

# The relationship between formative strategies, motivation and self-regulated learning

By Samantha G. Vos<sup>1</sup>, Kelly Beekman<sup>2</sup>, Rob L. Martens<sup>1</sup>, Renate H. M. de Groot<sup>1</sup> & Lisette Wijnia<sup>1</sup>

<sup>1</sup> Open University of the Netherlands, Educational Sciences, Department Conditions for Lifelong Learning

<sup>2</sup> Fontys University of Applied Sciences, Research Group Technology Enhanced Assessment

## Background

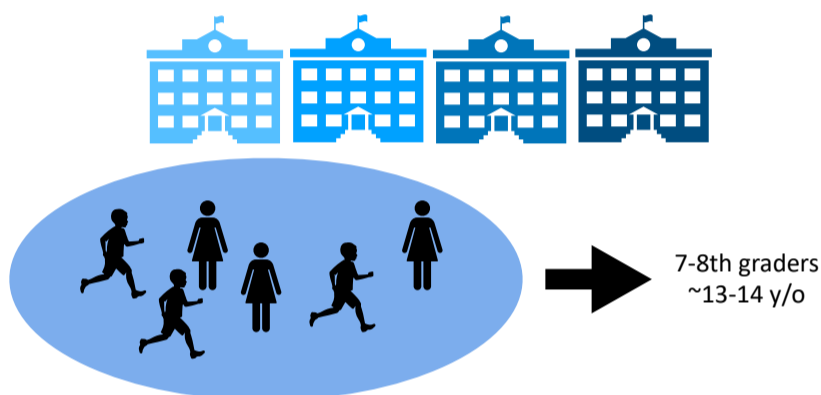
- Teachers can use formative strategies to stimulate learning in the classroom
- Using formative strategies improves autonomous motivation<sup>6</sup> and self-regulated learning (SRL)<sup>3,4</sup>
- Students who are more autonomously motivated are also more likely to engage in their learning
- How these three concepts interact with each other is not yet clear

## Research questions

1. What motivation profiles can we identify in our sample of Dutch secondary school students?
2. Does the perception of formative strategies affect SRL strategy use through motivation profile membership (indirect effects)?

## Study design & analyses

Secondary school students, N = 536

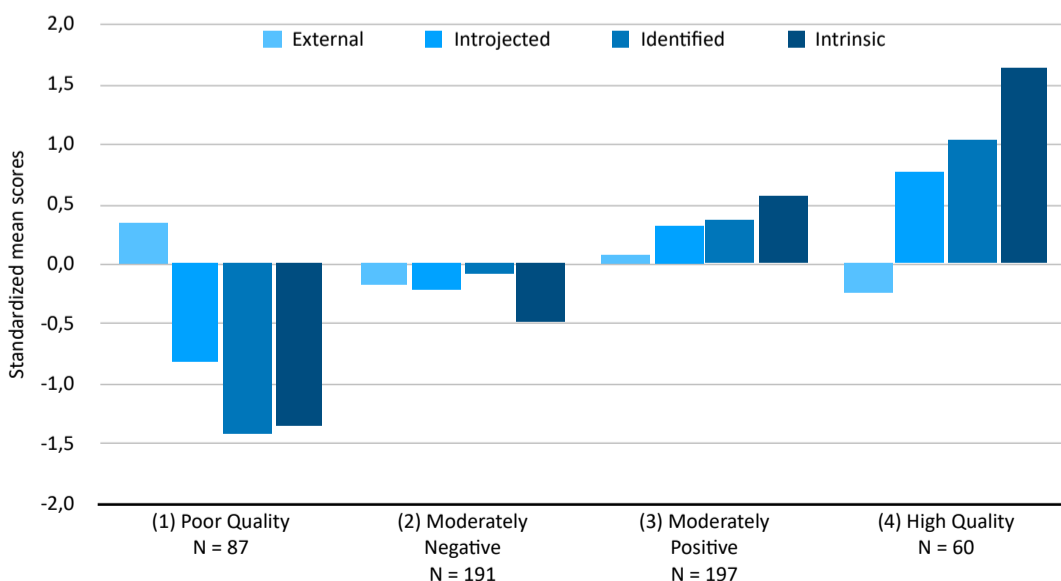


### Measures used in the survey

Formative Strategies <sup>5,6</sup>	Learning goals & success criteria (LSC) Eliciting evidence of learning (EE) Giving feedback (FB) Peer & self-assessment (PSA)
Motivation <sup>7</sup>	External Introjected Identified Intrinsic
SRL <sup>7</sup>	Task analysis Planning Surface learning strategies Deep learning strategies Monitoring Motivational strategies Persistence Self-efficacy (motivation & regulation) Self-assessment (product & process)

## Results

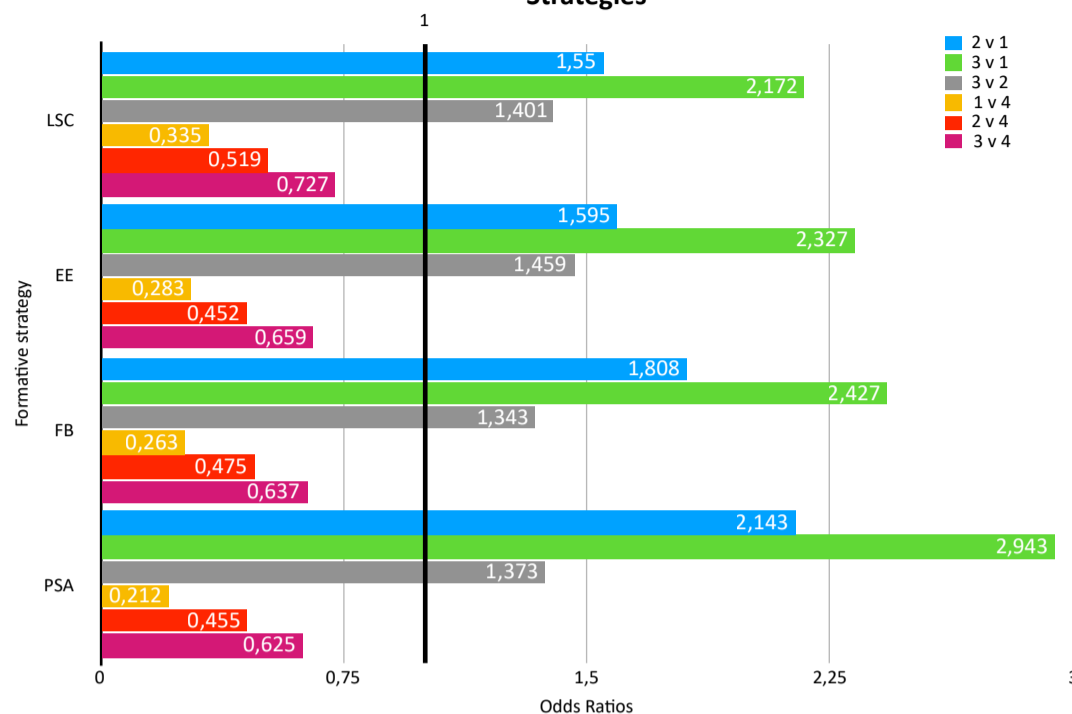
### Motivation Profiles



### References

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- <sup>4</sup>Clark, I. Formative Assessment: Assessment Is for Self-regulated Learning. *Educ Psychol Rev.* 2012; 24(2), 205–249.
- <sup>5</sup>Kippers, W. B., Wolterinck, C. H. D., Schildkamp, K., Poortman, C. L., & Visscher, A. J. Teachers' views on the use of assessment for learning and data-based decision making in classroom practice. *Teach Teach Educ.* 2018; 75, 199–213.
- <sup>6</sup>Leenknecht, M., Wijnia, L., Köhlen, M., Fryer, L., Rikers, R., & Loyens, S. Formative assessment as practice: The role of students' motivation. *Assess Eval High Educ.* 2021; 46(2), 236–255.
- <sup>7</sup>Vandeveld, S., Van Keer, H., & Rosseel, Y. Measuring the complexity of upper primary school children's self-regulated learning: A multi-component approach. *Contemp. Educ. Psychol.* 2013; 38(4), 407–425.
- <sup>8</sup>Wolterinck, C., Poortman, C., Schildkamp, K., & Visscher, A. Assessment for Learning: Developing the required teacher competencies. *EJTE.* 2022; 1–19.

## Likelihood of Motivation Profile Membership Based on Perception of Formative Strategies

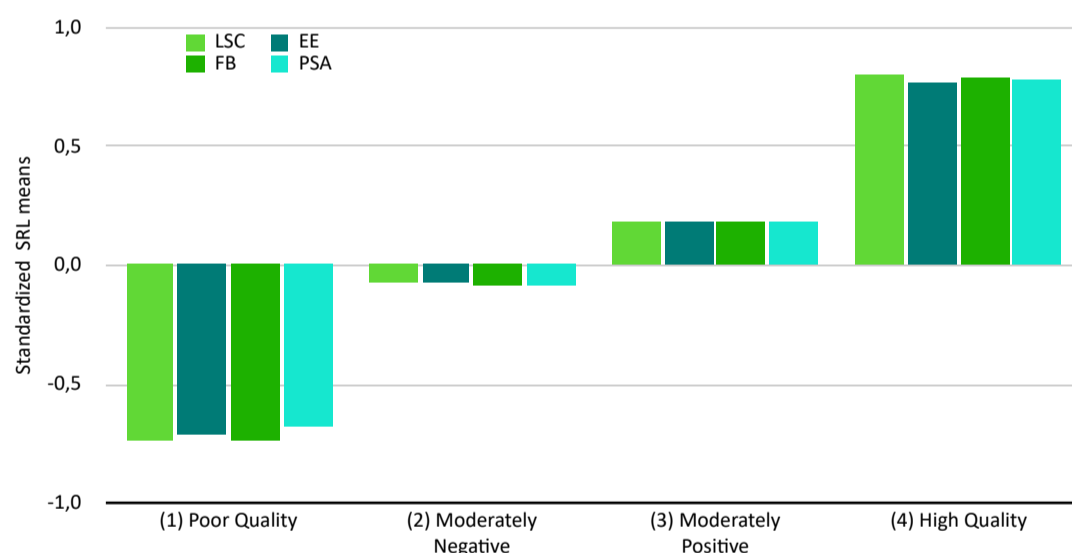


Note: All the odds ratios were significant. Odds lower than 1 indicate that profile membership is less likely in the first group. Odds higher than 1 indicate that profile membership is more likely in the first group.

For every 1 unit increase in perception of formative strategy use:

- Students had a 65% higher probability of falling into the Moderately Negative profile (2) compared to the Poor Quality profile (1)
- Students had a 46% higher probability of falling into the Moderately Positive profile (3) compared to the Poor Quality profile (1)
- Students had a 71% higher probability of falling into the Moderately Positive profile (3) compared to the Moderately Negative profile (2)
- The odds of falling into High Quality profile (4) compared to the other profiles also increased

### SRL Means Within Each Motivation Profile



Note: all the means were significant except for those in Profile 2. Mean profile differences were also significant.

## Discussion & Implications

- Students in the High Quality profile experienced higher levels of autonomous motivation, which was associated with a higher perception of formative strategy use and SRL
- Students in the Poor Quality profile experienced more external motivation which was associated with a lower perception of formative strategy use and SRL
- The (perceived) use of formative strategies predicts the likelihood that students will engage adaptive SRL strategies because they are more autonomously motivated to do so
- The perception of formative strategy use by the teacher has an impact on the type of motivation students experience and the extent to which they use SRL strategies as part of their learning process
- By taking the profile approach, we can look at how formative strategies affect motivation on a continuum and how qualitative differences in motivation influence SRL
- Formative strategies should be used as concrete tools for teachers to stimulate autonomous motivation and improve SRL in students
- Although this model is not causal, we can see how formative strategy use is empirically related to increased autonomous motivation and SRL



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