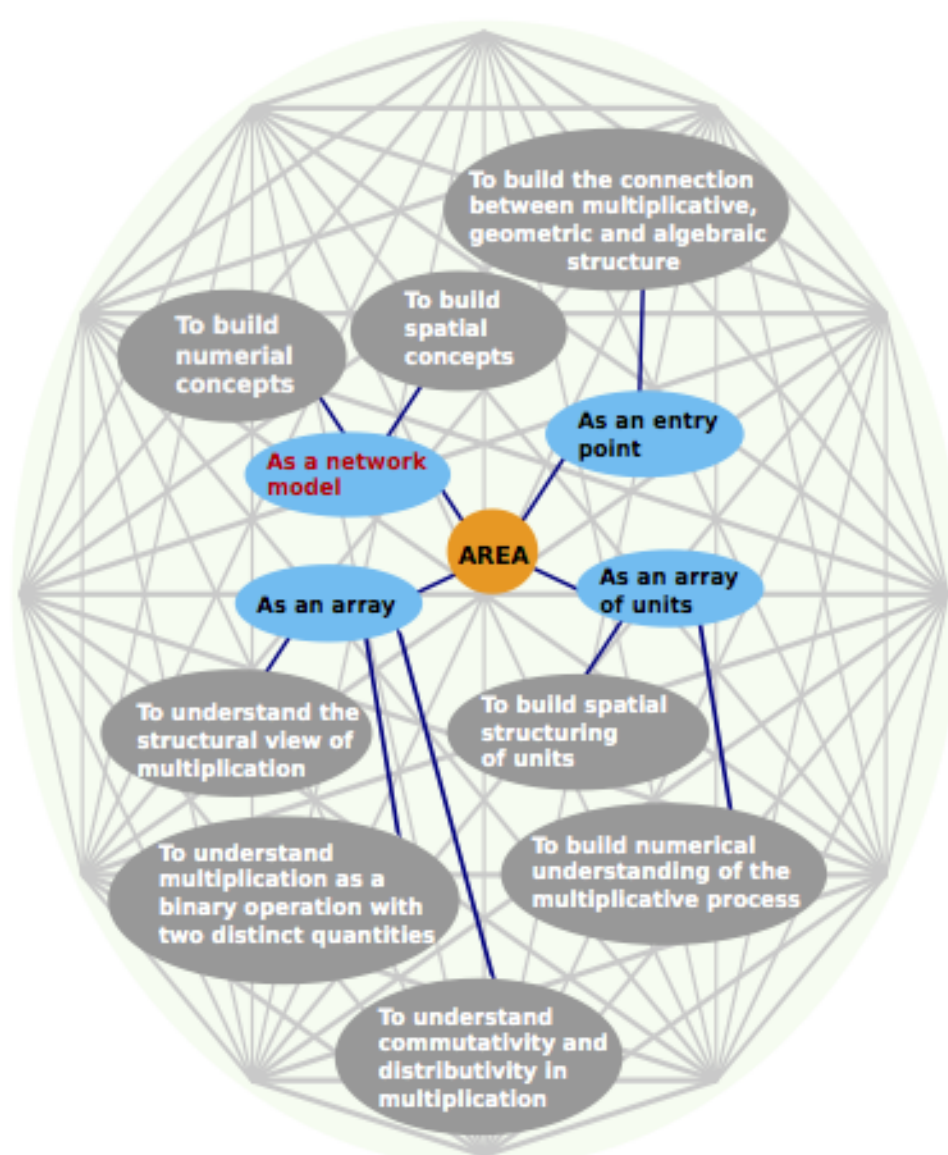


Network Model of Learning Area-Measurement



Network Model	Trajectory Model
Spiral Structure	Linear structure
Different concepts may be partially known	Partial knowledge not supported (considered as error or misconception)
Concepts are stable to different degrees	Assume stable concepts
Interconnections could be unstable	Integration of concepts not addressed



Task Based Interactions

Teaching Design Experiment



Experimental Studies

Manipulation Task



Target Task



Video data

Those with manipulation show more use of area based strategies

Eye-tracker data

Chunking strategy prevalent among students who did manipulation

