

Supporting Learning in Mathematics

Session 2: Mathematics & Statistics Learning Support (MLS)

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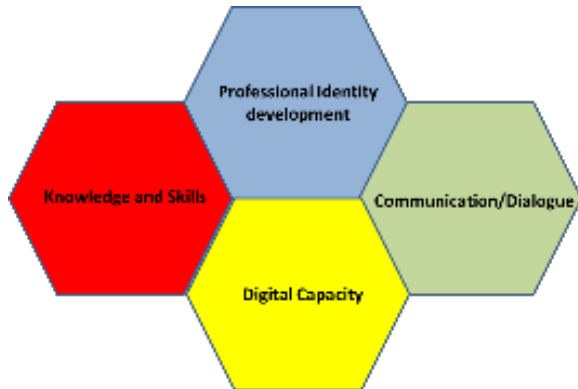
Session 2 - Main Points

- The Digital Badges project
- What is MLS?
- Why is MLS important?
- Initial contact with students
- Teaching in a maths support centre
- “Dos and Don’ts”

The Digital Badges project

- A **digital badge** is a validated indicator of accomplishment, skill, quality, or interest that can be earned in many learning environments.
- It can be added to the holder's CV's or profiles on LinkedIn, Facebook etc. The badge holder can choose where to show the badge.
- Aim of this project is to make MLS badges available for all 3rd level institutions in the U.K. and Ireland, supported by SIGMA and IMLSN.
- Pilot run (with your help) at NUI Galway.

The Digital Badges project



Today you have the opportunity to earn the badge “MLS knowledge and Skills”. What’s involved?

The Digital Badges project

To earn the first badge “MLS knowledge and Skills” you are expected to

- Complete the workshop on MLS (Session 1) and write a one-page summary (essay or bullet points or mind map) of key items learnt.
- Complete a workshop on the individual differences of students (Session 2) and write a one-page summary (essay or bullet points or mind map) of key items learnt.
- Provide evidence of completion of 10 hours MLS work in their institution.
- Show evidence of preparation and/or facilitation of a small group tutoring session.

Note: We are planning to run another (shorter) workshop at the end of the term to give you the opportunity to earn the badge “Professional Identity Development”.

What is MLS?

The term 'mathematics support' means activities, facilities, resources provided to support and enhance students' learning of mathematics and statistics.

- Optional and non-compulsary learning support;
- Provided in addition to lectures, tutorials;
- Practice differs from university to university;
- Support provided to students studying almost **any** discipline.

History of MLS

Maths support centres are a relatively new phenomenon.

- The 'maths problem': In the early 90's many reports from professional bodies in the U.K. highlighted students' lack of basic skills, high failure rates etc.
- In response to these concerns universities began to look into ways of better supporting students with their maths, in particular those in engineering.
- Up to 2004 there was a rapid growth in the number of centres in the UK, and later also in Ireland and Australia.
- Networks of mathematics support professionals have been established (e.g. SIGMA, IMLSN).
- Now most 3rd level institutions in the UK and Ireland have a maths support centre.

And in NUI Galway?

History of MLS



SUMS is 10 tomorrow!

Why is MLS important?

Why is SUMS important here at NUI Galway?

Diversity of students taking maths courses regarding mathematical ability, skills and knowledge:

- Teaching students from four colleges (Arts, Commerce, Engineering and Science);
- The number of mature students entering third level education has increased dramatically in recent years;
- And also the number of international students.

MLS provides opportunities to deal with this diversity.

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Quote from a tutor

During any week in MLS I see many different students with varying degrees of ability. There are students studying economics or psychology needing help with basic algebra, basic statistics or differentiation. There are maths students working on the various modules they study. In 10 minutes I can see a student who can't deal with fractions and then see someone who just wants you to listen to them explaining something in their notes to see if they've really grasped the idea.

The role of a MLS tutor

What's involved in the role of a MLS tutor?

- Be aware of any gaps in student understanding.
- Students may work together in small groups to solve maths problems. Be available to help in case they get stuck.
- Use your maths knowledge to teach key concepts and guide students towards correct solutions and understanding.

Initial contact with a student

- Warmly welcome them to the centre and offer them a seat or a choice of seats.
- Ask them to sign in (thereby figuring out their name) and introduce yourself.
- Allow them to organise themselves and indicate that you are available if they have any questions whatsoever.
- Be aware that the student may be anxious or nervous, especially if it is their first time at the centre. Some may even feel a little embarrassed.

Teaching vs. Telling

- Developing knowledge as opposed to delivering it.
- Assessing gaps in learner's knowledge.
- Involves skills such as explaining, questioning, assessment and feedback.
- Use & apply your subject matter knowledge and transform this knowledge in creative ways to teach the student.

Working with the Students

- **Showing you are not perfect.**

It is ok for students to see that you are not 'the font of all' mathematical knowledge so don't waffle if you don't know the answer.

- **Maths is a process.**

Try to encourage students to attempt a few things and not leave the page and to see that doing a maths problem is a process. In fact if they can see that **mistakes** can be used as simply things that have to be **turned into retakes** the students will be well on the road to having the confidence to work mathematically on their own.

Working with the Students

- Allow them to ask you questions.
- Don't be afraid of silence!
- Leave them work on their own if that is what they want - they will approach you if they have any difficulties.
- Have patience and understanding - what appears 'easy' to you may not be the case for them.
- Be friendly, approachable and non-confrontational.

Working with the Students

- Don't pressure them - encourage a good work ethic.
- Use praise - build the student's self-confidence. However only praise correct work/thinking, don't encourage bad practices. PRAISE the EFFORT.
- If unsure of the material ask another tutor, consult resources or tell the student that you will find out for the following week. Don't give the student the wrong information.

Some Positive Tutor Strategies

- Know students by name.
- Ask questions for discussion.
- Pick up and follow student responses.
- Closure on student questions.(“Are you happy to move on? ”, “Will we move on?”)
- Reward good thinking.
- Use simple language and concepts.
- Find out what the student does and does not understand.
- Use explanation as opposed to telling.
- Praise students for what they have done.

Know the MLS Resources in Place

- Textbooks available in the centre
- Online resources
- First Aid kits

“Dos and Don’ts”