University of Nottingham
UK | CHINA | MALAYSIA

Job title	Research Associate/Fellow	Job family and level	Research and Teaching Level 4 (Appointment will be Level 4 Career training grade where an appointment is made before PhD has been completed)
School/ Department	Education	Location	Jubilee Campus

Purpose of role

The Observatory for Mathematical Education will generate state-of-the-art, evidence-driven, and policy-relevant research to improve mathematics education and learner outcomes in England as well as longer-term benefits for individuals and society. Its remit stretches through primary and secondary education, to undergraduate study and postgraduate research in mathematics, and one of its focuses is on mathematical excellence.

The Observatory's research programme comprises three parts, the first of which is the analysis of secondary datasets (e.g. the National Pupil Database, Higher Education Statistics Agency) and panel surveys (e.g. the Millennium Cohort Study) within a secure Data Lab. The second part is the Observatory's three longitudinal cohort studies comprising national surveys and institutional case studies. The third area of the Observatory's work includes proactive and reactive projects (e.g. evaluations, interventions). The work programme will enable the Observatory team to explore how learner pathways and outcomes in mathematics education are impacted by social background, institutions, locations, policies, interventions, time, curriculum, teaching, parents and peer groups.

This role holder will contribute to all aspects of this work, with a particular focus on the national cohort studies. They will be involved in the management, cleaning, descriptive analysis and statistical modelling of large data sets, in collaboration with the Observatory team and senior researchers. They will also contribute to the annual design of research instruments for the cohort studies, and might also be involved in case study research, as appropriate. The role holder will support other Observatory projects as required.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time
1	**Research and data analysis** ▪ Generate, analyse and evaluate primary data, supporting survey design, case study research and other projects. ▪ Analyse, interpret and evaluate research findings based on secondary data sources (e.g. NPD, HESA). ▪ Support the delivery of original research of international excellence as part of the Observatory team and contribute to the achievement of the Observatory's research objectives. ▪ Plan and manage own research activity, in collaboration with Observatory colleagues, to meet Observatory deadlines for quantitative analyses.	75%

	▪ Assist in the delivery of the Observatory's research objectives and the Observatory's bids for research grant applications.		
2	**Engagement, Communication and Dissemination** ▪ Draft papers for publication in leading peer-reviewed journals and assist in the drafting of formal project reports for Observatory stakeholders. ▪ Contribute to the dissemination of the Observatory's findings at national/international conferences. ▪ Support the Observatory's other researchers through writing internal reports and participation in regular Observatory-wide research meetings.	15%	
3	**Administration and Personal Development** ▪ Contribute to the management and cleaning of the Observatory's primary and secondary data. ▪ Contribute to collaborative decision making with Observatory colleagues. ▪ Contribute to organising the Observatory's resources and facilities, and arrange meetings and workshops as appropriate. ▪ Engage with appropriate training and network with other quantitative researchers using official statistics and education data.	10%	

Person specification

	Essential	Desirable
Skills	▪ Ability to assess and organise resource requirements and deploy effectively. ▪ Ability to apply relevant research techniques, methods and models and data management. ▪ Ability to analyse and interpret data and reports to bring new insights. ▪ Excellent communication skills, including the ability to clearly communicate complex information in academic writing and presentations. ▪ Excellent organisational, time-management and multi-tasking skills. ▪ The ability to work independently and as part of a multidisciplinary team.	▪ Ability to foster a research team culture.
Knowledge and experience	▪ Expert knowledge of quantitative research methods and statistical techniques. ▪ Proven ability to produce research of high quality. ▪ Experience of working with large and complex datasets.	▪ Knowledge of approaches to dealing with missing data and multi-level modelling. ▪ Published papers in relevant academic journals. ▪ Experience of working as part of a research team.

	• Background knowledge of mathematics education in England. • Knowledge of relevant literatures. • Networking, actively engaging with and valuing other areas and diverse groups. • Experience of appropriate statistical computing software (e.g. R, Python).	
Qualifications, certification and training (relevant to role)	• PhD or equivalent in mathematics education, quantitative social science or similar (or close to completion).	• ONS approved researcher status.
Statutory/Legal requirements	• Satisfactory Enhanced disclosure obtained from the Disclosure and Barring Service.	

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

Valuing people   Is friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.

Taking ownership   Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.

Forward thinking   Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.
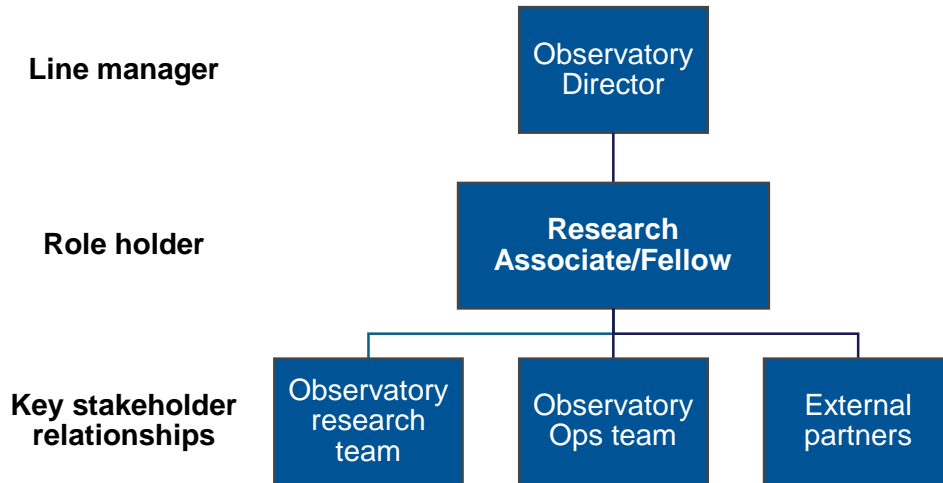
Professional pride   Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.

| **Always inclusive** | Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area. |

Key relationships with others

Line manager	Observatory Director
Role holder	**Research Associate/Fellow**
Key stakeholder relationships	Observatory research team · Observatory Ops team · External partners

![University of Nottingham logo — UK | CHINA | MALAYSIA]

Job title	Senior Research Fellow	Job family and level	Research and Teaching Level 5
School/ Department	Education	Location	Jubilee Campus

Purpose of role

The Observatory for Mathematical Education will generate state-of-the-art, evidence-driven, and policy-relevant research to improve mathematics education and learner outcomes in England as well as longer-term benefits for individuals and society. Its remit stretches through primary and secondary education, to undergraduate study and postgraduate research in mathematics, and one of its focuses is on mathematical excellence.

The Observatory's research programme comprises three parts, the first of which is the analysis of secondary datasets (e.g. the National Pupil Database, Higher Education Statistics Agency) and panel surveys (e.g. the Millennium Cohort Study) within a secure Data Lab. The second part is the Observatory's three longitudinal cohort studies comprising national surveys and institutional case studies. The third area of the Observatory's work includes proactive and reactive projects (e.g. evaluations, interventions). The work programme will enable the Observatory team to explore how learner pathways and outcomes in mathematics education are impacted by social background, institutions, locations, policies, interventions, time, curriculum, teaching, parents and peer groups.

This role holder will contribute to all aspects of this work, with a particular focus on the national cohort studies. They will be involved in the analysis and statistical modelling of large data sets, in collaboration with the Observatory team and senior researchers. They will also contribute to the annual design of research instruments for the cohort studies, and might also be involved in case study research, as appropriate. The role holder will support other Observatory projects as required, helping to shape the Observatory's research programme and collaborating on external funding applications.

	Main responsibilities (Primary accountabilities and responsibilities expected to fulfil the role)	% time
1	**Research and data analysis** ▪ Identify research questions and plan research projects which are relevant to the Observatory's aims, published literature and national policy discourse. ▪ Generate, analyse and evaluate primary data, supporting survey design, case study research and other projects. ▪ Analyse, interpret and evaluate research findings based on secondary data sources (e.g. NPD, HESA). ▪ Deliver original research of international excellence as part of the Observatory team and contribute to the achievement of the Observatory's research objectives. ▪ Seek and secure research funding in collaboration with other Observatory team members. ▪ Assist in the development of the Observatory's research objectives.	60%

2	**Engagement, Communication and Dissemination** ▪ Assist in the co-ordination of the Observatory's research and related administrative tasks, including liaising with external project collaborators. ▪ Publish results of research in internationally leading peer-reviewed journals and draft formal project reports for Observatory stakeholders. ▪ Establish your reputation nationally, by writing up research work for publication and contributing to the dissemination of the Observatory's findings at national/international conferences. ▪ Liaise regularly with the Observatory's leaders and other researchers through writing internal reports and participation in regular Observatory-wide research meetings.	30%
3	**Administration and Personal Development** ▪ Provide support, guidance and supervision to other staff and researchers within the Observatory team, where appropriate in own area of expertise. ▪ Engage with appropriate training and network with other quantitative researchers using official statistics and education data.	10%

Person specification

	Essential	**Desirable**
Skills	▪ Ability to advise on and manage a research programme, deploying resources effectively. ▪ Ability to create and apply relevant research techniques, methods and models. ▪ Ability to interpret data and reports to bring new insights. ▪ Ability to attract research funding. ▪ Excellent communication skills, including the ability to clearly communicate complex information in academic writing and presentations, and with external stakeholders. ▪ Excellent organisational, time-management and multi-tasking skills. ▪ The ability to work independently and support others as part of a multidisciplinary team.	▪ Previous success in gaining support for externally funded research projects. ▪ Ability to support early career researchers and develop a research team culture.
Knowledge and experience	▪ Expert knowledge of quantitative research methods and statistical techniques. ▪ Proven track-record in publishing research work of international quality in peer reviewed publications. ▪ Experience of presenting to national or international conferences. ▪ Experience of working with large, complex and sensitive datasets	▪ Knowledge of approaches to dealing with missing data and multi-level modelling. ▪ Experience of working as part of a research team and supervising colleagues.

	▪ Knowledge of mathematics education in England and of issues relating to student engagement, progression and participation. ▪ Knowledge of relevant literatures. ▪ Experience of appropriate statistical computing software (e.g. R, Python) ▪ Networking, actively engaging with and valuing other areas and diverse groups.	
Qualifications, certification and training (relevant to role)	▪ PhD or equivalent in mathematics education, quantitative social science or similar.	▪ ONS approved researcher status.
Statutory/Legal requirements	▪ Satisfactory Enhanced disclosure obtained from the Disclosure and Barring Service.	

Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University's strategy, vision and values. The following are essential to the role:

Valuing people

Is always equitable and fair and works with integrity. Proactively looks for ways to develop the team and is comfortable providing clarity by explaining the rationale behind decisions.

Taking ownership

Is highly self-aware, looking for ways to improve, both taking on board and offering constructive feedback. Inspires others to take accountability for their own areas.

Forward thinking

Driven to question the status quo and explore new ideas, supporting the team to "lead the way" in terms of know-how and learning.

Professional pride

Sets the bar high with quality systems and control measures in place. Demands high standards of others identifying and addressing any gaps to enhance the overall performance.

Always inclusive

Ensures accessibility to the wider community, actively encouraging inclusion and seeking to involve others. Ensures others always consider the wider context when sharing information making full use of networks and connections.

Key relationships with others

Line manager

Observatory Director

Role holder

Senior Research Fellow

Key stakeholder relationships

Observatory research team

Observatory Ops team

External partners