Institutional Approach to Course and Curriculum Design Based on Analysis of Staff and Student Surveys

Savitri Bevinakoppa, Min Prasad Gurung

Melbourne Institute of Technology, 388 Lonsdale St, Melbourne, Australia

sbevinakoppa@mit.edu.au, mingurung@mit.edu.au

Abstract. Melbourne Institute of Technology (MIT) is a leading higher education private provider at Melbourne and Sydney, Australia. It offers Higher Educational (HE) courses in Business, Information Technology (IT), Accounting, Networking and English Language Courses (ELICOS). MIT has more than 4000 students and 200 employees including full time academic, administrators, technicians and sessional teaching staff. Recently, the Engineering course and curriculum has been designed based on the staff and student surveys.

Students survey serves the purpose of determining the strengths and weakness of students' skills in a particular subject/unit and staff survey is to help design professional development sessions in order to educate staff to on how handle students with diverse backgrounds. This paper offers a summary of surveys, which include the necessity of professional development at MIT and inclusion of very important tasks for the course to enhance report writing, presentation skills and practical skills for students.

Keywords: Staff survey, student survey, Moodle, course design

1. Introduction

MIT currently has two campuses; one in Melbourne and one in Sydney. In addition to its own courses, it offers University of Ballarat courses in business, IT and Information Science. It aims to become a University College in the near future. One of the government regulations of University College is to demonstrate competencies of staff to deliver units in a professional way in three areas: teaching & learning, administration and research.

Surveys of staff and students are analysed here to plan professional development sessions to staff and design teaching method to cater to students with diverse background skills and knowledge [1] [2]. This paper presents the questionnaire and its analysis. The Paper concludes by offering recommendations to design a course based on these surveys.

2. Background

University teaching staff follows some of the available methods to demonstrate professional development (PD) strengths such as Bloom's taxonomy, Structure of Observed Learning Outcome (SOLO) etc. This paper includes most of the Bloom's taxonomy based teaching and learning techniques. Now-a-days higher education providers are expecting teaching staff to be involved in three major duties: teaching, administration and research. Good teaching includes learning the content of teaching topic in depth by research and teaching students by summarising the concept along with real-world case studies [3]. Case study may include the application of the concept, so that students learn the concept by visualising the real world application [4] [5].

Administration includes student consultation (regarding a unit discussion, advice on unit choices, At Risk interview, etc.), plagiarism hearing, enrolment, ratification meeting, etc. Domain of research are guidance and supervision of students' projects or research, updating knowledge of current technology, on-going specialised area of research, selection of case study for a unit topics etc. In order to satisfy these 3 areas of PD, teaching staff should consider students' skills, background knowledge and their abilities to cope with the studies [6].

3. Survey forms

This section explains the content of both student and staff survey forms.

3.1 Student Survey

This section explains the students' questionnaires. The survey consists of 3 sections, section 1 is on personal details, section 2 is on their personal skills/knowledge and section 3 is on their learning requirements or interests. Personal details cover student origin, gender, study area, and the type of course.

Most of MIT IT courses' assessments are based on report writing skills, oral presentation and practical demonstration skills. Therefore, we included one section to analyse students' competencies in above areas. Section 2 covers background knowledge, such as writing skills, presentation skills and practical demonstration skills. Writing skills include level of English proficiency, report writing style, referencing skills and literature survey experience. Presentation skills cover the level of students' ability to speak clearly, understanding importance of dress code, professional presentation in-terms of body language, listening or understanding audience's questions, and preparation of presentation slides by using multimedia such as video, audio, picture, animation etc. Last part of section 2 covers practical demonstration skills, which include presentation or demonstration skills, troubleshooting understanding, contribution within a team and understanding of managing a project team. All these skills are assessed against Licker's scale of 1 to 10; level 1 representing incompetent and level 10 representing highly competent.

Section 3 is on learning requirement. This section examines ways to improve scaffoldings such as mentoring program, aids to enhance presentation slides using multimedia application and web based tool, provided by MIT and enhance experience of learning through real world scenario [7], use of library resources and books and to get an hands on experience by involving in a industry internship program [8]. The survey form is as below:

Section 1: Personal Details

I am a   O Local Student   O International (Country _____)   O Male   O Female
I am a student of   O MIT   O UB
I am studying   O Bachelor   O Masters   O Diploma   O Grad Dip   O ELICOS
Study Area   O Business   O IT   O Accounting   O Networking
             O Professional Accounting   O Information Systems   O ELICOS O Other: ___
If you are currently studying Graduate Diploma/Master's courses, what is your previous highest qualification:

Section 2: Your current skills and knowledge in the following area (Tick appropriate box please)

Questions	1-10
1. Writing skills	
a. English writing skill	
b. Report writing skill	
c. Referencing in the report	
d. Literature survey (Research)	
2. Presentation Skills	
a. English Speaking skill	
b. Importance of dress code	
c. Presentation skill	
d. Listening / understanding others' presentation	
e. Preparation of presentation slides	
f. Use of multimedia applications (video, audio, picture, animation etc.) for presentation	
3. Practical demonstration skills	
a. Understanding of hands on practical	
b. Troubleshooting skills	
c. Team member	
d. Project management	

Section 3: Your Learning Requirement (Tick appropriate box that best suits your requirement)

4. Use of learning tools	YES/No/Maybe/Don't know
a. Do you need mentor to enhance your knowledge	
b. Do you like to have multimedia application (such as video, audio etc.) in your learning materials	
c. Do you want to use web based tool (ex: Moodle) where it provides online discussion forum as well	
d. Do you like to have case studies in your units	
e. Do you want to purchase books for your units	
f. Do you want to use library resources	
g. Do you want to have industry internship program	

3.2   Staff Survey

This section explains the content of staff survey. It has three sections: personal details, professional development undertaken by staff, and their view on improving formative and summative components of the assessments. The survey form is as below:

Section 1. Personal Details

I am   O Full time   O Sessional
                                                              O Male   O Female   O Lecturer   O Tutor   O Both
I have a teaching experience for (years)   O 0-1   O 2-4   O 5-8   O 9-12   O more than 13 years
Previous teaching experience in   Australia   Overseas (Country _____)
I have industry experience for (years)   O 0-1   O 2-4   O 5-8   O more than 8 years
Name of the industry/ies: _____
Previous industry experience in   Australia   Overseas (Country _____)
I have teaching experience in   Business   IT   Accounting   Networking
                                                              Information Systems   Others: Specify: _____
I am teaching to   Bachelor   Masters   Diploma   Grad Dip   ELICOS   Others: Specify: _____
I have qualifications in   Bachelor   Masters   Diploma   CertIV Workplace training
                                                              PhD   Grad Dip   Other, Specify _____
In which field   _____
I am confident to use web based tools   Blackboard   Moodle   Other
If others, specify   _____
Have you undertaken any professional development training during your teaching experience
                                                              O No   OYes, Specify _____   How Many ____
Industry experience   O No   O Yes, Specify _____   How Many ____

Section 2. Professional development

Do you think, professional development at MIT is important and to be conducted at MIT? O Yes O No
If yes, do you want session to be conducted by   External expertise   Internal staff
For how many sessions per teaching term   O1   O 2   O3   O more than 3
Duration of each session O1 hr O2 hrs O3 hrs O1 day   During business hours   Weekends   Either
Tick topic/s to be covered in professional development session:
    Student centered teaching   Active learning methods   Case study selection
    Industry speaker invitation   Current MIT teaching method and tools used
    Use of multimedia (such as video, photographs, animation etc.)   Mentoring skills and techniques
    Use of students mobile for learning in the class room   Podcasting (audio files)
    Vodcasts (video podcasts: Video clips of lectures/tutorial/labs or video demonstration from DVD for teaching purpose)

Section 3. Assessment strategies

Answer the following questions based on your experience:
Average number of assessments (including test/s and final exam) you like to have in your unit
O 2   O 3   O 4   O 5   O 6
Types of assessments and their average percentage of total assessment you like to include in your unit
    Oral presentation (___%)   Written report (__ %)   Research component (_____ %)
    Practical Demonstration (_____ %)   Individual assessment (__ %)   Group assessment (_____ %)
    Mid term test (_____ %)   Practical test (____%)   Final examination (_____ %)

Moodle is a web based tool to provide lecture material. It also provides online discussion. You can prepare multiple choice questions for students to get automated marks and response [9].
Would you like to use Moodle for your unit at MIT?   O Yes   O No
Do you want to have Moodle demonstration session?   O Yes   O No

4. Survey Summary

Staff and student surveys have been summarised in this section.

4.1 Summary of student survey

We conducted surveys amongst approximately 150 students. The following data of 'section 1: Personal details' indicates students are mix of various disciplines. Table 1 and 2 summarises skill levels and learning requirements. We took survey of about 160 students.

Local Student = 24; International =136; Male = 109; Female = 51; MIT student = 66; UB student = 94; Bachelor = 40; Masters = 75; Diploma = 15; Graduate Diploma = 21; ELICOS = 1; Business = 25; IT = 56; Accounting = 26; Networking = 24; Professional Accounting = 8; Information Systems = 17

Table 1: Survey Summary of current skills and knowledge

Questions	1-5	6-10
1. Writing skills		
e. English writing skill	36	128
f. Report writing skill	37	123
g. Referencing in the report	39	119
h. Literature survey (Research)	52	105
2. Presentation Skills		
g. English Speaking skill	33	131
h. Importance of dress code	36	126
i. Presentation skill	29	136
j. Listening / understanding others' presentation	27	133
k. Preparation of presentation slides	28	122
l. Use of multimedia applications (video, audio, picture, animation etc.) for presentation	27	115
3. Practical demonstration skills		
e. Understanding of hands on practical	35	131
f. Troubleshooting skills	28	132
g. Team member	27	138
h. Project management	19	140

Table 2: Survey Summary of Learning Requirement

4. Use of learning tools	Yes	No	Maybe	Don't
h. Do you need mentor to enhance your knowledge	53	48	43	8
i. Do you like to have multimedia application (such as video, audio etc.) in your learning materials	98	33	21	2
j. Do you want to use web based tool (ex: Moodle) where it provides online discussion forum as well	101	15	31	6
k. Do you like to have case studies in your units	91	37	29	3
l. Do you want to purchase books for your units	56	44	25	2
m. Do you want to use library resources	126	7	15	0
n. Do you want to have industry internship program	116	16	19	5

4.2 Summary of staff survey

Personal details are summarised in table 3. This survey covers current teaching staff at MIT are a mix of females and males, full time and sessional, good teaching experience of at-least more than 5 years along with industry experience, taught in various specialised areas to undergraduate and postgraduate students, used web based tool to deliver teaching material and attended professional development sessions previously. Table 4 summarises the need of professional development at MIT. All staff expressed the need and should be conducted by both internal and external expertise [2]. Table 5 summarises the current assessment strategies, such as number of assessments in a unit [10], type of assessments to make students work ready graduates.

Table 3: Summary of staff survey

Personal Details	No. of staff
Full Time	11
Sessional	11
Male	13
Female	9
Lecturer	7
Tutor	2
Both	10
Teaching Experience 0-1 Year	2
2-4 Years	2
5-8 Years	7
9-12 Years	5
More than 13 Years	5
Industry Experience 0-1 Years	5
2-4 Years	4
5-8 Years	3
More than 8 Years	6

Personal Details	Number of staff
Taught Business	10
Information Technology	9
Accounting	5
Networking	3
Information Science	4
Qualifications Bachelor	2
Master	9
Graduate Diploma	2
PhD	3
Web tool used	12
Blackboard	10
Moodle	1
Previous professional development experience	
Yes	19
No	1

Table 4: Survey Summary of Professional Development

Questions		No. of staff
Professional development at MIT	Yes	20
	No	0
If Yes,	External	16
	Internal	1
	Both	3
Number of sessions/term	1	8
	2	9
	3	3
Topic to be covered		
Student centered teaching		14
Active learning methods		14
Case study		11
selection/problem based		7
Industry speaker invitation		8
Current MIT teaching		4
Use of multimedia		6
Mentoring skills and techniques		4
		9
Use of students mobile		7

Table 5: Survey Summary of Assessment strategies

Questions		No. of staff
Number of assessments	2	2
	3	7
	4	5
	5	6
Types of Assessments		
Oral presentation		13
Written report		9
Research component		11
Practical Demonstration		17
Individual assessment		18
Group assessment		10
Mid term test		5
Practical test		10
Final examination		5
Moodle at MIT		
	Yes	17
	No	3
Demonstration of Moodle		
	Yes	17
	No	3

5. Analysis and Conclusion

Summary of students' survey in table 1 gives the grouping of scales from 1 to 5 (below average) and 6 to 10 (above average). Table 1 indicates that about 1/3 of the total students are having difficulty in writing, presentation and practical skills. Table 2 indicates that majority of the students expressed their interest to use learning tools to enhance their knowledge during study such as web based tool, library resources, internship program etc. It is interesting to see that almost all of the students expressed their wish to have hands on experience during study such as working in the industry. Based on these points, we introduced 2 project units in the program, where students will have a chance to work in the industry. Based on the staff survey we started professional development program at MIT and has been successfully running.

6. References

[1] M. Reumann, M. Mohr, A, Diez, and O Dossel. Assessing learning progress and quality of teaching in large groups of students, *30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society, EMBS 2008*, 20-25 Aug. Vancouver, BC, pp2877 - 2880

[2] L Wang, X., Han, S, Zhang. Research on Bilingual Teaching Reform of Undergraduate Computer Courses in Financial and Economical Colleges, *First International Workshop on Education Technology and Computer Science, ETCS '09,* Wuhan, Hubei, 7-8 March 2009, Vol. 3, pp. 836 - 838

[3] Z., Fulei. Multimedia Case Methods in University-Based Teacher Education and Learning, *Second International Conference on Multimedia and Information Technology (MMIT), Kaifeng,* 24-25 April 2010, Vol.2, pp.345 - 348

[4] Z. Bo, H. Rensheng, An analysis of building college student learning communities with the use of SNS, *2nd International Conference on Networking and Digital Society (ICNDS),* vol. 2, pp. 480 – 483

[5] Sharad S, Robbins T. Towards Achieving Hands-On Project Based Learning beyond Laboratories and into the Dorm Rooms, *IEEE Transforming Engineering Education: Creating Interdisciplinary Skills for Complex Global Environments*, pp. 1 - 5

[6] I. Zelly. "Whom Are We Teaching?," *Computer*, vol. 30, no. 11, pp. 49-50, Nov. 1997.

[7] C. Lee, Y. Singh, "Student Modeling Using Principal Component Analysis of SOM Clusters," *Fourth IEEE International Conference on Advanced Learning Technologies (ICALT'04),* pp.480-484

[8] T. Andrews, R. Smyth, and R. Caladine,, Utilizing Students' Own Mobile Devices and Rich Media: Two Case Studies from the Health Sciences, *Second International Conference on Mobile, Hybrid, and On-Line Learning, ELML '10, Saint Maarten,* 10-16 Feb. 2010, pp.71 - 76

[9] D. Chen, Enhancing student learning through classroom discussions in circuits courses, *Proceedings 35th Annual Conference Frontiers in Education, Indianopolis, IN, FIE '05.* 19-22 Oct. 2005, pp.S1H - 27

[10] J. Zhao, X. Li, B. Li, Investigation on the quantitative position assessment system of college teaching staff, *Proceedings of 2005 Int. Conference on Machine Learning & Cybernetics, Guangzhou, China,* 18-21 Aug. 2005.vol. 5, pp.3221-4