

Explore your brain

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The growth-mindset intervention will result in more resilient and motivated learners and better school performance than the control intervention.

Ethische beoordeling	Niet van toepassing
Status	Werving gestopt
Type aandoening	-
Onderzoekstype	Interventie onderzoek

Samenvatting

ID

NL-OMON23440

Bron

NTR

Verkorte titel

TBA

Aandoening

No diseases. We want to stimulate a growth mindset, especially in students with a fixed mindset. Students with a fixed mindset are less resilient, and therefore have higher risk for adverse life events.

Ondersteuning

Primaire sponsor: European Research Council

Overige ondersteuning: European Research Council

Onderzoeksproduct en/of interventie

Uitkomstmaten

Primaire uitkomstmaten

Questionnaires (T0 versus T2 and T3):

- ability beliefs (mindset) [DeCastella & Byrne, 2015],
- school performance (global point average, math grade),

- school burnout inventory [Salmela-Aro, Kiuru, Leskinen, & Nurmi, 2009],
- effort beliefs (Blackwell, 2004),
- goal orientation [Elliot & Murayama, 2008],
- academic self-regulation [Ryan, R.M., & Connell, J.P. 1989].

Covariate in analyses: socio-economic status (SES) based on postal code.

Changes to methods after trial commencement (1):

The COVID-19 epidemic started in between T2 and T3. Because this is an unplanned major global event, with far-reaching (physical and psychological) consequences for the participating students due to lock-down constrictions, and larger than expected study drop-outs, we concluded that it was not feasible to reliably answer the original research question about the efficacy at the 2-year follow-up (T3). We did, however, add two new questionnaires (T3) with the aim to investigate the relation between mindset and resilience during covid, and the mediating role of coping mechanisms: brief Cope [Carver (1997), COVID-related stress Exposure (Veer et al., 2021). For these additional questionnaires, an amendment was approved by the local ethics committee (VCWE-S-21-00041). The results will be published elsewhere.

Changes to methods after trial commencement (2):

Parallel to this RCT, we conducted a Responsible Research and Innovation (RRI) framework study to improve the alignment between mind, brain, and education (MBE) research, the educational practice, and other societal stakeholders (). Part of RRI, is for researchers to be reflexive and responsive to the stakeholders needs and values and to integrate their perspectives in research projects. One of their perspectives was on the framing/focus of the intervention: on developing resilience & wellbeing, instead of maximizing grades. To address this as researchers, we decided to consider the school burnout inventory (SBI) and academic self-regulation (e.g. intrinsic motivation) as primary outcome measures in our RCT as well. To accommodate these changes (having equal number of primary outcomes), we considered self-efficacy and locus of control as secondary outcome measures.

Toelichting onderzoek

Achtergrond van het onderzoek

Students vary in their ability beliefs, ranging from believing their abilities are malleable with effort (growth mindset) to believing their abilities are unalterable (fixed mindset). Past research demonstrated benefits of psychosocial interventions in fostering growth mindset, motivation and grades in high school students. Although impressive, these benefits were relatively small and a remaining question is whether they endure. Our research group designed a growth-mindset intervention with the aim to further increase efficacy. We expect to realize this by combining psychosocial with psychophysiological techniques. The former adheres to previous studies, including classes on the theoretical background of ability beliefs and brain plasticity, while students apply these constructs to their daily life's. The latter is the

innovative part. We have developed a neurofeedback application, in which students experience actual control of their own brain. Neurofeedback is based on real-time feedback of brain activity measured with electroencephalography (EEG), for which we use portable EEG technology in 20 classrooms. We expect a synergy between psychosocial and neurofeedback classes, as both emphasize aspects of learning that one can control, while differing in how it is relayed (theoretical versus practical).

Doel van het onderzoek

The growth-mindset intervention will result in more resilient and motivated learners and better school performance than the control intervention.

Onderzoeksopzet

Pre (T0), direct post (T1), follow-up 1 year (T2), follow-up at 2 years (T3)

Onderzoeksproduct en/of interventie

In the growth-mindset course, students learn about brain plasticity (lesson 1), growth-mindset (lesson 2), neurofeedback (lesson 3), and how everything relates to their own school career (lesson 4). Most exercises involve active participation, such as performing a mirror-drawing task (lesson 1), reflecting on former fixed and growth-mindset reactions to challenging events at school (lesson 2), influencing a brain correlate of focused attention (theta/beta index) with EEG neurofeedback (lesson 3) and formulating SMART goals to implement a growth-mindset in school and mailing a postcard to their future selves (lesson 4).

In the control course, students learn about brain anatomy (lesson 1), brain illusions (lesson 2), brain imaging techniques (lesson 3) and brain myths and opportunities (lesson 4). Like the growth-mindset course, most exercises involve active participation, such as mirror-drawing and making a brain-hat (lesson 1), discussing various visual illusions, including ones in real-life (lesson 2), seeing, but not influencing, their own EEG brain waves (lesson 3), and participating in a neuromyth quiz and mailing a postcard to their future selves (lesson 4).

Contactpersonen

Publiek

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Wetenschappelijk

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Deelname eisen

Belangrijkste voorwaarden om deel te mogen nemen (Inclusiecriteria)

First grade Dutch high-school students (aged ~12 years); males and females; mavo, havo, havo/vwo, vwo, vwo+ (ranging from vocational to pre-university)

Belangrijkste redenen om niet deel te kunnen nemen (Exclusiecriteria)

All interested students in the participating schools are included, irrespective of for example psychiatric or physical disorders

Onderzoeksopzet

Opzet

Type:	Interventie onderzoek
Onderzoeksmodel:	Parallel
Toewijzing:	Gerandomiseerd
Blindering:	Enkelblind
Controle:	Geneesmiddel

Deelname

Nederland	
Status:	Werving gestopt
(Verwachte) startdatum:	28-01-2019

Aantal proefpersonen: 300
Type: Werkelijke startdatum

Voornemen beschikbaar stellen Individuele Patiënten Data (IPD)

Wordt de data na het onderzoek gedeeld: Nog niet bepaald

Ethische beoordeling

Niet van toepassing
Soort: Niet van toepassing

Registraties

Opgevolgd door onderstaande (mogelijk meer actuele) registratie

Geen registraties gevonden.

Andere (mogelijk minder actuele) registraties in dit register

Geen registraties gevonden.

In overige registers

Register	ID
NTR-new	NL7562
Ander register	European Research Council : 716736

Resultaten

Samenvatting resultaten

van Atteveldt, N., Tijlma, G., Janssen, T. and Kupper, F. (2019), Responsible Research and Innovation as a Novel Approach to Guide Educational Impact of Mind, Brain, and Education Research. Mind, Brain, and Education, 13: 279-287.
<https://doi-org.vu-nl.idm.oclc.org/10.1111/mbe.12213>