**Random Sampling – 17th December 2024:**

**Themes:** Support, Physical Centres, Techniques, Personnel, Focus of Research, Education Level, Sources of Research

**Thematic Analysis,** usingBraun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77-101

**UK:**

**026 – Croft & Grove, 2016**

* Postgraduates
* Mathematics and statistics support centres
* Workshops
* Universities
* Tutors
* Mathematics support tutors
* Mathematics and statistics support
* Mathematics support centres
* Sigma network
* Higher education
* “The mathematics problem”
* Drop-in session
* Support centre
* Maths anxiety
* Specific Learning Differences (SpLD)
* First-year student
* Community of practice

**103 – Solomon, Croft, Lawson, 2010**

* Mathematics support centres
* Undergraduate
* Support centres
* Transition to university
* Learning communities
* Community of practice
* Collaborative learning
* Higher education
* Learning resources centre – not the same as Maths support centre
* Tutor-student relationship
* Learning support centres
* Maths support centre
* Social learning

**The evolution of mathematics support: a literature review – Lawson, Grove, Croft, 2020**

* Mathematics support
* ‘Mathematics problem’
* **Mathematics support tutor**
* Higher education
* Higher education institutions (HEIs)
* Drop-in centre
* (Bookable) One-to-one appointment
* Organised mathematics support
* **Mathematics support provision**
* Universities
* Mathematics and statistics support
* Tutors
* Mathematics support literature
* Drop-in workshops
* Bridging courses
* **Undergraduates**
* **Academic staff/Departmental staff/Dedicated staff**
* Post-14 mathematics education
* Secondary education system
* Upper secondary mathematics education
* Specialist mathematics teachers
* **Core Mathematics**
* Degree/Degree course
* University freshmen (European Society for Engineering Education)
* Compulsory mathematics education
* **Retention rates**
* Consultation
* First-year undergraduates
* Foundation students
* Mathematics or statistics module
* Level 0,1,2,3,4 modules
* Postgraduates
* Undergraduate curricula
* First-class marks
* **Remedial support**
* ‘Shallow’ reasons
* Institutional VLE (Virtual Learning Environment)
* **Embedded support (opt-out model, rather than opt-in)**
* Peer to peer support
* MSC [mathematics support centre] tutors
* Further education
* Support centre tutoring
* **Tutor-student interactions**
* **Mathematics support manager/co-ordinator**
* **‘Access agreement’ (policy to get UK universities to provide support)**
* **Central support units**
* Student learning outcomes
* Diagnostic Tests
* **Learning management system**
* Student engagement
* **Sigma network**

**USA:**

**234 – Rickard & Mills, 2018**

* Tutoring centers
* Calculus I
* Student success
* Peer tutoring
* Student performance and retention
* Optional tutoring
* Mathematics Learning Success Center
* Drop-in tutoring
* 4-year research university
* GPA
* Tutoring attendance
* Self-selection bias

**183 – Byerley et al., 2020**

* Math tutoring centers
* College-level math support programmes
* Peer tutoring
* Universities
* Student success
* College students
* Math tutor centers
* Self-selection bias
* Tutoring
* Calculus II
* Tutoring center
* GPA
* Math tutor center administrators
* Tutor training
* Center leaders
* Calculus
* Students’ academic progression
* Extra credit
* Generalist tutor
* Specialist tutor

**Survey of mathematics tutoring centres in the USA – Mills et al, 2022**

* **Mathematics (tutoring) centres**
* Mathematics centre staff
* Universities
* **Entry level mathematics courses**
* Tutoring
* Undergraduates
* Mathematics support
* **General education courses**
* Major
* Instructors or graduate teaching assistants
* STEM retention
* Out-of-class resources
* Lower-division courses
* Drop-in or scheduled tutoring
* **Supplemental Instruction - similar to Peer Assisted Learning in other countries**
* Peer leaders
* **SI leaders**
* Recitation section/’drill’
* **Graduate Teaching Assistant (GTA) or ‘tutor’ in the UK…**
* Mathematics Emporium
* Mathematics support practitioners
* **Higher education**
* **Course coordinators/faculty**
* Tutors
* **For-credit tutor training course**
* **Academic success coaching**
* Just-in-time workshops
* Standardised or placement test preparation
* Academic integrity education
* Software to track student visits - AccuCampus, Peoplesoft, Qualtrics etc.
* Appointment-based tutoring
* Online Tutoring

**Performance Assessment for Mathematics Tutoring Centres – Johns et al., 2023**

* Mathematics (tutoring) centres or Mathematics support centres in the UK
* Tutors
* Tutor centres
* Centre usage data
* Universities
* GPA
* Centre leaders/leadership
* Staff/faculty
* One-on-one appointments
* Centre tutors
* Mathematics department faculty
* Observability (where tutor is physically present + observing students)
* GA (Graduate Assistant)
* Student managers
* Academic support group
* Directors + assistant directors
* Undergraduate tutors
* Pedagogy
* First and second year courses
* Standardized test scores
* Mathematics courses
* Drop-in services

**Ireland:**

**088 – Ní Fhloinn, 2009**

* Further and higher education programmes
* Mathematics educators
* Refresher courses
* Mathematics Learning Centre
* Higher education
* Undergraduates
* HE
* Universities
* Mathematics modules
* First year undergraduates
* Remedial assistance
* Drop-in support
* Diagnostic test
* Tutorials

**036 – Fitzmaurice et al., 2016**

* Mathematics Learning Support
* Tutor training
* University
* Irish Mathematics Learning Support Network (IMLSN)
* Workshops
* MLS teaching
* Higher education
* Higher education institutions
* One-to-one tuition
* Drop-in centres
* Postgraduate students
* Faculty members
* Tutors
* Student experience
* Self-directed learning
* Sigma
* Diagnostic testing
* Maths anxiety
* Mathematics support centre
* Student responses
* Mathematics tutoring
* Tutor content knowledge

**A scoping literature review of the impact and evaluation of mathematics and statistics support in higher education – Mullen et al.,**

* Mathematics and Statistics Support (MSS)
* Higher Education Students
* Higher Education Institutions (HEIs)
* Mathematics Support Centre (MSC)
* Tutoring/Learning Centres
* University
* **Third-level education**
* **Calculus centre**
* **Bridging courses**
* **Drop-in sessions**
* Drop-in support (in the studies where MSS was described as an MSC)
* Appointments
* Tutorials
* Workshops
* Timetabled teaching
* In-person learning
* **Peer tutoring**
* First-year, second-year…
* **Developmental or foundational mathematics classes**
* **Pre-institutional attainment**
* Institution attainment
* **Secondary-level mathematics**
* Student participation
* Self-selection bias
* MSS evaluation research
* MSS Practitioners
* Mathematics education researchers
* Statisticians
* STEM education
* ‘Mathematics problem’

**Australia:**

**130 – Cuthbert & MacGillivray, 2007**

* First-year
* Engineering
* Progression
* Completion rates
* Tertiary level
* University
* Learning support in mathematics and statistics
* Learning support centres
* Sigma
* Transition
* Maths Access Centre
* Undergraduates
* Postgraduates
* Diagnostic testing
* Optional support sessions
* Exam preparation workshops
* University

**Shearman et al., 2024**

* Diagnostic tool
* Numbas
* University
* Mathematics refresher program
* Engineering
* Workshops
* Support services
* Adaptive testing

**Germany:**

**069 – Liebendorfer et al., 2017**

* Dropout rates
* Tertiary education
* Mathematics support
* Universities
* Mathematics learning support
* Teacher education
* Tutorials
* Bridging courses
* Mathematics support centres
* Redesigned lectures
* Teaching quality
* Self-directed learning
* Higher education institutions
* WiGeMath

**288 – Biehler et al., 2018**

* Transition
* Bridging courses
* Universities
* Mathematical support centres
* WiGeMath
* Mathematics education
* E-learning
* Student goals
* Social contact

**Other:**

**192 – Dietsche (Canada), 2012**

* Post-secondary learners
* Compensatory resources
* Support services
* College students
* Community college
* Higher education
* Post-secondary education
* Peer tutoring
* First-year students
* On-campus services
* Learning support services
* Math skills center
* Student-faculty interaction
* Intrusive advising

**256 – Cameron, (New Zealand), 2024**

* Foundation mathematics
* Tertiary studies
* University
* Collaborative problem-solving workshops
* Support programs
* Calculus
* Prerequisite requirements
* Student engagement
* Pass rates
* Tertiary institutions
* Self-efficacy
* First-year tertiary studies
* Community
* Sense of belonging
* Computer-aided assessment
* STACK
* Tutors
* Self-paced learning

**International Collaboration:**

**077 – MacGillivray(Australia) and Croft(UK), 2011**

* Mathematics and statistics
* Learning support
* Communities
* Undergraduate
* Postgraduate
* Mathematics and statistics support unit or centre
* Drop-in assistance
* Diagnostic testing
* MSLS
* Bridging programmes
* Tertiary studies
* Higher education sector
* University
* PASS (Peer Assisted Study Support) Programmes
* Sigma
* Further education
* Extra optional assistance
* Mathematics support centres
* Mathematics learning centres
* CETL-MSOR, ICME, ICOTS, Delta
* Australian Bridging Mathematics Network (BMN)
* Student performance and progression
* Centre staff
* Higher education institutions
* MSLS facility/centre
* Workshops
* Data collection
* One-to-one help
* Centre managers
* Third level education
* Quantitative data
* Qualitative data

**258 – Rebenda et al. (Czechia, Norway, UK), 2024:**

* Mathematics and Statistics Learning Support (MSLS)
* Tutor training
* Mathematics and statistics support
* Pedagogic training
* Undergraduates
* Postgraduates
* Universities
* Drop-in centres
* Online provision
* Higher education institutions
* Higher education
* Pi Network
* Sigma

**Themes:**

1. **People**
2. **Support**
3. **Centres**
4. **Education Level**
5. **Focus of Research**
6. **Techniques**
7. **Sources**