Supporting Learning in Mathematics

Session 4: Developing as a tutor

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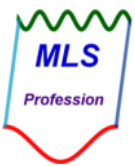
Session 4: Developing as a tutor

- Digital Badges
- Student views of Maths Learning Support (MLS)
- Experience from tutors
  - Do's and Don'ts
- Developing as a tutor
  - Reflection and Action

Digital Badges

10 of our tutors have been awarded with the digital badge “MLS Knowledge and Skills”!!!!

Today you have the opportunity to earn the badge “MLS Professional Identity Development”.

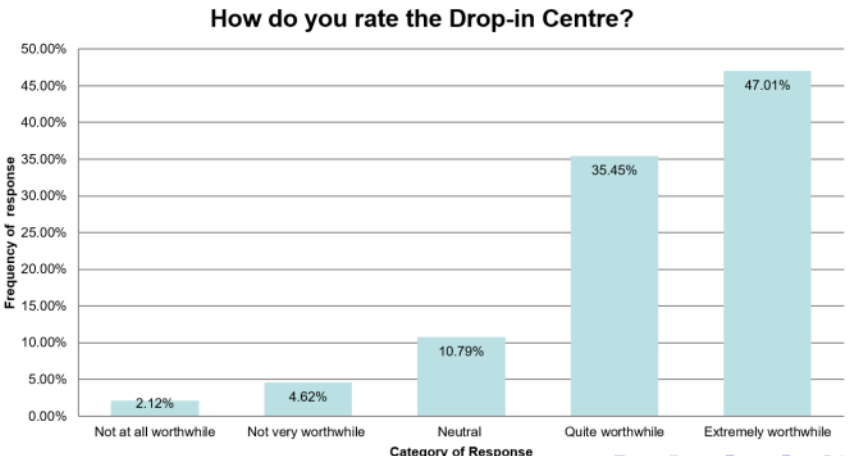


What's involved? ... We'll get back to this later ...

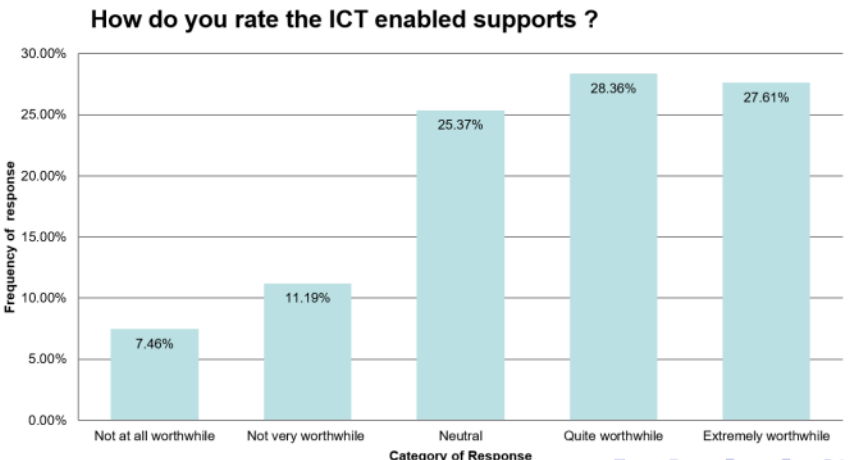
Student views of MLS (from *IMLSN* Survey)

- Large scale survey conducted by the IMLSN in 2011;
- Survey was carried out in 9 HEI's (5 universities and 4 institutes of technology - DCU, NUIG, NUIM, UCD, UL, IT Blanchardstown, IT Carlow, IT Tallaght, IT Tralee);
- 1633 first year students studying at least one service-mathematics module surveyed;
- 587 students of the 1633 availed of MLS;
- Students were asked to rate on a list of MLS services which were provided in their institution on a scale of 1 to 5 with 1 = "Not at all Worthwhile" and 5 = "Extremely Worthwhile".

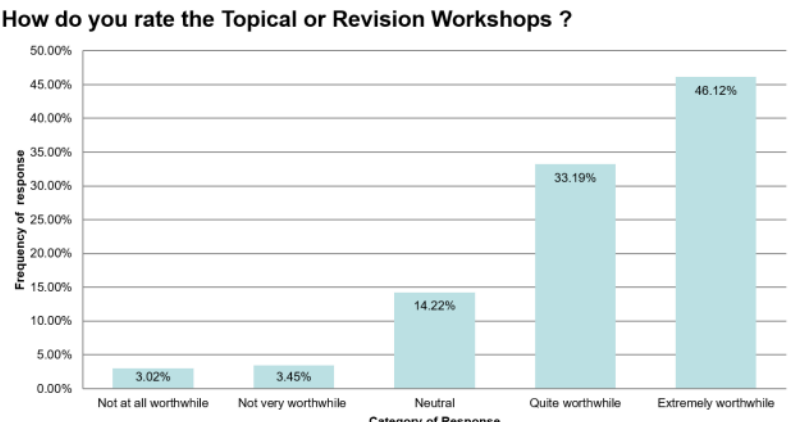
How do you rate the Drop-in Centre? (N = 519)



How do you rate the ICT enabled supports? (N= 268)



How do you rate the Topical or Revision Workshops? (N= 232)



Some comments from students

"Very helpful/Excellent service."

"Website/extra notes very helpful."

"Helpful, very friendly, very approachable tutors"

"It is a good place to go and do maths assignments. It provided supplements lectures and tutorials and provides the right environment for solving problems."

"Only for the centre I probably would have dropped out."

"Better/longer opening hours."

"The tutors spent more time trying to figure out the questions and then didn't know how to explain it."

Advice from experienced tutors

See document of advice from an experienced tutor.

Now recall our own list of Do's and Don'ts from the last workshop.

Is there anything to add?

Tutor survey

The following reports on the responses to a survey from 21 Mathematics Learning Support (MLS) tutors from 10 Higher Educational Institutes in Ireland and Northern Ireland. The survey requested them to provide:

- The number of years they have worked in MLS;
- A brief description of the services provided at their MLS centre;
- The mathematical abilities of the students they encounter;
- The 5 most important things that tutors should do for/with students who are seeking help;
- The 5 most important things that tutors should not do for/with students who are seeking help.

Tutor survey - Profiles

Tutor Experience:

The average number of years that tutors worked in MLS centres was 3.45 years, with an average of 7.14 hours per week.

Services Provided by Maths Learning Supports:

The primary services offered by the support centres surveyed were drop-in centres, extra tutorials/workshops, online learning resources, and 1-1 appointments.

Tutor survey - Abilities of students

Factor of ability reported	*Number of surveys in which this was reported*
Basic maths (algebra, factorising etc.)	19
Mixed ability	15
Perfectionists (know content but need to refine their understanding)	9
Low confidence	4

Tutor survey - Do's

"Do's" for tutors reported	*Number of times each were reported*
Mannerism/empathy	23
Encourage students	15
Let students do the work	13
Identify the problem	12
Check for understanding	8
Use ICT	6
Questioning techniques	4
Ask other tutors for help if unfamiliar	4
Explain concepts in simple terms	2

Tutor survey - Don'ts

"Don'ts" for tutors reported	*Number of times each were reported*
Criticise lecturer/staff/student	11
Just give an answer/do all the work	10
Be dismissive (e.g. say it's easy)	10
Assume prior knowledge	8
Help directly with assessment	6
Bluff	2
Provide info. w/o explanation	2
Too much time with an individual	2
Teach without diagnosis	1

Findings from tutor observations

Context:
The Mathematics Learning Centre at UL conducted observations of some tutors in the Spring of 2015. Some tutors were visited and were advised to try to develop some aspects of their teaching. A follow-up session was conducted 4 weeks later.

Initial visit - Feedback

Positive points	Future considerations
Explanations of content good though a bit long.	Slow down speech and organise your board into sections.
"explanation in due time" – this let students know that they didn't have to follow everything at that moment. Tutor followed up swiftly with explanation after noting the formulae on the board.	Didn't explain the purpose of Simpsons rule/Trapezoidal rule until 5/6 mins into explanation.
Explained what a basic modulus function $y = \|x\|$ was before progressing to tutorial problems.	Very "mathsy" or theoretical at times. These are students who find the basics that they are dealing with very difficult. Keep it understandable and as basic as you can.
When asked a question you responded to it excellently. Play to your strengths. Consider asking more questions. This will also give you an indication of the level of your class and how much they are understanding.	Blocking the board for explanations. I couldn't see what you were pointing at. Face the students and position yourself accordingly.
Change of example from n=4 to n=8 was good as you had previously done n=4. Intuition good.	When discussing what terms were even/odd you pointed between some terms instead of at the term. Maybe writing E, O, etc. above them might have made this clearer.
Calculations split between groups was a very good idea. A lot of students make calculator errors.	You arrived at 17:59 and were a bit flustered at the start. Give yourself a bit more time to get settled.
	For something like $y = \|x\|$ maybe consider giving coordinates rather than writing a piecewise function. They may not know what that is and coordinates would get the same idea across in a more understandable way.

Follow-up visit - Feedback

Positive points	Future considerations
Explanations more appropriate to level of students	Consider writing out more workings. Try not to make assumptions. E.g. from board $(x^2-1)^2 = 0$ so $x = \pm 1$
Explained dy/dx and why you leave dy/dx=0 to find max/min. Explanation excellent.	Avoid using "spit back" as a term. Doesn't sound very pleasant.
Board organisation excellent.	Maybe brief explanations for some "basics". You said when we differentiate 1 it disappears. Maybe give the reason why it disappears for those that do not know this.
You gave much more time for students to respond to your questions (on majority of occasions – once or twice you answered immediately yourself).	Consider using an example from their tutorials as the basis for explanation. At the beginning you were making up your own examples and I think when the question is not written down in front of them they find it hard to keep track of what you're doing.
2nd derivative test for max/min explained excellently. Really suitable for the level of the students.	Use examples to explain differentiation formulae. You wrote solely the formulae but maybe one quick example under each might have helped.
Speech was very clear and slower than last visit. Much easier to follow.	When doing a product rule problem write the formulae and then show the replacement of each part.

Common issues

Some common issues amongst each tutor that was observed were:

- Blackboard needed to be organised (tutors advised to split board vertically into 4 or 5 parts);
- Assumptions made about students knowledge (i.e. skipping many lines of work);
- Relied heavily at times on very theoretical explanations despite students not being mathematics specialists;
- DID NOT GET STUDENTS TO TRY PROBLEMS.

Developing as a tutor

Good tutors are always learning ☺

One way to do this is to reflect briefly on each session you do.

Tools for reflection:

- Peer Review
- Mathematics Learning Tutor Reflection Entry
  - How was the session?
  - What have I learned from these reflections?
  - What is the one thought to carry forward?
  - ...
- Diary Entry

Back to Digital Badges

To earn the third badge “MLS Professional Identity Development” you are expected to

- Complete a workshop on professional development in MLS (done);
- Maintain a reflective diary over 6 sessions;
- Write a short essay on your top 3 Do’s/Don’ts on working in MLS;
- Provide evidence that your MLS tutoring has been observed and evaluated by competent professionals.