

# **National Association of Enabling Educators of Australia**

## **Flexibility: Pathways to participation**

Refereed papers from the  
NAEEA Conference  
27 – 29 November 2013  
Australian Catholic University, Melbourne Australia

Bedford, T. (2013). Initial approaches to studying by open access university students: implications for program curriculum and delivery.

In Proceedings of the National Association of Enabling Educators of Australia Conference; Flexibility: Pathways to participation, Melbourne, Australia, 27-29 November, 2013.  
Accessed from <http://enablingeducators.org/conference/2013.html>

Published 2013 by the National Association of Enabling Educators of Australia, C/- Open Access College, University of Southern Queensland, Toowoomba, Queensland, Australia, 4350

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# **Initial approaches to studying by open access university students: implications for program curriculum and delivery**

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*This paper reports a study of initial approaches to studying by students enrolled in two open access programs of the University of Southern Queensland (USQ). The potential importance of students' initial approaches to the work of studying, in terms of student engagement and progression in a higher education study program, is briefly discussed. The results of two studies, one with award diploma students and the other with non-award enabling program students, are compared. Results obtained from the earlier of the two studies (with non-award program students) influenced teaching staff to review and modify the curriculum and delivery of the program. This paper presents a test of this assumption. Students' self-reported data on their study-behaviour patterns within four categories of approaches to studying in higher education were used in the two studies. The paper concludes with a brief discussion of implications for curriculum that appear to arise from the data.*

The studies on which this paper is directly based aimed to find out if there were predominant ways in which beginning students in open access higher education enabling pathway programs attempt to engage in a formal study program. In this paper, these ways are referred to as the students' 'characteristic approaches to studying'. 'Open access', as the term is used here, describes programs that have no prescribed academic entry requirements.

USQ offers several open access higher education enabling pathway programs, including a non-award preparatory program and a suite of award diploma programs. The open access non-award program is the Tertiary Preparation Program (TPP) offered through the Open Access College (OAC). The open access award diploma programs are offered jointly by OAC and several USQ Schools. They all require initial study of four award courses offered through OAC. For brevity, these initial four award courses are collectively referred to as 'DIP' in the remainder of this paper.

The main purpose of attempting to determine if there were characteristic approaches to study by students who enrol in an USQ open access pathway program was to inform critical evaluation and review of such programs by the program and course designers and teachers. All of the academic staff involved in the design, development, and teaching of the DIP courses had years of experience of teaching in the TPP. In addition to knowledge gained from their teaching experience, they were informed of apparent characteristic approaches to study by TPP students through a study reported by Bedford

(2011). Some review and ongoing change of aspects of the TPP has been based on the information obtained from Bedford's (2011) study. However, the extent to which the information provided by this study could be applied to the design, development, evaluation and review the DIP courses was unknown as no corresponding information about the characteristic approaches to study by students entering the DIP courses had been gathered. There seemed to be a distinct possibility that the staff involved with both the TPP and DIP courses would assume that, with regard to characteristic approaches to study, the DIP students were much the same as the TPP students. This paper attempts to test this assumption by providing the same types of information about DIP students as was provided about TPP students by the Bedford (2011) study.

## **Methodology used in the TPP and DIP studies**

### **Instrumentation**

A survey instrument developed by Vermunt (1994) was used in the TPP and the DIP studies to gather students' self-reported ratings within the following four general categories, to which Vermunt referred as 'learning components':

- cognitive processing strategies
- regulation strategies
- conception of learning
- orientation to learning

Within each category, Vermunt (1998) identified several 'scales' each of which represents a particular dimension of the category. For example, within the category 'cognitive processing strategies' Vermunt identified the following five scales:

- deep processing - relating and structuring
- deep processing – critical processing
- stepwise processing – memorising and regreasing
- stepwise processing – analysing
- concrete processing

Vermunt's (1994) survey instrument contained several items relating to each scale. Respondents were asked to self-rate each item from one (least) to five (most). A respondent's rating on each scale was computed as the mean of the respondent's ratings of the relevant items.

The general form of items within Vermunt's (1998) learning components 'cognitive processing strategies' and 'regulation strategies' was exemplified by the item 'I pay particular attention to those parts of the course that have practical applications'. In the survey instrument, the meaning of the ratings for these items was given as:

- 1 = I do this seldom or never
- 2 = I do this sometimes
- 3 = I do this regularly
- 4 = I do this often
- 5 = I do this almost always

The general form of items within Vermunt's (1998) learning components 'conception of learning' and 'orientation to learning' was exemplified by the item 'I want to test myself to see whether I am capable of doing studies in higher education'. In the survey instrument, the meaning of the ratings for these items was given as:

- 1 = disagree entirely
- 2 = disagree for the most part
- 3 = undecided
- 4 = agree for the most part
- 5 = agree entirely

Vermunt referred to his survey instrument by the acronym 'ILS'. The validity and reliability of his ILS, when used to survey university undergraduate students in The Netherlands and in Britain, were established in empirical studies by Vermunt (1998). Boyle, Duffy, and Dunleavy (2003) independently confirmed the validity and reliability of the ILS in a study involving undergraduate students enrolled in some British universities.

Vermunt's (1998) 'learning components' were interpreted here to be general categories of students' approaches to studying. His 'scales' were interpreted here to be particular dimensions of the students' approach to studying within each category. For example, the scale 'deep processing - relating and structuring' was interpreted here to be a dimension of the approach-to-study category 'cognitive processing strategies'. The change made here from Vermunt's (1998) terminology was intended to make the meanings of the terms more obvious to the reader of this paper.

## Sample

The TPP data reported by Bedford (2011) were gathered by distributing a paper-based ILS (Vermunt, 1994) to all students enrolled in the TPP at the commencement of their study in 2006. A total of 127 completed ILS were returned, comprising approximately 17 per cent of the cohort.

The DIP data were gathered in semester 1, 2013 by surveying all students actively enrolled in DIP course DIP1002 within the first two weeks of the semester. The students were surveyed by using the ILS (Vermunt, 1994) in the form of a Quiz on their Moodle-based USQ course StudyDesk. A total of 53 of these students completed the ILS by the end of week two of the semester, comprising approximately 93 per cent of the group.

## Assumptions and limitations

Interpretation of the data reported here was based on examination of the frequency distributions of the students' mean ratings on each dimension. An assumption underlying the interpretation is that the properties of the frequency distributions would indicate the extent to which mean ratings on particular dimensions were characteristic of the student sample group for those dimensions. A second assumption was that dimensions for which the frequency distributions were statistically significantly skewed would be the most relevant dimensions to consider in a review of the program curriculum. This second assumption was based on an interpretation that significant skewness of the frequency distribution of mean ratings on a dimension indicated the mean rating on the dimension was strongly characteristic of the respondent group. The

criterion used to determine whether or not the skewness of a distribution was statistically significant was that if the observed value of skewness exceeded twice the estimated standard error of the skewness the distribution was deemed to be statistically significantly skewed.

A third assumption was that dimensions on which the frequency distributions of students' mean ratings were normal, and for which the grand mean rating was statistically significantly higher or lower than the rating scale mid-point of 3.00, were more relevant for curriculum review purposes than dimensions that had distributions with grand means that were not statistically significantly different from 3.00. This third assumption was based on an interpretation that for normally distributed mean ratings, grand mean ratings statistically significantly higher or lower than 3.00 indicated that a relatively high or low rating on the relevant dimension was somewhat characteristic of the sample group. The Shapiro-Wilk test of normality (Shapiro & Wilk, 1965), at the 0.05 level of confidence, was used to determine which of the distributions of students' mean ratings could confidently be regarded as normal distributions for the purpose of statistical analysis. A two-tailed t-test, assuming non-equal variances, was used to determine whether the grand means of normally distributed students' mean ratings on dimensions were statistically significantly different at the 0.05 level of confidence from a normally distributed set of mean ratings with a grand mean of approximately 3.00. For the purposes of this paper, interpretation of the data focussed primarily on the DIP data, as Bedford's (2011) paper included an interpretation of the TPP data.

A fourth assumption was that, for a normally distributed set of students' mean ratings on a dimension, a grand mean that was more than 0.75 of a scale interval different from the scale mid-point of 3.00 indicated that, as a group, the students were characterised by considerably high or low ratings on the relevant dimension. The choice of 0.75 of a scale interval was arbitrary, and was made in an attempt to identify dimensions of particular interest for curriculum review.

Limitations to the interpretation of the data included the relatively small sample sizes, the difference in time between the gathering of the TPP data and the gathering of the DIP data, the difference between the sample groups in the specific method used to gather the data, and limitations regarding the representativeness of the data. The representativeness of the TPP data was particularly questionable considering the relatively low percentage of TPP students who returned a completed ILS. These limitations restricted the generalizability of the results of the studies.

## **Results and interpretation**

Table 1 lists the dimensions for which there were statistically significantly skewed distributions of students' mean ratings in the DIP data, and the corresponding results for the TPP data. The only two of these dimensions were 'Learning orientation – enrolled to test own capacity for higher education study' and 'Learning orientation – enrolled to enhance employment prospects'. The results for the DIP were generally similar to those for the TPP data, except that the distributions of the TPP data were somewhat more highly skewed and had higher grand means than the corresponding distributions of the DIP data. Both data sets had highly negatively skewed distributions on the relevant dimensions, indicating that a very high asymmetric rating on both dimensions was characteristic of the DIP and TPP sample groups.

**Table 1: DIP and TPP non-normal, significantly skewed distributions of mean ratings**

	Skewness	Grand mean	Mode	Median	Interpretation
<i>Learning orientation – enrolled to test own capacity for higher education study</i>					
<b>DIP</b>	-0.73	3.91	3.80	4.00	TPP and DIP sample groups are characterised by 'self-test' as a strong motive for enrolling in the program
<b>TPP</b>	-0.87	4.07	5.00	4.20	
<i>Learning orientation – enrolled to enhance employment prospects</i>					
<b>DIP</b>	-0.64	4.37	4.40	4.40	TPP and DIP sample groups are characterised by future employment prospects as a strong motive for enrolling in the program
<b>TPP</b>	-1.86	4.55	5.00	4.80	

Table 2 lists dimensions for which there were normally distributed students' mean ratings in the DIP data, and which were statistically significantly different from the middle of the rating scale (3.00). For all except one of these dimensions, the grand means were statistically significantly higher than 3.00.

Corresponding results from the TPP data are included in Table 2. However, as shown in Table 2 some of the distributions for the TPP data were non-normal. The t-test could not be used for data sets which had non-normal distributions, thus no claim is made here as to whether the grand means of the TPP non-normal distributions were statistically significantly different from 3.00.

**Table 2: DIP normally distributed mean ratings on dimensions with a grand mean significantly different from 3.0**

	Grand mean	Significantly different from 3.00?	Median
<i>Processing strategies – concrete processing – attending predominantly to information of practical value</i>			
<b>DIP</b>	<b>3.44</b>	YES	3.40
TPP*	2.05*	*NOT TESTABLE	2.00
<i>Regulation strategies – uses external control over learning processes (eg. follows instructions)</i>			
<b>DIP</b>	<b>3.24</b>	YES	3.20
TPP	3.22	2.67	3.17
<i>Regulation strategies – uses external control based on results (eg. test marks obtained)</i>			
<b>DIP</b>	<b>3.45</b>	YES	3.40
TPP*	3.33*	*NOT TESTABLE	3.17
<i>Regulation strategies – lack of regulation</i>			
DIP	<b>2.70</b>	YES (one-tailed only)	2.60
TPP	2.41	YES (one-tailed only)	2.60
<i>Learning orientation – enrolled primarily for personal interest in the course content/topics</i>			
<b>DIP</b>	<b>3.55</b>	YES	3.60
TPP*	3.42*	*NOT TESTABLE	3.40
<i>Learning orientation – enrolled primarily to obtain a qualification</i>			
<b>DIP</b>	<b>4.12</b>	YES	4.20
TPP*	3.88*	*NOT TESTABLE	4.00
<i>Learning orientation – ambiguous, unsure as to whether self should remain enrolled in the program</i>			
<b>DIP</b>	<b>2.16</b>	YES	2.20
TPP*	2.00*	*NOT TESTABLE	1.80
<i>Concept of learning – passive intake of information</i>			
<b>DIP</b>	<b>3.85</b>	YES	3.80
TPP*	4.00*	*NOT TESTABLE	4.44
<i>Concept of learning – use of knowledge to solve practical problems</i>			
<b>DIP</b>	<b>3.81</b>	YES	3.80
TPP*	4.17*	*NOT TESTABLE	4.33
<i>Concept of learning - stimulating, thought-provoking/challenging experience</i>			
<b>DIP</b>	<b>3.78</b>	YES	4.00
TPP	3.8	YES	4.00

\*This distribution was non-normal, thus the t-test for significance of difference between means could not be applied.

As shown in Table 2, the TPP results for grand means and medians were generally similar to those for the DIP sample group. However, the TPP distributions for seven of the dimensions listed above here were non-normal, thus these TPP results could not be interpreted in the same way as the corresponding DIP results.

For brevity, interpretation of the results in this paper focussed principally on DIP distributions with an arbitrarily selected relatively grand mean either greater than 3.75 or of less than 2.25 (rounded). The dimensions which met this arbitrary selection criterion were:

- Learning orientation – enrolled primarily to obtain a qualification
- Learning orientation – ambiguous, unsure as to whether to remain enrolled in the program
- Concept of learning – passive intake of information
- Concept of learning – use of knowledge to solve practical problems
- Concept of learning - stimulating, thought-provoking/challenging experience

Table 3 shows data obtained from the DIP study that are not included in Table 1 or Table 2. These are data from DIP distributions that were non-normal and also not statistically significantly skewed. Corresponding data from the TPP study is included in the table. Although these data could not be interpreted in the same way as the data in Table 2, the grand means for the dimension ‘Concept of learning – constructing new knowledge’ were considerably higher than the scale mid-point of 3.00, and may indicate that a high rating on the dimension is somewhat characteristic of both student sample groups.

**Table 3: DIP non-normal distributions of mean ratings on dimensions, not significantly skewed**

	<b>Grand mean</b>	<b>Mode</b>	<b>Median</b>
<i>Processing strategies – stepwise processing by memorising and rehearsing</i>			
<b>DIP</b>	<b>2.88</b>	3.00	2.80
TPP	3.06	2.80	3.00
<i>Regulation strategies – Lack of regulation - does not use any strategies to control any aspect of studying</i>			
<b>DIP</b>	<b>2.70</b>	2.20	2.60
TPP	2.41	2.17	2.17
<i>Concept of learning – constructing new knowledge</i>			
<b>DIP</b>	<b>3.96</b>	4.00	4.00
TPP	3.98	3.89	4.00

### **Discussion of findings**

A main general finding from the comparison of results obtained from the DIP study with those from the TPP study was that, generally, beginning students in the OAC DIP courses approach studying in a formal program in much the same ways as beginning TPP students. Based on this finding, teaching staff involved in the design, development and delivery of the DIP courses would be correct in assuming that commencing DIP students are basically similar to commencing TPP students with regard to their initial approaches to studying. As all of these staff had extensive experience in teaching the TPP, their knowledge about the characteristic ways in which commencing TPP students approach studying would appear to be applicable to their teaching in the DIP courses.

As shown in Tables 1, 2, and 3, the results obtained from the DIP student sample group were very similar to those obtained from the TPP student sample group except for the dimension ‘Processing strategies – concrete processing – attending predominantly to information of practical value’ (Table 2) . For this dimension, the DIP grand mean was statistically significantly higher than 3.00 whereas the TPP grand mean was considerably lower than 3.00. However, as the distribution of TPP mean ratings on this dimension was not normal a t-test could not be used to determine if the grand mean was statistically significantly different from 3.00.

In summary, the aspects of the students’ self-perceived approaches to study that appeared to be very strongly characteristic of the DIP and TPP sample groups were enhancement of career prospects and opportunity to self-test capacity to undertake higher education studies as motives for enrolling in the program.



The following aspects appeared to be generally characteristic of the DIP group, although less definitely so than the career enhancement and self-test motivations to enrol:

- Learning orientation – enrolled primarily to obtain a qualification
- Learning orientation – ambiguous, unsure as to whether to remain enrolled in the program
- Concept of learning – passive intake of information
- Concept of learning – use of knowledge to solve practical problems
- Concept of learning - stimulating, thought-provoking/challenging experience

Of these aspects, ‘Concept of learning - stimulating, thought-provoking/challenging experience’ appeared to be similarly generally characteristic of the TPP group.

The ways in which the results obtained from the DIP student sample group could inform review and/or evaluation of the OAC DIP courses depend on the evaluative framework that is adopted for this purpose. A comprehensive discussion of the application of the numerous evaluative frameworks described in the literature (for example, Worthen & Sanders, 1973) is well beyond the scope of this paper. However, to illustrate the general point a few aspects of evaluative frameworks of conformity to the established principles of adult education and of consistency with the intended learning outcomes of the courses in relation to the results obtained from the DIP study are briefly discussed below here.

The need to relate learning program content and learning-related processes to the adult student’s motivations to study, present perceptions, and past experience is a long-established principle of adult education that is advocated by numerous writers on the topic (for example: Brundage & Mackeracher, 1980, pp.31, 75; Knowles, Holton, & Swanson, 2005, p.39). Application of this principle to results shown in Tables 1 and 2 would raise the review question of to what extent learning experiences directly related to student motivations of vocational orientation and self-test orientation are explicitly and adequately included at an early stage of the DIP program. The DIP finding for the dimension ‘Learning orientation – enrolled primarily to obtain a qualification’, as shown in Table 2, appears to be consistent with the finding that enhancement of vocational prospects is perceived by a very large majority of the student group to be a strong motive for enrolling in the program. The finding for ‘Learning orientation – ambiguous, unsure as to whether self should remain enrolled in the program’ (Table 2) indicates that, generally, the students perceive that they have a strong commitment to remaining in the study program. This commitment may derive from their self-perceived motives for enrolling in the program. In relation to the self-test dimension of students’ approaches to studying, Kerridge (2013), in an account of the provision of feedback on assessment performance to TPP students, emphasised the importance of regular, timely feedback that provides the student with detail about her or his strengths and weaknesses regarding performance on each assessment item.

With regard to consistency with intended learning outcomes, a relevant review question would be to what extent planned learning experiences included in the courses are intended to facilitate student achievement of the following learning objective that is stated for all four of the OAC DIP courses:

On completion of this course students will have demonstrated an understanding of the importance of the ideas of self-regulation, academic self-efficacy, reflective practice and resilience.

The DIP results for the approaches-to studying category ‘Concept of learning’, as shown in Table 2, indicate that learning experiences that facilitate transformative learning by students aimed at moving their understanding of learning as the passive intake of information more towards understandings of learning as the use of knowledge to solve practical problems and as a stimulating, thought-provoking/challenging experience may need to be included in the courses if the cited learning objectives relating to academic self-efficacy and reflective practice are to be achieved by a large majority of the students. Transformative learning and the use of transforming learning-teaching strategies have been discussed in the literature, for example by Cranton (2006), Merizow (1978), and Taylor (1998). In relation to the benefits to students of including transformative learning strategies in course learning materials, Penno (2013) described how transformative learning strategies were included in a TPP course to assist students to adopt more productive approaches to studying in terms of the stated objectives of the program.

## **Conclusions**

Commencing students in a 2013 DIP student sample group generally rated their approaches to studying, as operationally defined in this paper, in basically similar ways as those of commencing students in a 2006 TPP student sample group. To the extent that the results for these student sample groups are generalizable to the whole student cohorts enrolled in these programs, program designers and developers and teaching staff involved with the DIP courses would be correct in assuming that commencing DIP students would have similar characteristic approaches to studying as those of commencing TPP students.

The strongly predominant characteristic approaches to studying by students in both sample groups appeared to be that their major motives for enrolling in the programs were enhancement of their vocational prospects and the opportunity to self-test their capacity to undertake higher education studies.

Other characteristic approaches to studying by the sample group of DIP students appeared to be:

- A motive for enrolling in the program was to obtain a formal qualification
- A firm commitment to remain enrolled in the program
- Conceptualisation of learning as the passive intake of information, the use of knowledge to solve practical problems, and a stimulating, thought-provoking/challenging experience

The results obtained from the studies reported in this paper could inform the processes of review and/or evaluation of program and course design and delivery, according to the evaluative framework adopted.

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