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Consequences of FOIL for undergraduates.

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Summary: FOIL is a well-known mnemonic that is used to find the product of two binomials. We conduct a large sample ($n = 252$) observational study of first-year college students and show that while the FOIL procedure leads to the accurate expansion of the product of two binomials for most students who apply it, only half of these students exhibit conceptual understanding of the procedure. We generalize this FOIL dichotomy and show that the ability to transfer a mathematical property from one context to a less familiar context is related to both procedural success and attitude towards math.

Classification: C35 C25 D45

Keywords: mnemonic; transfer between context; mathematical concepts; conceptual understanding; attitudes
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