

# **A macro perspective of the perceptions of the education system via topic modelling analysis**

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## **Abstract-**

Education quality has become an important issue and has received considerable attention around the world, especially due to its relevant repercussions on the socio-economical development of society. In recent years, many nations have realized the need for a highly skilled workforce to thrive in the emerging knowledge-based economy. They have consequently adopted strategies to identify the lines of action to improve the education quality. In response to the government's efforts to improve the education quality in Colombia, this study examines the current perceptions of the education system from the perspective of key local stakeholders. Therefore, we used a survey that contained open-ended questions to collect information about the limitations and difficulties of the education process for several groups of participants. The collected answers were categorized into a variety of topics using a Latent Dirichlet Allocation based model. Consequently, the students's, teachers's, and parents's answers were analyzed separately to obtain a general landscape of the perceptions of the education system. Evaluation metrics, such as topic coherence, were quantitatively analyzed to assess the modelling performance. In addition, a methodology for the hyper-parameters setting and the final topic labelling was presented. The results suggest that topic modelling strategies are a viable alternative to identify strategic lines of action and to obtain a macro-perspective of the perceptions of the education system.

**Index Terms-** Textual content analysis · Stakeholder perception · Text mining · Topic modelling · Educational system

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