chen_2020_what_are_moocs_learners_concerns_text_analysis_of_reviews_for_computer_science_courses

Year

2020

Author(s)

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Title

What Are MOOCs Learners' Concerns? Text Analysis of Reviews for Computer Science Courses

Venue

Lecture Notes in Computer Science

Topic labeling

Manual

Focus

Secondary

Type of contribution

Established approach

Underlying technique

Manual labeling

Topic labeling parameters

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Label generation

Table 2 displays the nine-topic STM results, together with the representative terms, topic proportions, as well as suggested topic labels.

Table 2. Topic summary.

Topic label	Topic proportion	Top words
Course levels	17.29%	Difficulty, medium, hour, spend, easy, hard, beginner
Learning perception	13.42%	Goodpretty, technical, introduction, clear, inspire, knowledge, overview
Course assessment	8.09%	Answer, unit, install, question, search, staff, figure, code, engine, wrong, final, solution, exam
Teaching style	6.83%	Didactic, interesante, informatics, explicate, explication, innovation, profound
Problem solving	12.00%	Programming, challenge, solve, assignment, algorithm, problem, note
Course content	8.47%	Regression, graphlab, analytics, classification, clustering, machine, neural
Course organization	18.41%	Creative, organize, fun, awesome, field, session, task
Critique	7.17%	Reversible, energy, computation, talk, free, poor, waste
Learning tools and platforms	8.31%	Git, github, watch, web, video, java, tool

Motivation

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Topic modeling

STM

Topic modeling parameters

Nr of topics: 3 to 25

Nr. of topics

9

Label

Single or multi-word manually assigned multi-word labels

Label selection

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Label quality evaluation

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Assessors

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Domain

Paper: MOOCs
Dataset: MOOCs courses & reviews

Problem statement

In MOOCs, course reviews are valuable sources for exploiting learners' attitudes towards the courses provided.
This study employed an innovative structural topic modeling technique to analyze 1920 reviews of 339 courses regarding computer science to understand what primary concerns the learners had.
Nine major topics, including *course levels*, *learning perception*, *course assessment*, *teaching styles*, *problem solving*, *course content*, *course organization*, *critique*, and *learning tools and platforms* were revealed.
In addition, we investigated how the identified nine topics varied across reviews with different ratings.

Corpus

Origin: Class Central
Nr. of documents: 1920
Details:

- Reviews from 339 courses

Table 1. Statistics of the review dataset.

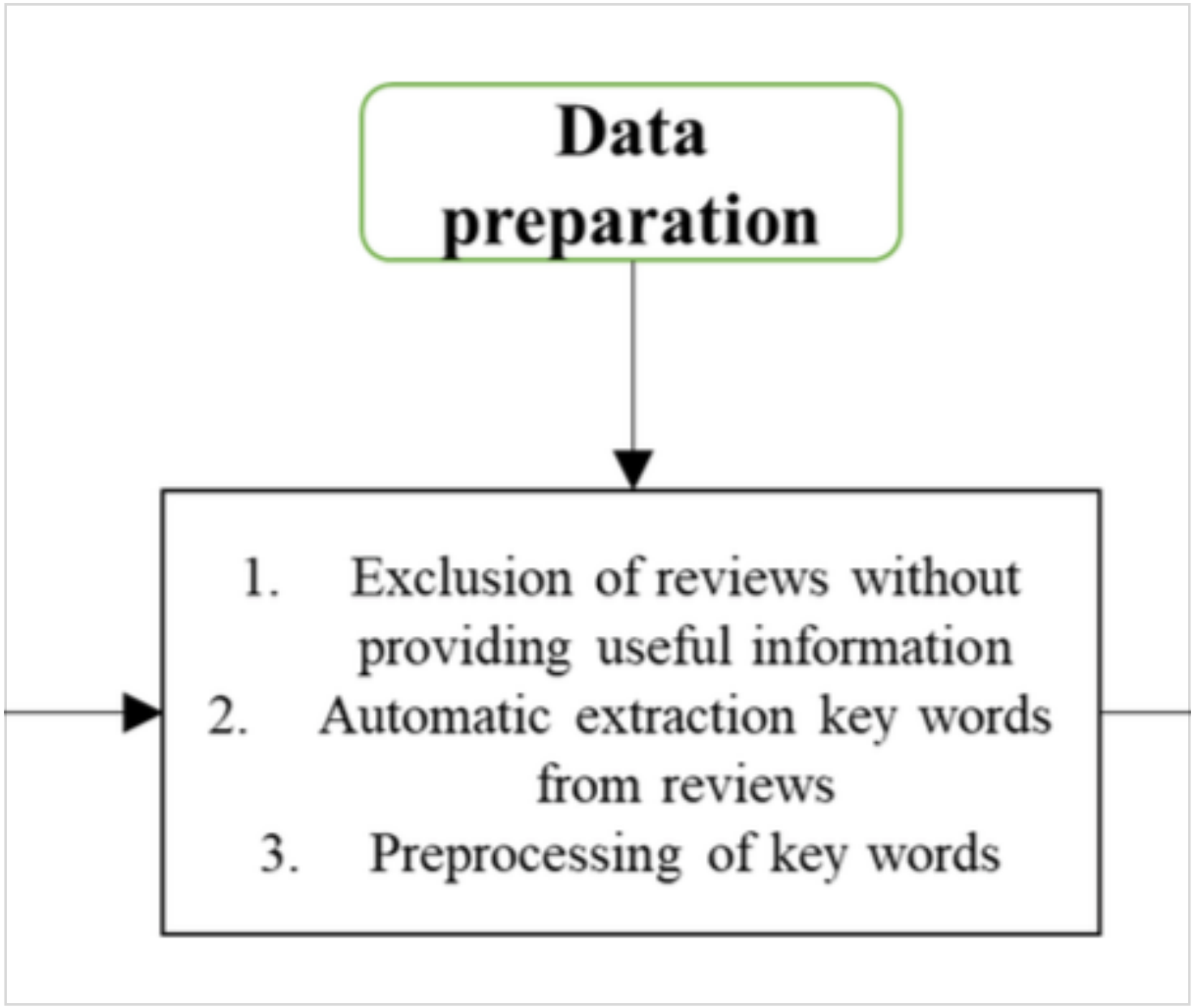
Items	Frequency	Percentage
Distribution of course grade (number of courses)		
Grade 1	20	5.90%
Grade 2	24	7.08%
Grade 3	45	13.27%
Grade 4	109	32.15%
Grade 5	141	41.59%
Distribution of course grade (number of reviews)		
Grade 1	177	9.22%
Grade 2	96	5.00%
Grade 3	94	4.90%
Grade 4	321	16.72%
Grade 5	1232	64.17%

Document

A course review, together with course metadata as well as corresponding review comments

Pre-processing

- extract key terms from comments
- unify terms with similar meanings.
- remove stop words (e.g., the, is, you, a), punctuations, and numbers.
- remove meaningless words (for example, add, get, one, lot, let, something, someone, sometimes, take, and anyone)
- filter unimportant words using term frequency-inverse document frequencies (TF-IDF)



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#Thesis/Papers/BS