

An Investigation of Students' Proof Preferences: The Case of Indirect Proofs

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Abstract: This paper reports findings from an exploratory study regarding undergraduate natural sciences students' proof preferences, as they relate to indirect proof. While many agree that students dislike indirect proofs and fail to find them convincing, quantitative studies of students' proof preferences have not been conducted. The purpose of this study is to build on the existing qualitative research base and to determine if the identified preferences and conviction levels can be established as general tendencies among undergraduates. Specifically, the aim of the study is to explore two common claims: (1) students experience a lack of conviction when presented with indirect proofs; and (2) students prefer direct and causal arguments, as opposed to indirect arguments. The purpose of this preliminary report is to share findings from the proof preference pilot study.