

# How do students in enabling programs cope when the paper study materials are no longer readily available?

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## **Abstract**

*Students studying enabling programs are now expected to learn from the electronic medium rather than from paper study materials. Most universities have budgeting constraints that impact on the production and provision of the traditional paper study materials. As a result of the Bradley Report, universities are increasing the participation rates in their enabling programs (Bradley, et al., 2008) by accepting new students who have low academic skills and often lack confidence to succeed in higher education. Together with increased student numbers in enabling courses and tighter budgeting constraints, electronic resources are seen by universities as being more cost effective. Many students may be computer literate but do they manage to learn effectively or as well as students who studied using traditional methods?*

*Most undergraduate and postgraduate students learn online or in a blended mode. Enabling programs follow a similar format in order to prepare the students to be successful undergraduates. Learning online can be especially challenging for students studying enabling programs through distance education. The TPP (Tertiary Preparation Program) is an alternative pathway into higher education for students who have been unable to enter university through traditional pathways. Students who succeed in TPP are given automatic entry into most courses at the University of Southern Queensland. This paper will investigate how TPP students (distance education students as well as on-campus students) manage their learning in this paperless electronic environment, whether they have the skills and confidence needed to be successful, and how educators may help.*

## **Introduction**

Distance education students have traditionally learned from paper study materials. Their learning was initially supported by mail updates, telephone communication, teleconferencing and vacation schools. This support has been replaced by online communication through forums, online classes and other online resources. Today, it is expected students must have access to the Internet in order to receive this support and study effectively at university (Martin, 2006).

The University of Southern Queensland (USQ) StudyDesk is an online resource that allows students to access lecturers, colleagues, the course content and other resources. USQ uses the Moodle Course Management System to provide a StudyDesk for each course. It is a vehicle through which lecturers can help enrolled students to stay motivated as well as provide support and enrichment throughout the course.

The Tertiary Preparation Program (TPP) is a fee-free bridging program designed to enable prospective tertiary education students to master the essential knowledge and skills required to succeed with their undergraduate studies. Although TPP students are enrolled at the university, they are a group of students that are very different from students in the undergraduate programs (Bedford, 2007). Engaging these students and providing them with a rich educational experience is pivotal for their success not only in TPP but also in their future undergraduate studies (Klinger & Wache, 2009). The core courses offered in the TPP are Studying to Succeed (TPP7120) and Mathematics (TPP7181). Both courses are not online courses but are distance education courses that have been adapted for on-campus students as well as external students. The materials on each course's StudyDesk are support and enrichment materials for voluntary use by the students.

Previous research by the authors focussed on how to better engage students using the online resources, and whether this enhanced engagement was reflected in the final results and the rates of retention (Orth & Robinson, 2010). Towards the third year of the research, the conditions changed whereby students were no longer sent hardcopy study materials, but were expected to utilise the electronic medium. These new conditions made measurement of the outcomes of engagement more complex and difficult to analyse (Orth & Robinson, 2011).

There has been a great deal of research on the preferred study medium for undergraduates (Williams, 2002). This paper will investigate how TPP students

manage their learning in this new online environment, whether they have the skills and confidence needed to be successful without the hardcopy study materials, and what educators can do to assist their learning.

### **Background, theory and literature review**

In a previous paper the authors (Orth & Robinson, 2011) described many fundamental differences between TPP students and traditional undergraduate students. TPP students usually have less developed academic skills than their undergraduate colleagues and require generous support to complete their enabling courses successfully (Mehrotra, *et al.*, 2001). Many TPP students have not completed the final year 12 of secondary education, with approximately 30 *per cent* completing year 10 or less. Even the TPP students who have completed year 12 have usually selected a non-tertiary entrance pathway that would not have emphasised the academic skills essential for success at university (Bradley, *et al.*, 2004). TPP students may be less developed socially compared to mainstream students seeking a traditional pathway towards tertiary education (Hupfield, 2007). This lack of social development in academic and non-academic communication with their peers and teachers at a secondary educational level does affect their confidence to be involved in forums and discussions on StudyDesk that will expose them to public scrutiny (Schulz & Beach, 2004). It may also inhibit them from making enquiries when they do not know how to master the system or the course content.

Most TPP students are the first in their family to attend university and may feel unsure of the basic requirements to succeed at university (Jeffrey & Hardie, 2010). Enabling students often drop out because of a general lack of confidence, lack of family support and an inadequate academic background (McKenzie, 2005). The lack of academic skills, together with the constraints of distance education, is a major impediment for students to enjoy their learning experience as well as achieve success (Gibson, 2001).

As TPP is a fee-free program, students enrol not only with the confidence that if they pass TPP, they can enter university, but also with the knowledge that if they fail or drop out, there will be no fees to pay. This lack of financial penalty may not be an incentive to continue studying when the work becomes more complex or the assignment load too onerous. More than 50 *per cent* of TPP students are under 30 years of age, have not been successful in a traditional secondary education, have yet to develop strong tertiary academic skills including good communication skills, have low academic self-efficacy, and have yet to experience the rigours of full-time work (Whannell, *et al.*, 2011). The

non-supply of the paper study materials could affect the learning of this non-traditional cohort of students. How would this cohort of students manage their learning in this new online environment?

The research carried out by Peterson (2009) with Arts undergraduate students at Monash University found that when students were given the choice of online study materials, paper study materials or physical digital (DVD) materials, they had a strong preference for the paper study materials. There was very little support for the DVD. The report also identified that cost factors did influence the student's decision to select a particular resource mode. This aspect was not reviewed in this report but it may become more critical with the expected increased cost of accessing the national broadband (Rehn & Grech, 2010).

Most universities have budgeting constraints that impact on the production and provision of the traditional paper study materials. In an attempt to reduce operational costs and to create greater flexibility, course materials and resources have been placed online. Recent research in online delivery in the vocational education and training sector by Curtain (2002) found that the costs to operate a highly interactive, major content-based distance education course were about twice the costs to operate a traditional print-based, low-interaction distance education course. The satisfaction ratings for the highly interactive, major content-based distance education course were similar to the satisfaction ratings for the traditional classroom-based course. The operational costs to achieve equitable outcomes for distance education students are considerably more than was originally budgeted for, if high student interaction is to be maintained (Curtain, 2002).

An analysis of the TPP enrolment data indicates that the number of younger students studying TPP in the last decade has steadily increased. Approximately 60 *per cent* of TPP students are in the age group 18–35. Younger students usually rate their computer skills as very good compared to older students. Younger students also use the Internet for social networking as well researching daily activities (Kavanagh, *et al.*, 2011). It was expected that this confidence and experience with technology would make it easier for them to learn online. If students did have difficulties learning online, would they have the academic maturity to recognise the problem and take appropriate steps to help to resolve the issue? How did students learning online replicate the learning methods used when using paper study materials? Reading wordy articles, highlighting important points and making notes are some of the tasks that students need whether online or using paper study materials.

If TPP students recognised that they needed paper study materials, they were encouraged to apply early in the semester for the material to be posted to them. The delay between application and receipt of the paper study materials would have been approximately one to two weeks. Students who had difficulties with learning may not have recognised that the lack of paper study materials was contributing to the problem. They may have confused their inability to read or organise online materials as a lack of academic maturity or poor reading and memory skills. Many TPP students have low academic self-efficacy and could attribute the reasons for their lack of success as intrinsic rather than a learning-mode issue.

### **Methodology for the research**

Students were surveyed in a short online survey after week 8 and at the end of the course (week 15) in semester 3 2011 and semesters 1 and 2 2012. Students were asked to quantify their responses (where possible) using a five-point Likert scale. The five-point scale was reduced to a three-point scale. For simplicity, the 'strongly agree' comments were grouped together with the 'agree' comments as well as 'strongly disagree' comments with the 'disagree' comments. Space was included to allow students to record some qualitative responses. The response rates for all semesters were reasonably strong for a voluntary survey (approximately 16% (42/260) for semester 3 2011, 14% (66/480) for semester 1 2012 and 12% (50/410) for semester 2 2012). The questionnaire at the end of the semester specifically examined how students managed their learning with or without the paper study materials. It was difficult to avoid some bias in the survey results when the survey was voluntary and completed online. Students who are motivated to respond and are confident completing the questionnaire online may respond differently from the general TPP student population (Draugalis & Plaza, 2009).

Many TPP students are in correctional centres without access to the online materials. These TPP students were not included in the study.

### **Survey results**

The following tables represent the student responses to the online surveys. Only data that made a significant statement has been included for consideration. There are differences in the semester 3 cohort and the semesters 1 and 2 cohorts. The data has been tabulated separately because it was collected separately. No review or discussion has been included in this report on the perceived differences between the semesters. These differences have not impacted on the conclusions reached in this report.

Table 1: Age groups from the semester surveys, as a percentage

	Less than 18 (%)	18–30 (%)	31–50 (%)	51+ (%)
<b>Semester 3 2011</b>	2	45.5	50	2.5
<b>Semester 1 2012</b>	4.5	45.5	44	6
<b>Semester 2 2012</b>	0	46	44	10

Table 1 demonstrates that the majority of TPP students are between 18 to 50 years of age. Very few students under the age of 18 are given permission to start TPP. When the enrolment data is reviewed over the past 10 years, an interesting trend is evident, as reported in Table 2.

Table 2: Enrolments numbers and percentages for TPP7120, 2002–2012

	< 18		18–30		31–50		51+	
	No.	%	No.	%	No.	%	No.	%
<b>2002</b>	0	0	147	21	464	66	91	13
<b>2003</b>	0	0	173	26	427	63	76	11
<b>2004</b>	0	0	197	33	340	57	61	10
<b>2005</b>	0	0	226	33	399	59	55	8
<b>2006</b>	0	0	269	38	382	54	55	8
<b>2007</b>	0	0	236	38	342	56	3	6
<b>2008</b>	0	0	312	47	305	46	48	7
<b>2009</b>	0	0	537	51	449	43	62	6
<b>2010</b>	0	0	731	60	426	35	52	4
<b>2011</b>	20	2	727	60	412	34	47	4
<b>2012</b>	41	4	571	54	409	39	30	3

In Table 2, the demographics in 2002 show that there were nearly three (3) times as many TPP students in the age group ‘31–50’ as there were in the age group ‘18–30’. Over the next decade the percentages changed dramatically with approximately 60 *per cent* of students in the age group ‘18–30’ and 30 *per cent* in the age group ‘31–50’. The data also reveals that the numbers of students in the age group ‘31–50’ remained fairly constant throughout the decade. The dramatic growth in the total numbers was caused by large growth in the age group ‘18–30’. The numbers have declined in the over-51 age group. This new demographic may have implications for the course content and delivery.

Table 3: Students who applied to receive paper study materials, as a percentage

	Applied (%)	Did not apply (%)
<b>Semester 3 2011</b>	34	66
<b>Semester 1 2012</b>	66	34
<b>Semester 2 2012</b>	36	64

Although the percentages were large for the group who did not apply to receive the paper study materials, as evident in Table 3, the percentages for those students who did apply were significant.

Table 4: Age versus Paper application for combined semesters

		Applied for paper materials		Total	
		No	Yes		
Age	<b>under 30</b>	<b>Count</b>	39	33	72
		<b>% within age</b>	54	46	100
	<b>31 and over</b>	<b>Count</b>	42	46	88
		<b>% within age</b>	48	52	100
<b>Total</b>		<b>Count</b>	81	79	160
		<b>% within age</b>	50.6	49.4	100

The four (4) age groups were combined into a group 'under 30' and a group 'over 30' in an attempt to find any association using the Chi-Squared Test. No significant association was found between age group and the application to receive the paper study materials.

Table 5: Gender versus Paper application for combined semesters

		Applied for paper materials		Total	
		No	Yes		
Gender	<b>female</b>	<b>Count</b>	39	33	72
		<b>% within gender</b>	54	46	100
	<b>male</b>	<b>Count</b>	42	46	88
		<b>% within gender</b>	48	52	100
<b>Total</b>		<b>Count</b>	81	79	160
		<b>% within group</b>	50.6	49.4	100

After a Chi-Squared Test was applied to Table 5, no significant association was found between gender and the application to receive the paper study materials. However, the percentage of males who applied for the paper study materials was noticeably less than the percentage of females.

Table 6: Student rating of individual computer skills, as a percentage

	<b>Very good (%)</b>	<b>Good (%)</b>	<b>Satisfactory (%)</b>	<b>Weak (%)</b>
<b>Semester 3 2011</b>	45	38	14	3
<b>Semester 1 2012</b>	32	49	18	1
<b>Semester 2 2012</b>	32	32	24	12

Table 6 revealed that most respondents rated their computer skills as satisfactory or better. When comparing tables 3 and 6, it is evident that many students who did rate their computer abilities as very good, good or satisfactory had applied to receive the paper study materials, which suggested that confidence in computer skills is not necessarily linked to confidence to learn online.

Table 7: Student’s estimation of their expected rating

	<b>HD</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>Fail</b>
<b>Semester 3 2011</b>	4	3	43	23	7
<b>Semester 1 2012</b>	1	6	56	17	0
<b>Semester 2 2012</b>	2	8	50	28	2

Students often underestimate their final rating compared to what they actually achieved. This is not unusual for beginning students (Tsai, *et al.*, 2011). Table 7 does indicate that the group who responded to the survey had strong self-efficacy and had high expectations for their results. More than 70 *per cent* of the students indicated that they would achieve a B or better, one week prior to their final exam. These high expectations were from both the students studying online and the students studying using paper materials.

Table 8: Student perception that the course was more difficult when paper materials were not automatically mailed, as a percentage

	<b>Agree (%)</b>	<b>Neutral (%)</b>	<b>Disagree (%)</b>
<b>Semester 3 2011</b>	45	29	26
<b>Semester 1 2012</b>	62	21	17
<b>Semester 2 2012</b>	58	30	12

Table 8 indicates that a majority of respondents perceived that the course was more difficult when they did not receive the paper study materials. However, there was a significant percentage of students who felt comfortable studying the course online. The majority of students understood that if they had difficulties studying online, they could apply to receive the paper study materials. Most students received the paper study materials within three weeks of application. These students could have spent up to five weeks studying online before they received the paper study materials. This delay gave students the opportunity to evaluate studying with or without the paper study materials.

Table 9: Student response to indicate their main method of study, as a percentage

	<b>Paper only (%)</b>	<b>Study Desk only (%)</b>	<b>CD Only (%)</b>	<b>CD and Study Desk (%)</b>	<b>CD and paper (%)</b>	<b>Study Desk and paper (%)</b>	<b>All three (%)</b>
<b>Sem. 3 2011</b>	9	14	0	24	4	28	21
<b>Sem. 1 2012</b>	5	18	0	9	3	49	16
<b>Sem. 2 2012</b>	6	14	6	16	0	36	22

Table 9 shows the main method of course study. The CD option was the most unpopular, followed by the option, CD and paper. This response may indicate that the CD is not often used by students and may not need to be included in the student study material. The most popular methods of study were using StudyDesk and the paper study materials together, followed by using all three mediums together (paper, CD and online).

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Table 10: Students response to the non-supply of paper study materials, as a percentage

	<b>Personally print out paper materials (%)</b>	<b>Apply for the paper materials immediately (%)</b>	<b>Try using CD or StudyDesk then apply for the paper study materials some weeks later (%)</b>	<b>Do nothing and work online (%)</b>	<b>Do nothing and regret not applying for paper materials (%)</b>
<b>Sem. 3 2011</b>	38	10	12	32	8
<b>Sem.1 2012</b>	49	19	13	14	5
<b>Sem. 2 2012</b>	30	16	22	20	12

A majority of TPP students either printed the study materials or applied for and received the paper study materials. A significant percentage worked online with or without regrets. These percentages do not exactly match the data in Table 9. This may be in part due to students interpreting differently the meaning of main method of study or online course versus CD. However, the data clearly indicates that most students (60% or more) wanted to use the paper study materials either in conjunction with the online course or not.

Table 11: Methods used to remember important facts by percentage of students who selected to receive the paper materials

	<b>Sem3 2011 (%)</b>	<b>Sem1 2012 (%)</b>	<b>Sem2 2012 (%)</b>
<b>Make notes on the paper materials</b>	86	59	67
<b>Make notes on a separate sheet of paper</b>	57	45	72
<b>Use sticky labels</b>	50	61	56
<b>Underline</b>	93	43	61
<b>Use a highlighter or different colours</b>	86	84	89
<b>Try to memorise it</b>	14	11	6
<b>Other</b>	14	11	6

Table 11 indicates that TPP students who received the paper study materials used a variety of methods to remember important information. Underlining, use of a highlighter and making notes on the paper materials were the most common techniques used.

Table 12: Methods used to remember important facts by percentage of students who did not elect to receive the paper materials

	Sem3 2011	Sem1 2012	Sem2 2012
<b>Use special software to highlight</b>	0	0	6
<b>Cut and paste into a Word document</b>	14	22	25
<b>Read the section frequently</b>	14	22	19
<b>Keep handwritten notes</b>	52	57	69
<b>Print out the important sections</b>	41	57	31
<b>All of the above</b>	7	22	22
<b>Some other method</b>	10	22	6

Table 12 demonstrates that of the TPP students, who did not apply to receive the paper study materials, a large percentage did not use a variety of techniques to remember the important information and the techniques that they did use were paper-related. They either kept handwritten notes or printed out the important sections.

Table 13: Students accessing the Study Desk, forum and resources after selecting paper study materials, as a percentage

	Never (%)	Occasionally (%)	Once a week (%)	3 times a week (%)	Nearly every day (%)
<b>Semester 3 2011</b>	0	0	7	22	71
<b>Semester 1 2012</b>	2	7	11	22	58
<b>Semester 2 2012</b>	0	22	11	6	61

A majority of TPP students who selected the paper study materials used StudyDesk to access forums and resources (i.e. they were working online) nearly every day.

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Table 14: Students who found studying Mathematics online to be difficult after not selecting paper study materials, as a percentage

	<b>Agree (%)</b>	<b>Neutral (%)</b>	<b>Disagree (%)</b>
<b>Semester 3 2011</b>	33	27	38
<b>Semester 1 2012</b>	53	8	29
<b>Semester 2 2012</b>	44	25	31

Table 14 does indicate that a significant percentage of TPP students who decided not to receive the paper study materials did experience difficulty when studying Mathematics online.

Table 15: Students who in hindsight should have applied to receive the paper study materials but did not do so, as a percentage

	<b>Agree (%)</b>	<b>Neutral (%)</b>	<b>Disagree (%)</b>
<b>Semester 3 2011</b>	28	22	50
<b>Semester 1 2012</b>	54	31	15
<b>Semester 2 2012</b>	70	12	18

A significant percentage of TPP students had regrets about their decision not to apply to receive the paper study materials. This may also be a reflection of the data in Table 14.

### Discussion

The students who responded to the survey questions were students who were about to complete the course and were very positive about succeeding in the course (Table 7). The responses of the group who did not complete the course and were less optimistic about their chances of success are very relevant to this research. Not having their responses makes the group who answered biased and less reflective of the TPP student population. The data did offer some insight into the issues irrespective of the bias of the respondents. The challenge for future research is find the students who do not respond to these questionnaires and seek their opinions so that the responses may be more representative of the TPP student population.

The changing demographic from the age group 30+ to 18–30 has implications for the course planners. Younger students, who have yet to work for sustained periods of time or experience the variable challenges and experiences of life found in the age group of 30+, may make different demands on the

teaching lecturers, may find the course content out of touch with their youthful experiences, and may need greater motivation to complete the course. This group may also be more able to manage their learning online. This bubble in the age group 18–30 may not be sustained in the medium or long term. Economic conditions, employment opportunities, government support, higher education priorities and attractive alternatives to TPP are only some of the variables that may determine the sustainability of this increased demand for TPP.

More than 45 *per cent* of respondents did apply for paper study materials (Table 3). More than 50 *per cent* of students who did not apply for the paper study materials did in hindsight regret that they had not applied (Table 15). Many students with perceived satisfactory or better computer skills also applied for the paper study materials (Table 6). Having sound computer skills or confidence in their ability to succeed did not necessarily mean that these TPP students thought they were able to learn effectively online. It was initially thought that the more mature students would be the group that would apply for the paper study materials. However, the research found that all age groups were equally represented in the group who chose to apply for the paper study materials.

The data reveals that there were at least two (2) distinct groups of respondents. One group of students was relaxed and confident and embraced studying online whilst another group of students needed the support of the paper study materials. This second group also frequented StudyDesk (Table 13) many times during the week and used the paper study materials. A subset of the first group of students indicated that they found studying Mathematics online to be difficult (Table 14). Very few students found the CD to be necessary when they could access StudyDesk or read the paper study materials. This outcome supported other research carried out by Peterson (2009) at Monash University. Presently, TPP courses are obliged to make the CD available so that low socio-economic status students who do not have access to the Internet can still download the material from the CD.

Students who applied for the paper study materials used a variety of techniques to remember important information. Most percentages included in Table 11 are high in comparison to those in Table 12, where students appear to have used very few techniques to remember important information when studying online. The most popular method to remember important information by the online group was to make handwritten notes. Both groups were confident that the techniques they used were effective to achieve success in TPP (Table 7). More research needs to be done to evaluate whether TPP students who are learning

online are studying as effectively or having as rich an educational experience as TPP students who study using the paper study materials.

### **Conclusion**

Since 2008, a larger group of younger students are choosing TPP as an alternative pathway into university. The numbers of more mature students have remained static over the last decade. This changing demographic should not be ignored when constructing or reviewing the existing courses and will impact on the methods used to deliver the courses.

TPP students are split into at least two (2) distinct groups. One group is confident and relaxed when studying TPP7120 online. This group has indicated that Mathematics is more difficult than TPP7120 to study online. This group also will print out any material that they consider important or necessary to succeed in the course. The second group prefers to study using paper materials as well as maintain their links with the online forums and extra resources available on StudyDesk. This group has developed a variety of techniques to assist them to study effectively. There was no significant association between the age group and applying for the paper study materials or between computer ability and the application for the paper study materials. There was also no significant association found between expected achievement level (self-advocacy) and the application for the paper study materials.

Very few TPP students use the CD and in the future this mode of study may be discontinued. TPP is obliged to support students who do not have internet access and the provision of the CD is very important for this student group.

### **Recommendations**

- The course materials should be reviewed in order to accommodate the changing demographic of increasing numbers in the age group 18–30.
- The paper study materials option should continue to be made available.
- All students should be taught how to study effectively online.
- The CD option should be reviewed to see if it is necessary for future TPP programs.
- Further research should continue to evaluate how effectively TPP students learn online.

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