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On understanding and improving the teaching of university mathematics.

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Summary: Background: This paper reports on a professional development workshop in University level mathematics. The workshop was grounded in the first author's [How we think. A theory of goal-oriented decision-making and its educational applications. London: Routledge (2011; ME 2013d.00138)] theoretical approach, emphasizing the roles of Resources (primarily, knowledge), Orientations (primarily, beliefs), and Goals (R/O/Gs) as factors in teachers' "in the moment" decision-making. Participants characterized their R/O/Gs prior to instruction, bringing for discussion videotapes of their instruction that raised issues for them about their R/O/Gs or the choices they made during teaching. Results: For a surprisingly large percentage of these university mathematicians, the "mathematical correctness" of what they presented was a dominant consideration, to the point where it overshadowed other considerations. Conclusion: This gives rise to a conjectural characterization of three somewhat overlapping classes of teachers (university mathematicians, expert teachers, and proficient teachers), with the suggestion that professional development might profitably differ in the ways that it is targeted to these three groups.

Classification: D35 D45

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