Problem Facet	Specific Feature	Example(s)	Reference
Task	Clear purpose from the learner's perspective	Buying Tech Stocks Washington Shortest Route	Ainley, Pratt, and Hansen (2006): Purpose from the learner's perspective is quite different from purpose from the teacher's perspective. Attention to the former can make tasks more engaging for students.
	Multiple solutions, but an optimal one	Buying Tech Stocks Washington Shortest Route	No direct research links, but the speaker speculates that the appeal of optimization problems might be due to a good balance of challenge and choice, both of which seem to be associated with higher engagement according to Fredricks, Blumenfeld, and Paris (2004).
Digital Environment	Elements are tools for solving the problem (support purposeful activity)	Washington Shortest Route	Keren-Kolb (2013) points out that one way technology can enhance engagement is by supporting the transition from passive to active. The tools should support *purposeful* activity.
	Eliminates the need for tedious calculation	Find the Gini Coefficient Buying Tech Stocks	Ainley, Pratt, and Hansen (2006) argue that utility is a dimension of learning that shouldn't be ignored. Activities involving tools that remove the calculation burden from students help students see the utility of mathematics, even if they aren't completing calculations.
Feedback	Clear tracking of progress	Ordering Popular Pets	Hattie and Timperley (2007) note that successful feedback gives the learner information about the gap between the goal and the current state, and effort increases when belief in eventual success is high.
	Allows for purposeful experimentation	Buying Tech Stocks	Anderson (2007) notes that when students are able to develop their own strategies, they develop a positive mathematics identity, which can increase engagement with mathematics as a discipline.

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Want to be a reviewer, or want your students to be field testers? Contact us at either of the email addresses above!