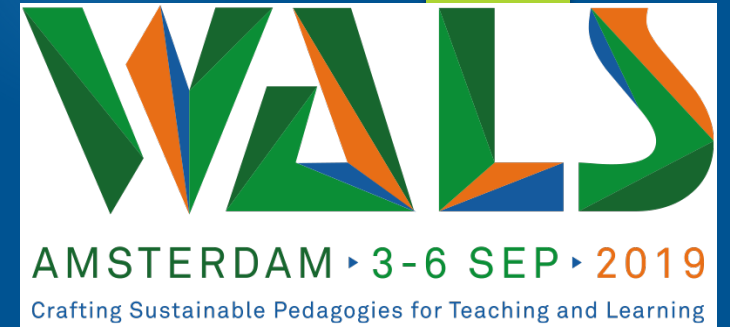
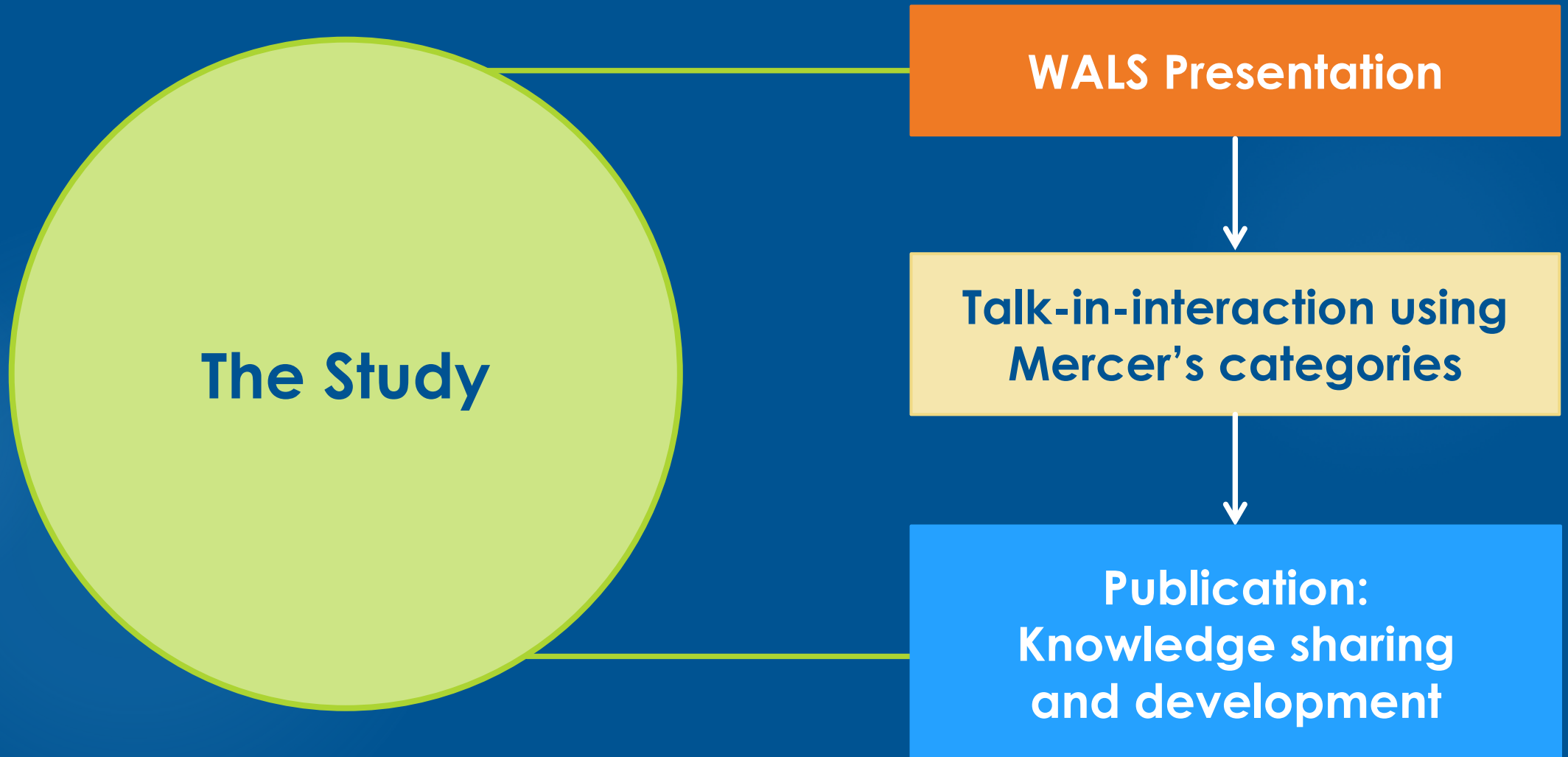


# Teachers' Interactions: Knowledge sharing and development through lesson study



L-Università ta' Malta  
Faculty of Education

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# Outline of the presentation

1. Aim of the presentation & research question
2. Related literature
3. The context, case study and lesson study process
4. Data collection & analysis
5. Findings and conclusions

# Aim of presentation

We started with the understanding that lesson study is a powerful teacher professional development approach (see Huang, Takahashi & Ponte, 2019) ...

To explore 'talk-in-interaction' of a group of teachers while being inducted in the process of lesson study

## Research question

*What patterns of 'talk-in-interaction' do these teachers exhibit as they collaborate on a lesson study project?*

# Related literature

- ▶ Learning is a social process in which new knowledge is socially constructed prior to any process of internalisation (Wells, 1999)
- ▶ Sociocultural learning theory considers both community and the context of teacher learning within education settings (Goos, 2014)
- ▶ Dialogic interaction is therefore a fundamental element of social and cognitive development (Bakhtin, 1981)
- ▶ Talk-in-interaction: an approach to describe, analyse and understand talk as a basic and constitutive feature of human social life (Sidnell, 2010)
- ▶ Talk amounts to action; talk and action are context-shaped (see Sacks, Schegloff & Jefferson, 1974)
- ▶ Teachers develop new knowledge through talk (Dudley, 2013)
- ▶ Disputational, cumulative and exploratory categories (see Mercer, 1995) to analyse student talk during collaborative work

# Mercer's categories of talk

TYPE	DEFINITION
<b>Disputational talk</b>	Characterised by disagreements with exchanges usually consisting of assertions or counter-assertions
<b>Cumulative talk</b>	Involves agreeing, confirming, validating one's statement or position aimed at reaching a common consensus
<b>Exploratory talk</b>	Incorporates conflict and the open sharing of ideas; represents the more 'visible' pursuit of rational consensus through conversation

# The school context

- ▶ Ability grouping (core subjects) in state secondary schools in Malta
- ▶ Teachers have a maximum teaching load of 25 lessons per week
- ▶ Students in the age range 11-16 years in co-education settings
- ▶ Lessons are approximately 40 minutes long
- ▶ Teachers generally prepare, teach and evaluate lessons in isolation
- ▶ Scheduled meeting time: one lesson per week (dept. meeting)

# The case study

- ▶ Qualitative case study methodology (see Yin, 2003) to explore a phenomenon by studying subjects through extensive and prolonged engagement (see Creswell, 2003) in lesson study

## The case

- ▶ A group of 8 from 11 mathematics teachers in a state secondary school in Malta
- ▶ Group led by James, who was previously also their head of department for six years (2010 – 2016)
- ▶ Teachers are used to work collaboratively (e.g.: designing and implementing formative assessment tasks; co-teaching)
- ▶ These teachers were new to lesson study

# The lesson study context

- ▶ Meetings were held once a week between March and May 2017
- ▶ Meetings were led by James who was also a participant
- ▶ James' role as a leader was to create a safe environment for sharing and challenging ideas
- ▶ Lesson study was focused on making mathematical connections between equations, sequences, functions and graphs
- ▶ Lesson was aimed at high-attaining Year 9 students (14-year olds)



# LESSON STUDY REPORT



## MAKING MATHEMATICAL CONNECTIONS

Report compiled and written by:

**JAMES CALLEJA**

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3<sup>rd</sup> July 2017

Making connections is what life is all about. This lesson study sheds light upon the advantages of shifting from isolation towards active teacher collaboration. Collaboration, as practised by these teachers, involves the sharing of expertise and experience, whilst reflecting upon what constitutes deep learning. Such projects provide further proof of the ability of teachers to create knowledge whilst enhancing their own professional development. All educators who are innovative and who work to achieve higher goals should be acknowledged and rewarded for their professional attainment.

GAETANO BUGEJA  
Director Learning and Assessment Programmes, MEDE

Creating partnerships with schools, collaborating with teachers as well as acknowledging and valuing their expertise are a priority for the Faculty of Education. This lesson study provides insights into how an initiative taken by James Calleja reaches out to teachers in schools and takes on a process which is beneficial to all those involved, especially learners. Furthermore, this professional learning process represents an example to be followed in other subject areas and within other institutions. This is a practical example of how a learning community is formed and of how one can make the most of all resources at one's disposal. It augurs well for the future and shows how the Faculty and teachers can indeed support one another.

SANDRO CARUANA  
Dean and Head of the Department of Languages and Humanities Education, University of Malta

Here we have a clear example of how CPD can lead to school improvement. James and his collaborators experience collegiality, programme integration, a developmental approach, data-based development and relevant learning activities. Two fundamental principles behind this initiative are strong leadership and support on the one hand, and that educators embarking in this exciting and fruitful experience believe that professional learning is a way of life. I encourage the reader to focus on what these educators have done to 'elevate the essentials' for improving students learning and get engaged in similar learning experiences.

CHRISTOPHER BEZZINA  
Deputy Dean and Head of the Department of Leadership for Learning and Innovation, University of Malta



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Or visit the Website:

www.clestum.com  
Collaborative Lesson Study Malta (CLeStuM)

<https://issuu.com/iblmaths>

# Data collection methods

- ▶ Video recordings of 9 face-to-face meetings

Transcribed participants' verbal interactions



- ▶ Observational field notes of face-to-face meetings

Detailed written descriptions of participants' behaviour and discursive patterns



- ▶ Online forum discussion (Facebook)

47 online posts consisting of a total of 192 participants' entries over a period of 2½ months  
30 of these 47 posts were initiated by James



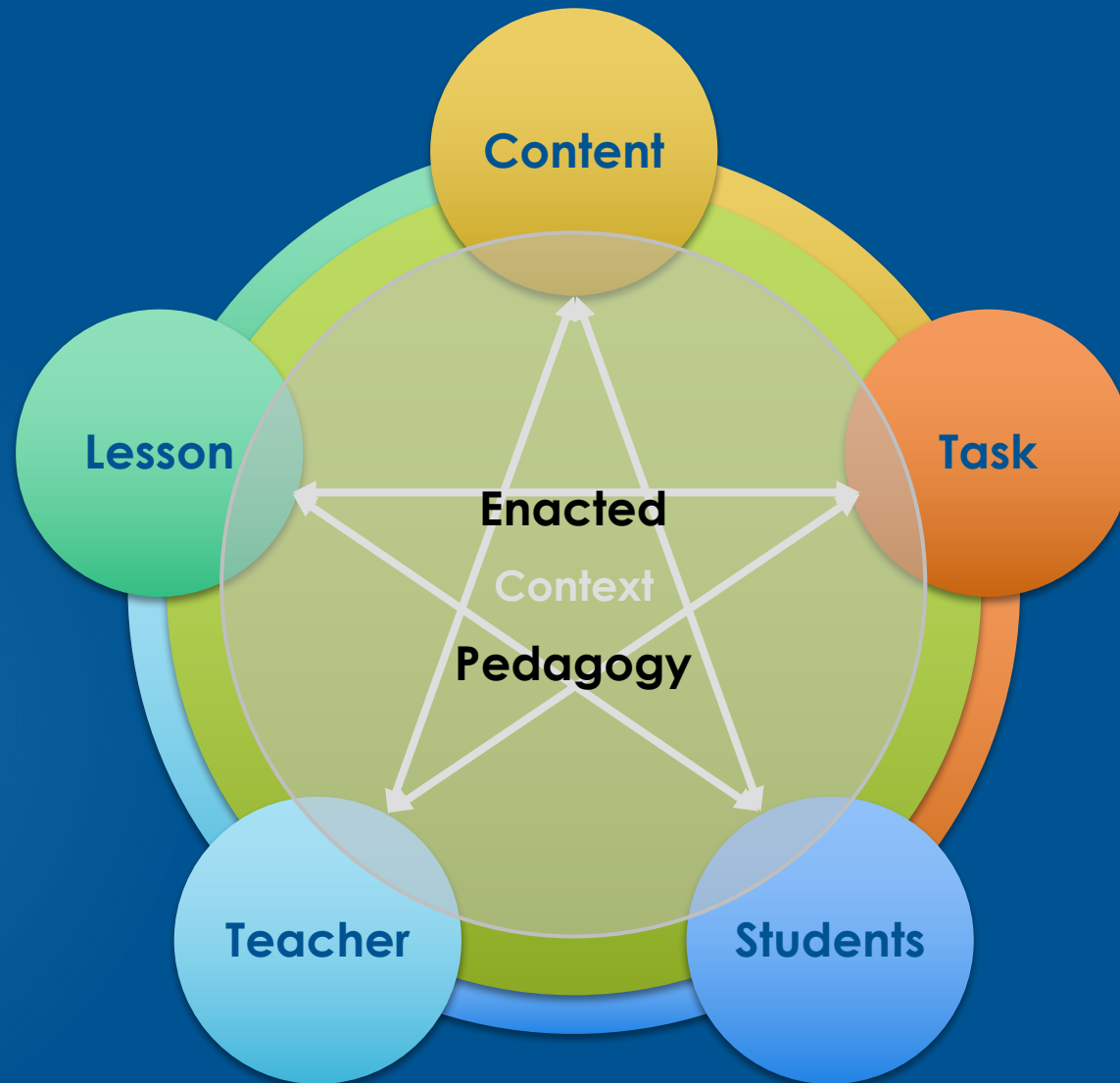
# Data analysis: Talk-in-interaction

- ▶ We select **episodes** from activities teachers participated in
- ▶ An episode consists of a **series of individual turns** usually lasting for a period of time (between 5 to 15 minutes)
- ▶ Transcripts were coded for both **content** and **type** of talk and then also classified according to the **aim of the talk episode**
- ▶ We analyse teacher talk by looking for **evolving patterns** within these interactions
- ▶ **Zooming in-and-out**: analysing individual turns followed by the whole episode and back to individual or short exchanges

# Findings: Talk-in-interaction

- ▶ **Data shows that talk-in-interaction was shaped by:**
  - ▶ Lesson study process
  - ▶ Facilitator's role
  - ▶ Beliefs, practices and past experiences of teachers
  - ▶ Contextual factors
- ▶ **The main features of talk-in-interaction were:**
  - ▶ An understanding of the lesson study process
  - ▶ A dialogue on mathematical content and pedagogy

# Findings: Talk-in-interaction



# Findings: Talk-in-interaction

## ► Teacher interactions

- Move from **disputational** (brainstorming ideas) to **cumulative** (agreeing on an idea) to **exploratory** (understanding how best to incorporate it within a lesson) talk
- Usually involve a mixture of two forms of talk, that is, **disputational-cumulative** or **cumulative-exploratory**

# Findings: Talk-in-interaction

	Disputational	Cumulative	Exploratory
Interaction thread	No thread: ideas just put on the table	Clear thread: ideas discussed at length but not in depth	Clear thread: ideas discussed in depth leading to other ideas
Exchanges and engagement	Short exchanges; occasionally between pairs	Both short and longer exchanges; usually involving more than just pairs	Long exchanges; usually involving most or all participants
Decision making	Individual: contributing ideas without linking them to others	Developmental: conversations leading to the improvement of an idea	Extrapolative: connecting familiar ideas to move to new ones

# Conclusions

## This study suggests that:

- ▶ Context is an integral part of teacher talk and when contextual features (possibilities and challenges) are embedded, tacit knowledge is revealed and developed
- ▶ Disputational talk, cumulative talk and exploratory talk all facilitate to explore the 'research problem', and to plan, teach and evaluate the lesson
- ▶ The facilitator has a key role to play in shifting disputational and cumulative talk to exploratory talk, as this is more productive in developing collaborative planning and learning

# Additional observations

- ▶ Other narratives are possible if different data analysis frameworks are used
- ▶ In a group culture supportive of collaboration, teachers can be readily facilitated into the lesson study process
- ▶ The lesson study process benefits from the presence of a trusted facilitator who is also an insider to the group culture
- ▶ The talk-in-interaction helps to externalise and build upon teachers' tacit knowledge

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