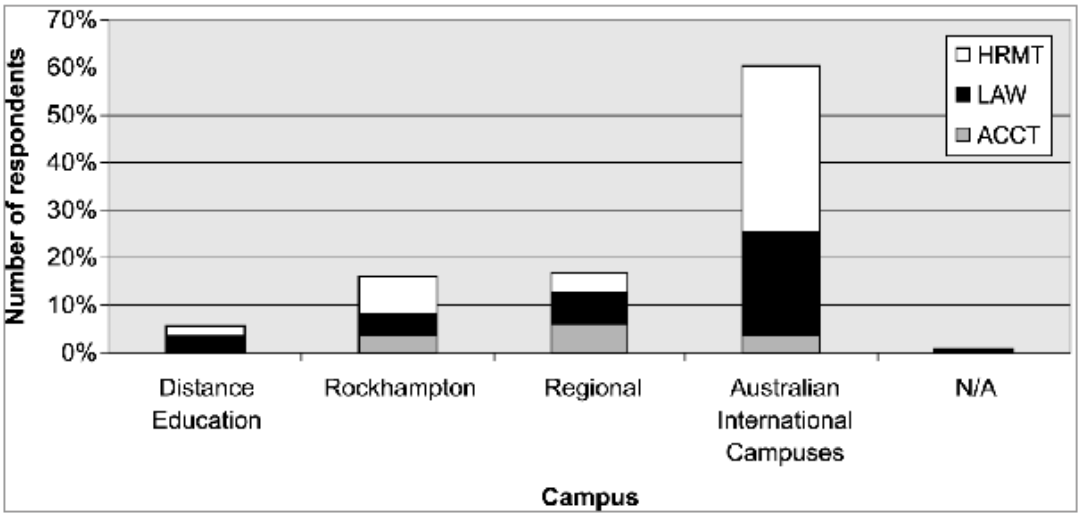



**Table I** Description of VARK learning preferences

**Table I.**
Description of VARK learning preferences

| Preference | Description |
|---|---|
| Visual (V) | Those who prefer to take in information from pictures, diagrams, symbols etc. and are interested in colour and layout to remember things |
| Aural (A) | Those who prefer to have things explained to them rather than reading something or looking at pictures or diagrams |
| Read/write (R) | Those who prefer to rely on things they read, and can write down. Their emphasis is likely to be on reading to take in information, and they have a preference for words and lists |
| Kinesthetic (K) | Those who prefer a "hands on" approach to learning. They value practical, relevant information and need to "do" to understand |
| Multimodal (MM) | Those who, rather than indicating a preference for one of the above profiles, has strong preferences in two or more |

**Table II** Cross-tab of preference for online materials

| | | | Learning styles | | | | |
|---|---|---|---|---|---|---|---|
| | | | Kinesthetic | Aural | Read/write | Visual | Total |
| Q15 | Strongly agree | Count | 24 | 13 | 24 | 9 | 70 |
| | | % within learning styles | 9.6 | 7.4 | 8.4 | 6.4 | 8.2 |
| | Agree | Count | 56 | 46 | 56 | 40 | 198 |
| | | % within learning styles | 22.5 | 26.3 | 19.6 | 28.6 | 23.3 |
| | Neutral count | | 83 | 61 | 85 | 40 | 269 |
| | | % within learning styles | 33.3 | 34.9 | 29.8 | 28.6 | 31.7 |
| | Disagree | Count | 51 | 45 | 85 | 36 | 217 |
| | | % within learning styles | 20.5 | 25.7 | 29.8 | 25.7 | 25.6 |
| | Strongly disagree | Count | 35 | 10 | 35 | 15 | 95 |
| | | % within learning styles | 14.1 | 5.7 | 12.3 | 10.7 | 11.2 |
| Total | | Count | 249 | 175 | 285 | 140 | 849 |
| | | % within learning styles | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**Table II.**
Cross-tab of preference for online materials

**Table III** Cross-tab of preference for choice of delivery method

| | | | | Learning styles | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Kinesthetic | Aural | Read/write | Visual | Total |
| | Q17 | Strongly agree | Count | 64 | 21 | 59 | 26 | 170 |
| | | | % within learning styles | 25.6 | 11.9 | 20.6 | 18.3 | 19.9 |
| | | Agree | Count | 117 | 106 | 158 | 76 | 457 |
| | | | % within learning styles | 46.8 | 59.9 | 55.1 | 53.5 | 53.4 |
| | | Neutral | Count | 56 | 43 | 62 | 35 | 196 |
| | | | % within learning styles | 22.4 | 24.3 | 21.6 | 24.6 | 22.9 |
| | | Disagree | Count | 11 | 7 | 8 | 5 | 29 |
| | | | % within learning styles | 4.4 | 4.0 | 2.1 | 3.5 | 3.4 |
| | | Strongly disagree | Count | 2 | 0 | 2 | 0 | 4 |
| | | | % within learning styles | 0.8 | 0.0 | 0.7 | 0.0 | 0.5 |
| | Total | | Count | 250 | 177 | 287 | 142 | 856 |
| | | | % within learning styles | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**Table III.**
Cross-tab of preference for choice of delivery method

**Table IV** Cross-tab of preference for self-paced learning

| | | | | Learning styles | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Kinesthetic | Aural | Read/write | Visual | Total |
| | Q22 | Strongly agree | Count | 75 | 34 | 78 | 41 | 226 |
| | | | % within learning styles | 29.9 | 19.2 | 26.2 | 28.9 | 26.3 |
| | | Agree | Count | 136 | 98 | 152 | 81 | 467 |
| | | | % within learning styles | 54.2 | 55.4 | 52.4 | 57.0 | 54.3 |
| | | Neutral | Count | 32 | 41 | 44 | 16 | 133 |
| | | | % within learning styles | 12.7 | 23.2 | 15.2 | 11.3 | 15.5 |
| | | Disagree | Count | 6 | 3 | 17 | 2 | 28 |
| | | | % within learning styles | 2.4 | 1.7 | 5.9 | 1.4 | 3.3 |
| | | Strongly disagree | Count | 2 | 1 | 1 | 2 | 6 |
| **Table IV.** | | | % within learning styles | 0.8 | 0.6 | 0.3 | 1.4 | 0.7 |
| Cross-tab of preference for self-paced learning | Total | | Count | 251 | 177 | 290 | 142 | 860 |
| | | | % within learning styles | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**Table V** Cross-tab of preference for use of group and individual assessment

| | | | Learning styles | | | | |
|---|---|---|---|---|---|---|---|
| | | | Kinesthetic | Aural | Read/write | Visual | Total |
| Q21 | Strongly agree | Count | 59 | 33 | 51 | 26 | 169 |
| | | % within learning styles | 23.9 | 18.6 | 17.6 | 18.6 | 19.4 |
| | Agree | Count | 102 | 76 | 125 | 55 | 370 |
| | | % within learning styles | 41.3 | 42.9 | 43.1 | 39.3 | 42.4 |
| | Neutral | Count | 48 | 42 | 61 | 35 | 188 |
| | | % within learning styles | 19.4 | 23.7 | 21.0 | 25.0 | 21.5 |
| | Disagree | Count | 22 | 24 | 39 | 16 | 104 |
| | | % within learning styles | 8.9 | 13.6 | 13.4 | 11.4 | 11.9 |
| | Strongly disagree | Count | 16 | 2 | 13 | 8 | 41 |
| | | % within learning styles | 6.5 | 1.1 | 4.5 | 5.7 | 4.7 |
| Total | | Count | 247 | 177 | 290 | 140 | 873 |
| | | % within learning styles | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

**Table V.**
Cross-tab of preference for use of group and individual assessment

**Table VI** Cross-tab of preference for choice of assessment

| | | | | Learning styles | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | Kinesthetic | Aural | Read/write | Visual | Total |
| | Q23 | Strongly agree | Count | 109 | 50 | 88 | 53 | 298 |
| | | | % within learning styles | 43.4 | 28.2 | 29.8 | 37.6 | 34.7 |
| | | Agree | Count | 107 | 101 | 138 | 54 | 400 |
| | | | % within learning styles | 42.6 | 57.1 | 47.8 | 38.3 | 46.6 |
| | | Neutral | Count | 30 | 22 | 54 | 27 | 133 |
| | | | % within learning styles | 12.0 | 12.4 | 18.7 | 19.1 | 15.5 |
| | | Disagree | Count | 3 | 4 | 9 | 6 | 22 |
| | | | % within learning styles | 1.2 | 2.3 | 3.1 | 4.3 | 2.6 |
| | | Strongly disagree | Count | 2 | 0 | 2 | 1 | 5 |
| **Table VI.** | | | % within learning styles | 0.8 | 0.0 | 0.7 | 0.7 | 0.6 |
| Cross-tab of preference for choice of assessment | Total | | Count | 251 | 177 | 289 | 141 | 858 |
| | | | % within learning styles | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

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