Understanding Student Engagement through psychometrics

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Workshop aims

- A better understanding of the issues behind student withdrawal
- Knowledge of 2 psychometric measures which could be applied to identify and support students at risk
- Better understanding of the problems associated with prediction
- Discuss the challenges of cross HEI collaborative research

The problem

- In UK 8% first year students leave university (HESA 2009-10)
- 33% - 42% consider withdrawing
- High rates of withdrawal → low rates of satisfaction
- Adverse consequences for the individual, institution and UK
- Retention and success key concerns
- Can we use psychometrics to identify and then support students at risk of withdrawal?

Why do students withdraw?

- Feelings of isolation and/or not fitting in
- Poor engagement with peers and institution
- Low satisfaction with HE experience
- Concern about [not] achieving aspirations
- Does this influence their satisfaction, engagement and completion?
- How do students express their expectations?
- How convinced are they that the expectation will happen? How?

How confident are we that what we expect will happen?

- How sure are you (0-100%) that you know the answer to the following question?
- Give the answer and % certainty

1. If a baseball and a bat cost £1.10 together, and the bat costs £1.00 more than the ball, how much does the ball cost?

How confident are we that what we expect will happen?

- How sure are you (0-100%) that you know the answer to the following question?
- Give the answer and % certainty

2. How far is the Earth from the Sun?

How confident are we that what we expect will happen?

- How sure are you (0-100%) that you know the answer to the following question?
- Give the answer and % certainty

3. Where are you more likely to die in a traffic accident?
   (i) Non-built up area
   (ii) built-up area
   (iii) motorway

Answers

1. The ball costs 5p; the bat costs £1.05
2. The Earth is ~1.5 billion kilometres or ~ 93 million miles from the Sun
3. You are more likely to died in a road traffic accident in a non-built up area

4. Did your certainty exceed your accuracy?

Road type	Killed	Serious injury	Slight injury	Total injury	Note
Non built-up (excluding motorways)	1,323	8,342	48,810	58,475	52% total killed 32% total seriously injured 25% total slight injuries
Built-up	1,057	16,823	143,079	160,959	42% total killed 65% total seriously injured 70% total slight injuries
Motorway	158	869	10,444	11,471	6% total killed 3% total seriously injured 5% total slight injuries
All casualties	**2,538**	**26,034**	**202,333**	**230,905**	

Expectations = predictions

- Many problems with predicting outcomes
- Heuristics
- Cognitive biases: biased level of confidence (belief) in the accuracy of your prediction because of heuristic thinking (Tversky & Kahneman, 1974)
  - Anchoring bias
  - Overconfidence bias
  - Confirmation bias
  - Representation bias
  - Many more

Examples: cognitive bias

- You believe (have confidence) you will do well in, or fail, a test because you have done so in the past (Representativeness heuristic)
- You believe (have confidence) it's very dangerous to cycle in London due to recent high press coverage (availability bias)
- You believe (have confidence) that you can get from A to B in 30 minutes despite the same journey having taken you more than that previously (planning fallacy)

Understanding student satisfaction and engagement (USE)

- BA/Leverhulme funded collaborative project between LCF and CMU
- 2 psychometric measures
  - Performance Expectation Ladder (PEL)
  - Academic Behavioural Confidence Scale (ABC)
- Predicted at risk Foundation Year students (Sanders *et al.*, 2012)
- Confidence in predicted outcomes actually happening

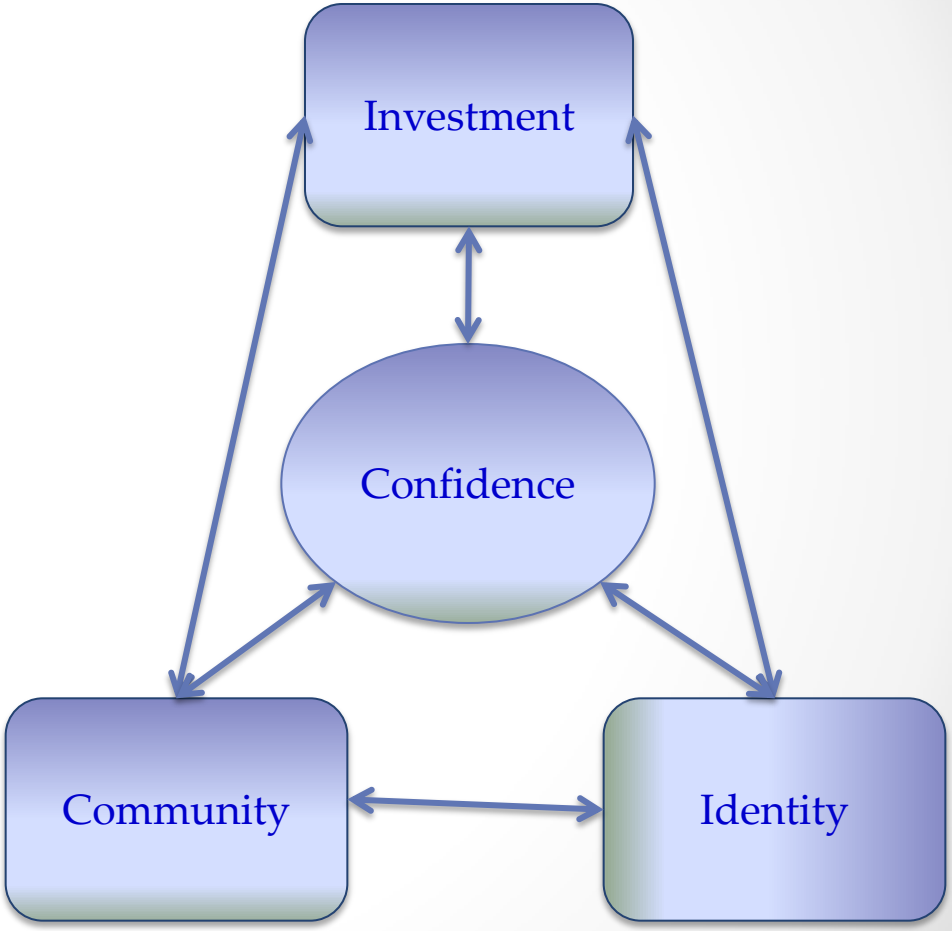
USE Aims

1. To identify whether the 2 psychometric instruments
   Performance Expectation Ladder (PEL)
   Academic Behavioural Confidence Scale (ABC)
   can successfully predict first year students at risk of withdrawing

2. To identify students' views on the interaction between confidence and engagement

USE: Background

- Foundation Student View (Sanders et al. 2012)
- Underlying uncertainty affects confidence in
  - investment as a student
  - identity as a student
  - in the student community



Grade	Mark [%]	For first year of course	Summer 2016 Graduation	PEL
A+	95-100			
	90-94			
A	85-89			
	80-84			
A-	75-79			
	70-75			
B+	69			
	68			
	67			
C+	59			
	58			
	57			UK mean mark
C	56			
	55			
	54			
F2	16-20			
	11-15			
F1	0-10			

USE Materials: ABC

Grades	Verbalising	Studying	Attendance
[2]Produce your best work under examination conditions	[3]Respond to questions asked by a lecturer in front of a full lecture theatre	[1]Study effectively on your own in independent / private study	[6]Attend most taught sessions
[7]Attain good grades in your work	[5]Give a presentation to a small group of fellow students	[4]Manage your work load to meet coursework deadlines	[12]Be on time for lectures
[10]Produce coursework at the required standard.	[8]Engage in profitable academic debate with your peers	[14]Plan appropriate revision schedules.	[17]Attend tutorials
[11]Write in an appropriate academic style.	[9]Ask lecturers questions about the material they are teaching, during a lecture	[15]Remain adequately motivated throughout.	
[13]Pass assessments at the first attempt.			
[16]Produce your best work in coursework assignments			

ABC Grades

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ABC Verbalising

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ABC Studying

- [1]Study effectively on your own in independent / private study
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ABC Attendance

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Data collection

HEI	Induction week	October	November
Task	Student briefing	Complete psychometric measures	Focus groups
LCF	n=300	n=193	3 (n=8)
CMU	n=600	n=356	3 (n=11)

NB Psychometric and focus group data are yet to be analysed

Conclusions

- Framework from Sanders et al. 2012 + analysis of certainty (confidence) in outcome happening and engagement
- Predicted and actuals will be compared following exam boards at both LCF and CMU
- If the findings support Sanders et al. (2012) the PEL and ABC measures would be useful for

  (i) identifying those at risk of withdrawing

  (ii) targeting support where it's needed most

Problems with carrying out simultaneous collaborative research in 2 establishments

- Problems with locating and liaising with relevant members of staff responsible for UG courses particularly at LCF
- Recruiting participants
- Synchronising data collection times

Discussion

- Issues behind student withdrawal
- PEL and ABC to identify and support students at risk
- Problems associated with prediction
- How to prepare for some of the challenges of collaborative research

- Questions please!