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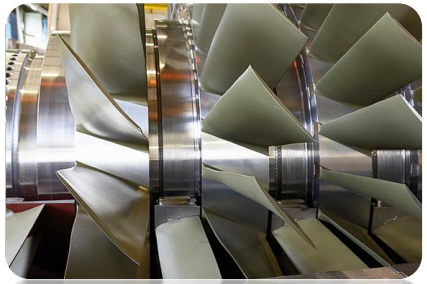

Increasing Student Success, Engagement and Retention Through a Novel Approach to Mathematics Support

Michael Gallimore

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- Traditional Approaches to Support
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Background

- Ever-increasing gap between secondary and university level mathematics.
- More diverse cohorts.
- Students are less prepared for shift in levels meaning transition is more difficult.
- Ultimately leads to poor retention, low success rates and lack of engagement.
- Means required to aid this transition through a mathematics support programme particularly in STEM subjects.

Traditional Approaches to Support

1) DIAGNOSTIC TESTING ON ENTRY

- Content often not thought through and has no real purpose
- Not used to inform future learning

2) ONGOING SUPPORT

- Often very informal and relies on students understanding their weaknesses
- Not tailored to individual needs

Support is Two-Fold

What mathematical knowledge do students require?

How do we target shortfalls in knowledge?

IMMEDIATE

How do we assess current knowledge?

Are there shortfalls in knowledge?

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Support is Two-Fold

Initially Course Driven
Cross-Curricular

How do we target shortfalls in knowledge?

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IMMEDIATE

How do we assess current knowledge?

Match current knowledge with required knowledge

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Support is Two-Fold

What mathematical knowledge do students require?

Individual Learning Plans (ILP's) and tailored support

IMMEDIATE

How do we assess current knowledge?

Are there shortfalls in knowledge?

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Individual Learning Plans (ILP's)

TOPIC		Rounding DP's	Rounding SF's	Standard form	Laws of indices	Rearranging equations	Solving equations	Expanding & simplifying	Algebraic fractions	Expanding double brackets	Factorising	Quadratics	Simultaneous equations	Linear graphs	Pythagoras	Trigonometry	Conversions	
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	PREVIOUS MATHS STUDY
SURNAME	FIRST NAME																	
Bloggs	Joe	B	C	D	A	C	B	C	A	C	B	E	D	B	D	A	D	A Level Maths
Smith	Matt	C	D	A	A	C	A	A	E	A	D	D	D	B	D	B	C	ND Engineering

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SUSTAINED

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Support is Two-Fold

Assessment Driven
Cross-Curricular Driven

How do we target shortfalls in knowledge?

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SUSTAINED

Assessment For Learning (AFL)

Are there shortfalls in knowledge?

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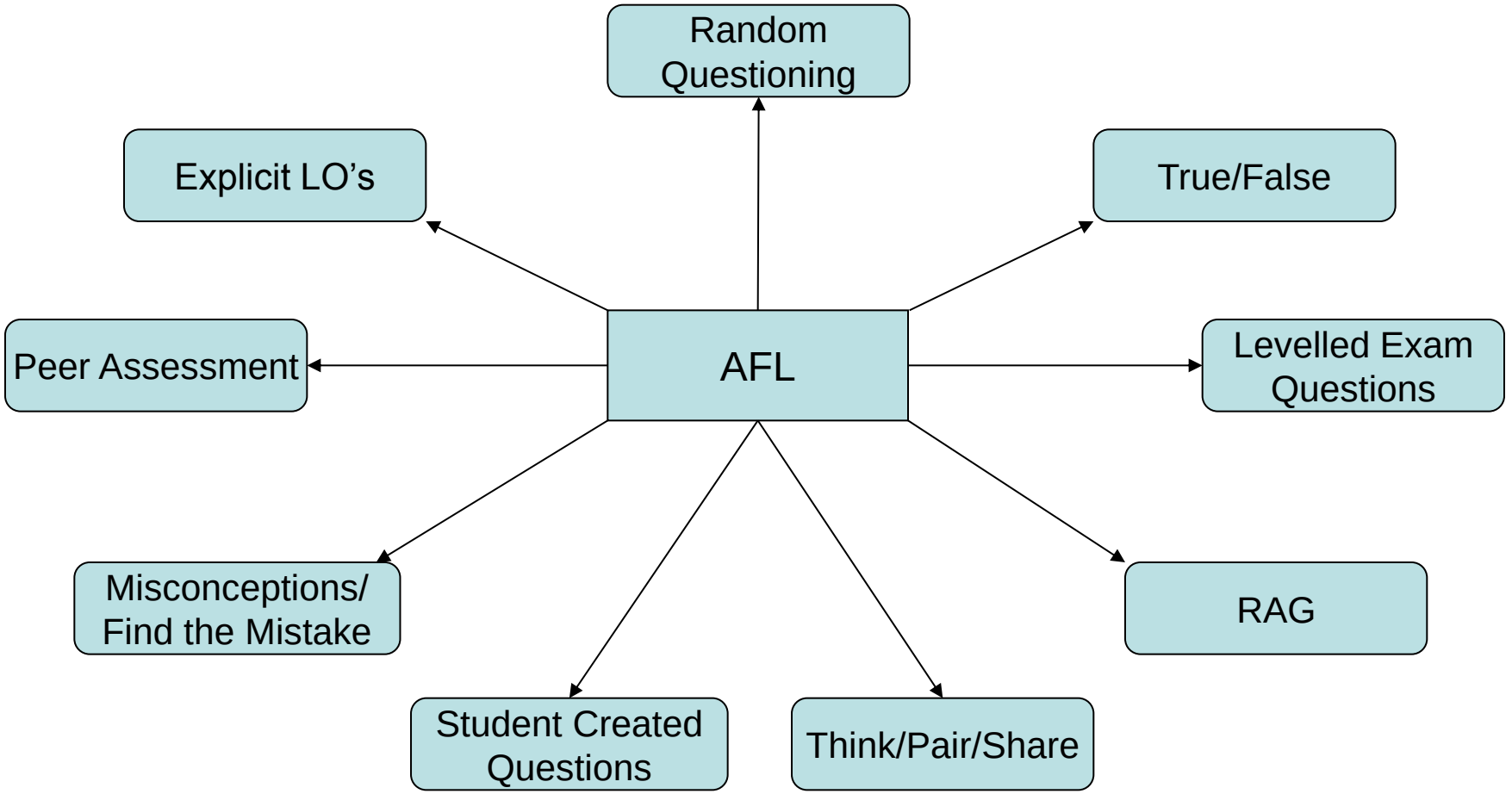
Assessment for Learning (AFL)



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Individual Learning Plans (ILP's) and Tailored Support

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Impact on Retention

- The percentage of young entrants to full-time degree courses in 2008-09 who were not retained was 8.8% for engineering courses compared to 6.5% for all subjects.

WE RETAINED ALL STUDENTS IN THIS CATEGORY

Impact on Retention

- The percentage of mature entrants to full-time degree courses in 2008-09 who were not retained was 15.8% in engineering compared to 12.9% for all subjects.

WE ACHIEVED 5% IN THIS CATEGORY

Impact on Success & Engagement

- **Success** backed up by retention figures as no students left through under-achievement

- **Engagement** measured through regular feedback forms administered 3 times per year for each module studied. Support allowed students to focus on key areas of study.

Future Work

- Development of a Mathematics Support Website to facilitate on-line testing and improve student tracking.

- Introduction of ‘student expert’ system to encourage cross-institutional support and student mentoring.

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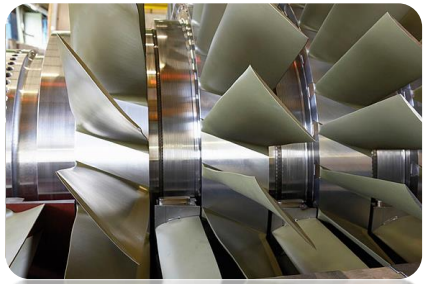

ANY QUESTIONS?

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