



DATASET DESCRIPTION

The effectiveness of OER use in developing students' mathematical skills: A case study of first- and second-year higher education students in Chile

Werner Westermann

Instituto Profesional Providencia

wernerwestermannj@gmail.com

This study aims to examine the effect of the use of two Open Educational Resources (OER) (a Khan Academy online tutorial and an open textbook hosted on Wikibooks) with respect to the increase of logical-mathematical outcomes of first- and second-year higher education Chilean students. It also aims to uncover teacher and student perceptions about the use of OER in order to understand how these resources are used and valued. For these purposes, quantitative and qualitative methods were used to analyse student performance data and data produced from semi-structured interviews, focus groups and a survey.

The research process was comprised of a generation of an impact analysis database (regarding student's performance through grades in a blended-learning mode setting and grades plus attendance in a contact mode setting) followed by student focus group and teacher interviews that led to a student survey,. The published dataset does not include the student survey instrument and microdata, as access to this is restricted due to ethical constraints.

Findings indicate that students in a contact-study mathematics course who used a Khan Academy online mathematics tutorial obtained better examination results than students who did not use any additional resources, or those who used the open textbook. Moreover, it was also found that teachers and students have positive perceptions about the use of Khan Academy and Wikibooks materials.

This study is Sub-project 9 of the Research on Open Educational Resources for Development (ROER4D) project, hosted by the Centre for Innovation in Learning and Teaching (CILT) at the University of Cape Town, South Africa, and Wawasan Open University, Malaysia.

The interview data is in Spanish and the impact analysis database is in English. It is considered to be of potential interest to higher education and social science researchers (with a particular focus on Latin America and Chile), as well as policy-makers and advocates of open education policy and practice.

The file-naming convention adopted in this dataset categorises research instruments and associated microdata files by (1) research process, (2) research subject (i.e. whether teacher or student), (3) study mode (i.e. blended or contact), and (4) the artefact in question (i.e. whether Khan Academy, Open textbook). An overview of this categorisation is provided as Appendix A.

This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada, and is licensed under a Creative Commons Attribution 4.0 International (CC BY 4.0) licence.

Appendix A: Overview of research process components mapped to file descriptions, file names and language

Research process	File description	File name	Language
Student focus group	Instrument. Focus group schedule for the discussion with contact-mode students who utilised the open textbook.	ROER4D [SP9] focus group schedule - students - contact - open textbook	Spanish
	Instrument. Focus group schedule for the discussion with blended-mode students who did not utilise any additional resources.	ROER4D [SP9] focus group schedule - students - blended	Spanish
	Instrument. Focus group schedule for the discussion with contact-mode students who utilised the Khan Academy resource.	ROER4D [SP9] focus group schedule - students - contact - Khan	Spanish
	Microdata from the first focus group undertaken with contact-mode students who utilised the open textbook.	ROER4D [SP9] focus group data(a) - students - contact - open textbook	Spanish
	Microdata from the second focus group undertaken with contact-mode students who utilised the open textbook. [Note: A second focus group was conducted with this cohort due to the small number of participants who responded to the first call for participation.	ROER4D [SP9] focus group data(b) - students - contact - open textbook	Spanish
	Microdata from the focus group discussion undertaken with blended-mode	ROER4D [SP9] focus group data -	Spanish

	students who did not utilise any additional resources.	students - blended	
	Microdata from the focus group discussion with contact-mode students who utilised the Khan Academy resource.	ROER4D [SP9] focus group data - students - contact - Khan	Spanish
Teacher interviews	Instrument. Schedule for the interview with contact-mode teacher.	ROER4D [SP9] interview schedule - teachers - contact	Spanish
	Instrument. Schedule for the interview with blended-mode teacher.	ROER4D [SP9] interview schedule - teachers - blended	Spanish
	Microdata from the interview with contact-mode teacher.	ROER4D [SP9] interview data - teachers - contact	Spanish
	Microdata from the interview with blended-mode teacher.	ROER4D [SP9] interview data - teachers - blended	Spanish
Impact analysis database	Variable description of the impact analysis database for contact-mode students.	ROER4D [SP9] impact analysis variable description - students - contact	English
	Variable description of the impact analysis database for blended-mode students.	ROER4D [SP9] impact analysis variable description - students - blended	English
	Microdata on impact analysis data of contact-mode students.	ROER4D [SP9] impact analysis data - students - contact	English
	Microdata on impact analysis data of blended-mode students.	ROER4D [SP9] impact analysis data - students - blended	English