Widening access: Perspectives from the teaching profession

Rob Klassen and Lisa Kim

DREAMS workshop
13 February 2017
Four aims of this presentation

1. Examine the rationale for teacher selection
2. Explore the state of teacher selection in the UK
3. Describe new developments in teacher selection
   - Identifying cross-cultural attributes of teacher effectiveness
   - Developing theory-derived attributes
4. Propose next steps in teacher selection research
Average effect for major contributions to learning

<table>
<thead>
<tr>
<th>Contribution</th>
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<tr>
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Effect size descriptors for educational outcomes:
small = .20, medium = .40, large = .60

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<td>Teacher characteristics</td>
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The economic impact of variability in teacher effectiveness

- Value-added analysis targets the causal effects that teachers have on student achievement
- Economic impact of low-quality and high-quality teaching is immense
- The effects of having a teacher who is modestly more effective than another teacher (~1 SD in a measure of effectiveness) produces measurable differences in student lifetime earnings
- For the UK, even modest improvements in selection of 24,000 ITT candidates make a significant and noticeable difference to student—and social—outcomes for many years


Effective teachers have an immediate impact

A more effective teacher = $270,000 lifetime earnings gain per class

What happens to teacher effectiveness over time?

Well, there’s good news and bad news
Good news: Teachers become more effective with experience

Figure 1:
Student Achievement Returns to Teacher Early Career Experience, Preliminary Results from Current Study (Bold) and Various Other Studies

Bad news: Teachers' relative effectiveness doesn't change much

Atteberry et al., 2015. Do first impressions matter? AERA Open
Do teachers’ non-cognitive attributes change over time?

• Some non-cognitive attributes develop with training and professional development
  – e.g., self-efficacy and engagement increase with teaching experience (Klassen & Durksen, 2014)

• **BUT** student teachers low in motivation show persistent deficits in motivation in the first 8 years of a career (Watt, Richardson, & Wilkins, 2014)

• **AND** research shows that personality characteristics from childhood are (generally) stable and influence adult outcomes (Spengler et al., 2015)
The selection landscape in England

- 6% of 30,000 places unfilled
- 29% of physics training places unfilled
- (118% of history places filled)
- Academic qualifications: 75% of postgraduate entrants have an upper-second degree or higher (up from 63% in 2011)
- Lack of diversity of teaching workforce

National Audit Office (2016). *Training new teachers*
Widening access: The homogeneity of the teaching practice is an international phenomenon

- Ethnicity

Teaching profession fails to reflect multi-cultural student population

There is a severe shortage of ethnic minority professionals at every level of education, charity finds

Kate Hodge and Sarah Marsh
Thursday 19 November 2015 12.17 GMT

Ethnic minority professionals are under-represented at every level of education, according to a new report from youth employment charity Elevation Networks.

The report, which analysed research on employment in UK state-funded primary and secondary schools, found that last year just 6% of state primary school teachers and 9.9% of qualified and unqualified teachers in maintained secondary schools were from black, Asian and minority ethnic (BAME) backgrounds.
Widening access: The homogeneity of the teaching profession is an international phenomenon

- Ethnicity: 6% BAME teachers and 3% headteachers vs. 28% in student population)

- Gender: teaching workforce is 74% female

- SES: Teachers come from more diverse backgrounds in the UK than in comparator countries

- Selection into initial teacher education shows similar lack of homogeneity in other countries which collect these data (Finland, Ireland, Australia, Canada; however, the problem is less pervasive in the U.S.)
Consequences of a less diverse teacher population

• Educational impact of an absence of teachers from some groups on student from those groups (‘role model’ effect)

• Educational impact of absence of teachers from some groups on all students’ view of a multicultural society

• Diminished influence on educational practice and policy by less well-represented groups
Current state of prospective teacher selection

- There are about 450,000 teachers in mainstream, state-funded schools in England.
- About 24,000 newly-qualified teachers enter the profession annually, and about 300,000 teachers enter in other EU countries.
- Selection of teachers and prospective teachers is largely “ad hoc” and “un-tested” (Goldhaber, 2014).

Teacher attrition rates are high and increasing

Four in 10 new teachers quit within a year

Teachers union launches scathing attack on government's education policy, which has tripled the exodus of newly qualified teachers

‘Teachers are exhausted, stressed and burnt out in a profession being monitored to within an inch of its life.’ Photograph: Agencja Free/Alamy
Flows in and out of state-funded schools

Figure 3
Flows into and out of state-funded schools in 2014

- 23,930 newly qualified teachers
- 14,100 returners to state-funded sector
- 6,840 other
- 455,000 teachers in the workforce

- 44,870 entrants

- 10,500 retirees
- 31,350 leavers before retirement
- 42,050 leavers

Notes:
1. Other sources include qualified teachers from overseas and trainees who deferred entering the state-funded sector.
2. Entrants and leavers are for the period November 2013 to November 2014. The size of the workforce in November 2014 was 455,000.
3. The 42,050 leavers include 205 teaching teachers who died during the year.
4. All figures are full-time equivalent.

Source: Department for Education school workforce data
What should we include when we make decisions about selection?

UK House of Commons Education Committee, 2012

We welcome the concept of a test in interpersonal skills. Designing a test to find proxies for teaching aptitude poses a significant challenge. However, other professions and organisations have overcome similar challenges

Pasi Sahlberg, 2015, (Finnish education guru)

Selection to teacher education in Finland focuses on finding those individuals who have the right personality and interpersonal skills… to become lifelong educators
Contributions from the teacher to differences in student outcomes: three factors

<table>
<thead>
<tr>
<th>Factor</th>
<th>Effect size (d)</th>
</tr>
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<tbody>
<tr>
<td>Location of teacher training</td>
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<tr>
<td>Knowledge of subject</td>
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<tr>
<td>Teacher expectations</td>
<td>.43</td>
</tr>
<tr>
<td>Teacher-student relationships</td>
<td>.72</td>
</tr>
</tbody>
</table>

Improving teacher quality starts with improving selection of potential teachers

‘The Commission is taking stock of the situation regarding the training of teachers within the European Union (EU) and is identifying ways in which the existing arrangements can be improved’

‘The quality of teaching is a key factor in the achievement of the Lisbon objectives for social cohesion, growth and economic competitiveness’

Eurydice Report: Key data on teachers and school leaders in Europe 2013
Selection procedures across Europe vary across countries

Figure A5: Selection methods/criteria for access to initial teacher education. Pre-primary, primary and general (lower and upper secondary) education (ISCED 0, 1, 2 and 3), 2011/12

Certificate of final examination of upper secondary education
Performance at upper secondary level
A general entrance examination to tertiary education
Performance at bachelor level
A (written or oral) examination specifically for admission to teacher education
An interview specifically for admission to teacher education
Literacy and numeracy tests

Source: Eurydice.

Eurydice Report (2013): Key data on teachers and school leaders in Europe
Selection into teacher education hasn’t changed very much (and isn’t very evidence-based)

1. Review of **background factors** (qualifications, experience, references)

2. Evaluation of **cognitive factors**: evaluation of cognitive abilities, subject knowledge, numeracy and literacy skills

3. Evaluation of **non-cognitive** factors using interviews and personal statements

But interviews and personal statements are notoriously unreliable and little is known about the fairness and predictive validity of teacher selection methods
Teacher outcomes

Student outcomes

Teacher outcomes

Contextual factors
- Education system factors
- ITE program factors
- School factors

Learning opportunities

Teaching behaviours

Personal characteristics
- Cognitive attributes
  - Subject area knowledge
  - Intelligence
  - Literacy and numeracy skills
  - Pedagogical knowledge
- Non-cognitive attributes
  - Motivation
  - Personality
  - Emotional intelligence
  - Beliefs about learning potential (mindset)
- Background factors
  - Qualifications
  - Teaching experience
  - Related experience

Dynamic interaction model of the development of teacher effectiveness
How psychology (and other fields) can address the challenge of teacher selection

1. Organisational psychology
   Can provide methodological tools

2. Educational psychology
   Can provide useful theories

3. Selection research in business and medicine
   Provides a track record of systematic research into selection methods

4. Digital interactive technology research
   Can provide directions for next steps
Meta-analysis of teacher selection methods

Aim:

– To assess the validity of the methods used for selection of teachers for employment and prospective teachers entering initial teacher education (ITE) programs in predicting measures of teacher effectiveness

– To propose a theory-informed and practical framework for teacher selection

## Results (a)

<table>
<thead>
<tr>
<th>Variable</th>
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<th>CI lower limit</th>
<th>CI upper limit</th>
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<td>Dissertation</td>
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<td>.11</td>
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- 27 studies included
- Journal articles, dissertations, and published research reports
Correlation between validity and cost of selection method.

- Mean cost per candidate for selection = $86.77
- Relationship between cost of method and predictive validity \( (r = -0.16, p = .40) \)
Proposed framework for selection of teachers for training and professional practice.

<table>
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<th>Personal characteristics</th>
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<tbody>
<tr>
<td>Academic attributes</td>
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<tr>
<td>Subject area knowledge</td>
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<tr>
<td>Reasoning abilities</td>
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<tr>
<td>Literacy and numeracy</td>
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<tr>
<td>Pedagogical knowledge</td>
</tr>
<tr>
<td></td>
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**Corresponding selection methods**

<table>
<thead>
<tr>
<th>Academic records</th>
<th>Situational judgment tests</th>
<th>Record checks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasoning tests</td>
<td>Multiple mini interviews</td>
<td>References</td>
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<tr>
<td>Literacy and numeracy</td>
<td>Structured interviews</td>
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<tr>
<td>tests</td>
<td></td>
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Teacher selection project: Four project phases (2015-2020)

1. Developing selection tools based on practice and theory

2. Exploring longitudinal predictive validity of selection tools

3. Developing video-based (and VR) selection tools to select prospective teachers

4. Creating reliable, valid, and fair tools for selecting school leaders
Phase 1. Developing teacher selection tools based on practice and theory

Can we integrate inductive and deductive approaches to develop teacher selection methods?
Situational judgment tests (SJT)s

• SJTs are a measurement method designed to assess judgment in work-relevant situations:
  – Present challenging classroom situations
  – Candidates make judgments about possible responses
  – Scored against a pre-determined key
  – Show fewer inter-group differences than other selection methods
• SJTs often focus on non-cognitive attributes (derived from an inductive or deductive process)

Example. You’re teaching a class when (something complicated and difficult) happens. Rate the appropriateness of the following responses:

(a) Panic
(b) Call your mentor teacher
(c) Send the children home
(d) Manage the situation in a competent manner
Simplified conceptual model of how SJTs measure implicit non-cognitive attributes

Implicit trait policy:
Our judgments about what we would do in challenging situations reveal our motivation, personality traits, and behavioural patterns (Motowidlo & Beier, 2009)
Inductive development of non-cognitive attributes (2013-2015)

Step 1: Job shadowing
Step 2: Focus groups with stakeholders
Step 3: Initial domain rating questionnaire
Step 4: Review of target attributes

Phase 1: Identifying target attributes

- **Empathy & Communication**
  - Active listening, open dialogue, building relationships, demonstrates empathy

- **Organisation & Planning**
  - Manages competing priorities, displays time management, takes short- and long-term view

- **Resilience & Adaptability**
  - Resilient under pressure, ability to manage uncertainty, demonstrates judgment under pressure, can change lessons when required, confidence to make independent decisions

*Are these domains culturally invariant?*
Cultural context influences non-cognitive attributes

Cultural context
Shared beliefs, goals, values

Educational environment
Statutory educational standards
National educational expectations

Personal characteristics
Non-cognitive attributes (e.g., motivation, personality, beliefs, attitudes, dispositions)

Teaching behaviours
Teaching approach (e.g., teacher-centered, student centered)
Non-cognitive domains across cultures (2015-2020)

Finland

Cooperation and fostering community
Candidate recognizes the importance of building community within schools through cooperation with colleagues and families

Australia

Rural and remote sensibility
Candidate recognizes the importance of building community within schools through cooperation with colleagues and families

Oman

Professional values and ethics
Consideration of Omani and Islamic values; consideration of professional ethics

Integrating inductive and deductive non-cognitive attributes (2015-2020)

**Deductive attributes**
- Emotion regulation
- Conscientiousness
- Implicit theories of intelligence

**Inductive attributes**
- Resilience and adaptability
- Organisation and planning
- Empathy and communication
Proof-of-concept studies 2013-2016

Reliable → Yes (high $\alpha$)
Valid → Yes (concurrent validity)
Fair → Yes (no gender $\Delta^*$)
Acceptable → Yes (+ applicant feedback)
Easy-to-use → Yes (machine scorable)

*In Oman F>M

Proof-of-concept work completed in UK (Universities of York, Newcastle, and Cambridge) and Canada (Edmonton, Alberta and Vancouver, British Columbia)


Phase 2. Longitudinal predictive validity of selection methods

Challenge: How best to measure teacher effectiveness?

Currently: Evaluating measures of teacher effectiveness (supervisor observations, student ratings, teacher self-report) for implementation in 2017-2018

(Standardised outcome measures: CLASS teacher observation, Tripod student observation, student value-added achievement)
Phase 3. Developing video simulations for teacher selection

Challenge: *Can digital technologies improve fidelity (and predictive validity) of selection tools?*

Currently: Collaborating with Digital Creativity Labs at York to develop and test video SJTs
Phase 4. New approaches to selecting school leaders

Challenge: Can we improve the selection of school leaders, worldwide?

Currently: Building network with international partners and identifying funding for 2018/2019
Summary: Five key points

1. Choosing the right candidates for teaching is important
2. The evidence base for current teacher selection methods is not very strong
3. The homogeneity of the teaching profession is an international phenomenon
4. We can reliably and validly evaluate non-cognitive attributes for selection of new teachers
5. Research in the Education Department at York is focused on harnessing multiple disciplines to build knowledge and improve educational practices locally and internationally
Funding

2. University of York External Engagement Award (2012-2013)
3. European Research Council (2015-2020)
4. Saudi Arabia Education Evaluation Commission (pending): New approaches to developing teacher certification tests
5. ERC Proof-of-concept grant (submit 2017): Developing selection tools for educational leadership
Relevant publications


