Classroom education students to engage in productive discussions about elementary mathematics instructional videos using an online application

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Abstract

Despite their availability, ease of use, and the benefits they provide, videos are still rarely used in the education of our future classroom teachers. Although students prepare and implement lessons within the framework of teaching methodology courses, we noticed that they rarely and reluctantly comment on the lessons of their colleagues. The purpose of this action research was to improve the existing methodological practice by involving students in a productive discussion about videos of the initial mathematics lesson. A new online application was used for the discussion, which allows linking comments to the corresponding parts of the video, as well as creating and using different protocols for systematic observation of classes. In order to participate in the discussion about teaching, the students received methodical instructions on the features of quality elementary mathematics teaching and examples of university teachers' teaching comments. Six teams of five students participated in three debates during one semester. After each discussion, the teams commented on what was written based on pre-agreed criteria. At the end, each student independently had to write a commentary on the teaching video according to the structure proposed by Hemmeter et al. (2011). The research showed that the discussions were successfully carried out using the new online application. Based on the analysis of online discussions, we found that it was difficult for the students to focus on the important aspects of the lesson in the beginning. However, by the end, they were able to discuss the features of quality elementary mathematics teaching and give suggestions for its improvement. Considering the observed advantages, we believe it is necessary to consider the training of students to participate in productive discussions about teaching videos within Mathematics Methodology, as well as in other teaching methodology areas.

Key words

elementary mathematics, teacher education, teaching observation, technology, video

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Sažetak

Unatoč dostupnosti, lakoj uporabi i prednostima koje pružaju, videozapisi se još uvijek rijetko rabe u obrazovanju naših budućih učitelja razredne nastave. Premda studenti pripremaju i ostvaruju nastavu u okviru metodičkih vježbi, uočili smo kako rijetko i nerado komentiraju nastavu svojih kolega. Ovo akcijsko istraživanje je imalo za svrhu unaprijediti postojeću metodičku praksu uključivanjem studenata u produktivnu raspravu o videozapisima početne nastave matematike. Za raspravu je korištena nova online aplikacija koja omogućuje povezivanje komentara s odgovarajućim dijelovima videozapisa te izradu i uporabu različitih protokola za sustavno promatranje nastave. Za sudjelovanje u raspravi o nastavi studenti su dobili metodičke upute o značajkama kvalitetne početne nastave matematike te primjere komentara nastave sveučilišnih nastavnika. Šest peteročlanih timova studenata sudjelovalo je u tri rasprave tijekom jednog semestra. Nakon svake rasprave timovi su međusobno komentirali napisano na temelju unaprijed dogovorenih kriterija. Na kraju je svaki student samostalno trebao napisati komentar videozapisa nastave prema strukturi koju predlažu Hemmeter et al. (2011). Istraživanje je pokazalo da su rasprave uspješno ostvarene pomoću nove online aplikacije. Na temelju analize online rasprava utvrdili smo kako je studentima u početku bilo teško usredotočiti se na bitne aspekte nastave. Na kraju su bili u stanju raspravljati o značajkama kvalitetne početne nastave matematike te navesti sugestije za njeno unapređenje. S obzirom na uočene prednosti smatramo potrebnim povesti računa o osposobljavanju studenata za sudjelovanje u produktivnim raspravama o videozapisima nastave u okviru Metodike matematike ali i u drugim metodičkim područjima.

Ključne riječi

obrazovanje učitelja, početna nastava matematika, promatranje nastave, tehnologija, videozapis

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