

## Identifying Learning Support Patterns for Enhancing Quality Outputs in Massive Open Online Courses

**Authors :** Cristina Galván-Fernández, Elena Barberà, Jingjing Zhang

**Abstract :** In recent years, MOOCs have been in the spotlight for its high drop-out rates, which potentially impact on the quality of the learning experience. This study attempts to explore how learning support can be used to keep student retention, and in turn to improve the quality of learning in MOOCs. In this study, the patterns of learning support were identified from a total of 4202592 units of video sessions, clickstream data of 25600 students, and 382 threads generated in 10 forums (optional and mandatory) in five different types of MOOCs (e.g. conventional MOOCs, professional MOOCs, and informal MOOCs). The results of this study have shown a clear correlation between the types of MOOCs, the design framework of the MOOCs, and the learning support. The patterns of tutor-peer interaction are identified, and are found to be highly correlated with student retention in all five types of MOOCs. In addition, different patterns of 'good' students were identified, which could potentially inform the instruction design of MOOCs.

**Keywords :** higher education, learning support, MOOC, retention

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