

# Learning Communities in Mathematics

## Research interests in mathematics education at Agder University College

<b>1</b>	<b>Mathematics Classrooms</b>
	<b>a) Student/Mathematics/Curriculum/ Assessment (SMCA)</b>
	Drawing on and extending recent research in this area in the Curriculum 97 study of mathematical achievement:
SMCA 1:	What are students' mathematical conceptions in agreed curriculum areas? [Longitudinal + in-depth]
SMCA 2:	What are the factors contributing to students' mathematical progress with respect to the current Norwegian curriculum in mathematics? [Longitudinal + in-depth]
	<b>b) Mathematics Teaching: Knowledge and Approaches (MTKA)</b>
MTKA 1:	What knowledge do teachers bring to mathematics teaching at agreed levels and what approaches are used? [Longitudinal + in-depth]
MTKA 2	What is needed for teaching to develop to address SMCA 1 and 2? [Longitudinal + in-depth]
	<b>c) Inquiry in mathematical problem solving for students and teachers (IMP)</b>
IMP 1:	What are the issues that arise when teachers and didacticians prepare for and incorporate inquiry-based tasks related to the mathematics curriculum in whole class and small group learning?
IMP 2:	In what ways does students' participation in mathematical inquiry relate to their achievement in mathematics?
IMP 3:	What elements of the problem solving process can be identified in students' communication during enquiry based learning in small groups and whole classes at different levels of schooling?
<b>2</b>	<b>Language and Discourse in mathematics learning and teaching (L&amp;D)</b>
L&D 1:	How do mathematical concepts emerge in the instructional discourse of the classroom and what mathematical understandings can be discerned? (SMCA 1 and MTKA 1; IMP1 and 2)
L&D 2:	In what ways can cross-cultural perspectives and international studies provide insights into discursive practices in Norwegian classrooms?
L&D 3:	How can/should language and discourse become central to the planning and delivery of classroom mathematical activity? (SMCA 2 and MTKA 2)
<b>3</b>	<b>Information and Communications Technology in mathematics learning and teaching (ICT)</b>
ICT 1:	What roles does/can technology play in students' developing conceptions, competence and self-reliance in doing mathematics and solving problems? (SMCA 1 and 2; IMP 1)
ICT 2:	What is needed in terms of teachers' conceptions of technology use in developing teaching approaches for effective student learning of mathematics? (MTKA 1 and 2; IMP 2)
ICT 3	What hardware and software provision is needed to support development of concepts of teachers and students and the wider growth and application of mathematical knowledge and understanding.
<b>4.</b>	<b>Home-School Links and external factors in mathematics learning and teaching (HSL)</b>
HSL 1:	What aspects of mathematics feature in students' everyday lives? What influences on perceptions of mathematics and its learning and teaching can be discerned in students' homes and social settings.
HSL 2:	In what ways can mathematics as perceived in out of school environments inform the planning and orchestration of classroom mathematical activity? (SMCA 2 and MTKA 2)
<b>5.</b>	<b>Educational reform in mathematics in historical perspective (EMH)</b>
EMH 1:	What are the lines of tradition leading to current processes and systems in mathematics education and how do these relate to classrooms studied? (SMCA1, 2; TMKA 1, 2; IMP1, 2.)
EMH 2:	In what ways can international comparative evaluations (TIMSS, PISA) and international collaboration in mathematics education contribute to developing mathematics learning and teaching?
<b>6</b>	<b>Communities of Learning and Inquiry within mathematics learning and teaching. (CLI)</b>
CLI 1:	In what ways has this research involved each of its participants in reflection and inquiry and how has the inquiry nature of the research contributed to growth and development of learners within the project?
CKI 2:	In what ways has research capacity increased through the project and how might this be sustained in future learning and teaching improvement in mathematics?

**Table 1: Indicative research domains, questions and chief researchers**