

## ON-LINE ARGUMENTATIVE STRUCTURE WHEN SECONDARY SCHOOL PRE-SERVICE TEACHERS ANALYSE MATHEMATICS TEACHING

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The ability to notice what is happening in the mathematics classroom and to endow it with meaning is critical in the process of learning the knowledge needed to teach mathematics. This study focuses on pre-service mathematics teachers' argumentative structure in online discussions when they are learning to notice characteristics of mathematical communication in the mathematics classroom (e.g. identifying regularities in mathematical communication in the classroom that may influence on mathematical learning). In relation to teacher learning, socio-cultural perspectives on learning emphasise that knowledge construction in collaborative settings is based on the nature and content of the discourse developed when (pre-service) teachers engaged in specific activities. In this process, (pre-service) teachers can create arguments as focal points around which the negotiation of meaning is organized through the interaction. We are interested in the components of the argumentative structure that could play a key role in helping pre-service teachers to create focal points around which the negotiation of meaning generated creating learning opportunities.

We use Toulmin's argumentation scheme (Toulmin, 2003) which indicate three major parts of an argument: the claim, the support, and the warrants. In this context, we assumed that there is a relationship between the construction of the arguments, the interaction and the building of knowledge about mathematical communication needed to teach. In this oral short communication, we describe two types of doubts to warrants that pre-service teachers use to challenge the arguments that their colleagues present. The doubts generated are focused on (a) the concordance between data and claims, and on (b) if the evidences (data) provided are enough to claim that there is a specific characteristics of mathematical communication. So, sometimes the warrant itself needs more evidences to support it and to make it more believable and other times it has to be revised. For this reason, the different doubts about presented warrants, invited pre-service teachers to be more explicit about how he/she understands the characteristics of mathematical communication. In this type of online interaction it was possible to build a shared knowledge about mathematics teaching. In this case, the role played by doubts is to focus the discussion on the validity of the warrants.

### References

Toulmin, S. (2003). *The Uses of Argument*. Cambridge University Press, UK.