



HAL
open science

Measuring achievement goals: A methodological contribution based on mouse-tracking data

Alisée Bruno, Annique Smeding, Jean-Charles Quinton, Benoit Dompnier,
Céline Darnon

► To cite this version:

Alisée Bruno, Annique Smeding, Jean-Charles Quinton, Benoit Dompnier, Céline Darnon. Measuring achievement goals: A methodological contribution based on mouse-tracking data. 18th General Meeting of the European Association of Social Psychology, Jul 2017, Granda, Spain. . hal-01966803

HAL Id: hal-01966803

<https://hal.science/hal-01966803v1>

Submitted on 29 Dec 2018

HAL is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

Measuring achievement goals : A methodological contribution based on mouse-tracking data

Bruno.A¹, Smeding.A², Quinton. J-C³, Dompnier. B⁴, Darnon. C¹

Université Clermont Auvergne¹
 Université Savoie Mont Blanc²
 Université Grenoble Alpes³
 Université de Lausanne⁴



Introduction

Developing and sustaining students' motivation to learn represents an essential educational challenge for teachers, parents, and policy-makers alike, because this motivation should foster learning and achievement. [1]

Although it has been assumed that the motivation to learn – or mastery (approach) goal endorsement – and to perform better than others – or performance (approach) goal endorsement - predicts learning and achievement, findings are still inconsistent in the literature. One explanation may be related to response biases, and more specifically *social desirability bias*.

The aim of this research was to develop an implicit measure of mastery and performance goals by recording computer mouse movements. Mouse-tracking allows measuring participants' hand movements, which reflect underlying cognitive processes, including neural competition involved in decision making dynamics. [2]

In this study, Area Under the Curve (AUC) was used to measure implicit achievement goals. Convergent validity between the implicit measure and achievement goals' explicit, self-reported equivalent measures was tested.

Method studies 1 & 2

Participants. Study 1 : 142 psychology students (*Age* = 20.3, *SD* = 3.4) Study 2 : 133 psychology students (*Age* = 20.9, *SD* = 2.78)

1) **Pre-test**: 10 words for performance goals (**COMPETITION**) and 10 for mastery goals (**COMPREHENSION**), $\chi^2 (p < .05)$.

2) **Implicit measure (Imp)**.

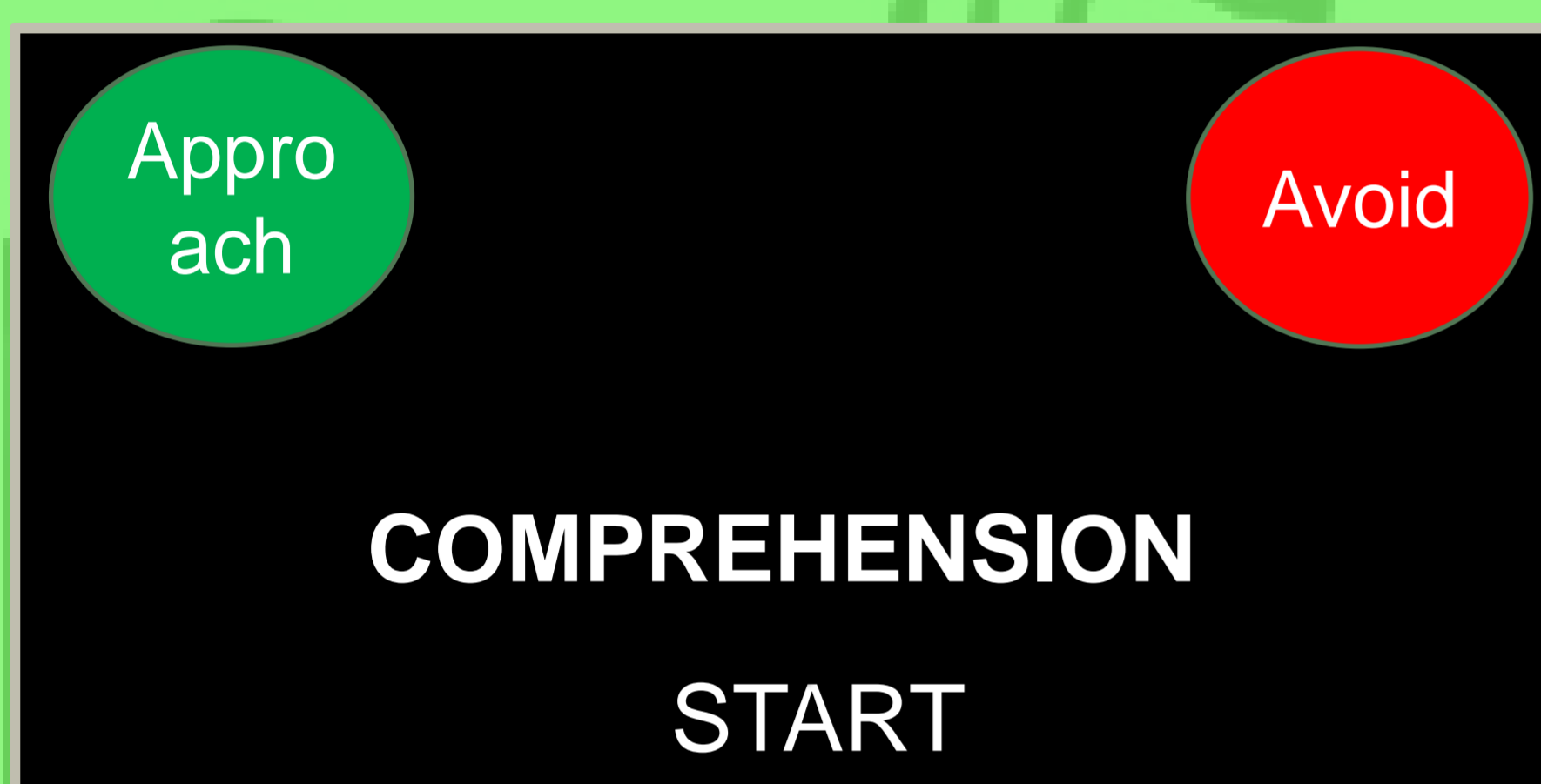


Figure 1. Sample item

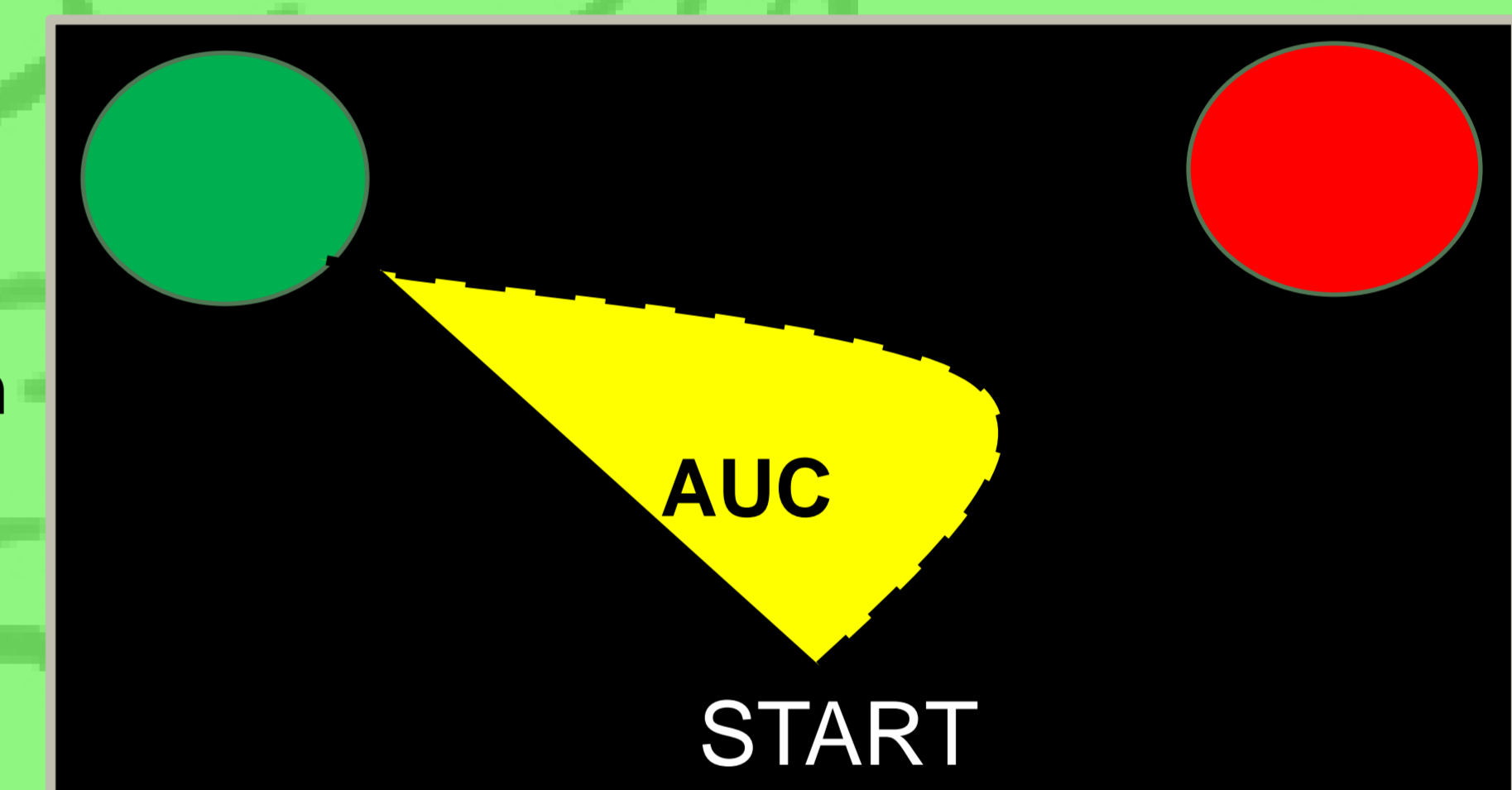


Figure 2. Sample illustration of the AUC

3) **Self report measure (Exp)**. 2x2 scale of achievement goals Elliot & Murayama (2008)

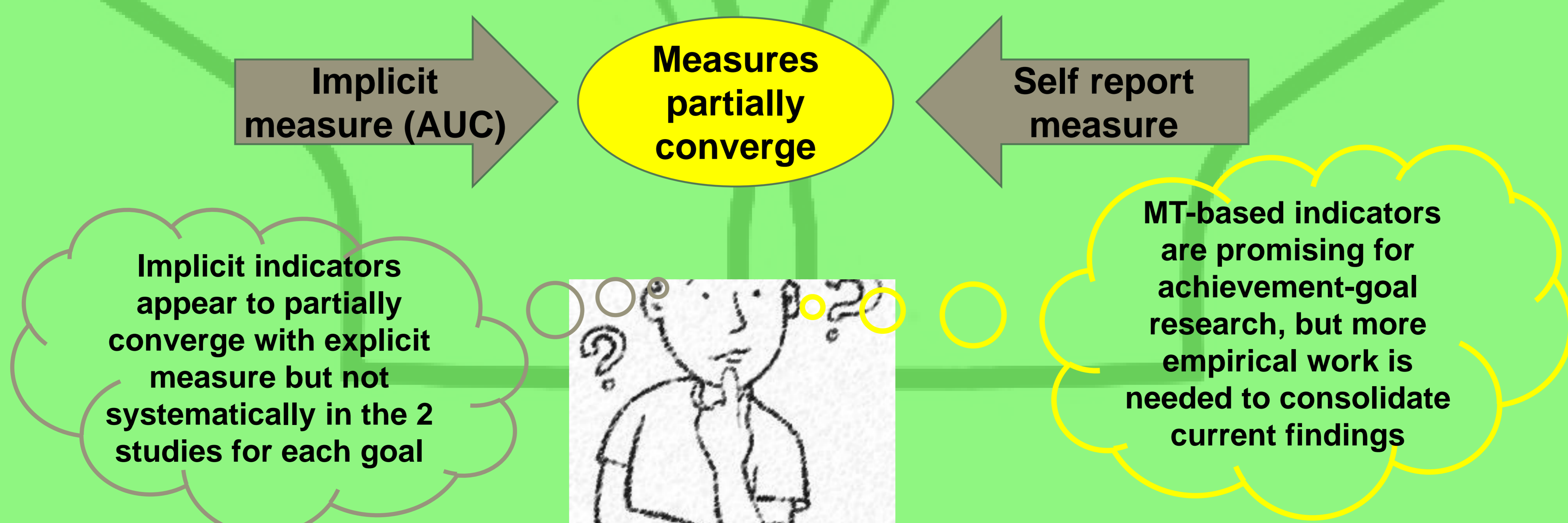
My goal is to learn as much as possible in my studies. 1 2 3 4 5 6 7

Results

Variables	Mastery-Implicit	Mastery-Explicit	Performance-Explicit	Performance-Implicit	AUC_Performance	AUC_Mastery
Mastery_Implicit	-	.14	.08	.05	.15	-.26**
Mastery_Explicit	.22*	-	.13	.09	.01	-.11
Performance_Explicit	.03	.26*	-	.50*	-.36**	-.23*
Performance_Implicit	.17	.17	.54**	-	-.42**	-.44**
AUC_Performance	.03	-.08	-.19*	-.38**	-	.34**
AUC_Mastery	-.24*	-.24*	.04	-.13	.50	-

Table 1. Values above the diagonal refer to the Study 1 / values below the diagonal refer to Study 2. * indicate significant correlations. $p < .05$ *. $p < .001$ **.

Discussion



[1] Hulleman, C., Bodmann. S., Schrager, M., Harackiewicz, J. (2010). A Meta-Analytic Review of Achievement Goal Measures: Different Labels for the Same Constructs or Different Constructs With Similar Labels? *Psychological Bulletin*, 136, 3, 422–449.

[2] Freeman, J. B. & Ambady, N. (2010). MouseTracker : software for studying real-time mental processing using a computer mouse-tracking method, *Behavior research methods*, 42 (1), 226-241.

[3] Elliot, A. J., Murayama, K., & Pekrun, R. (2011). A 3 × 2 achievement goal model. *Journal of Educational Psychology*, 103(3), 632–648.