

# A DESIGN FOR EFFECTIVE ENTREPREURIAL EDUCATION

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**Co-promotoren: dr. J. Keizer**

**dr. P. De Bruyckere**



**Vraag 1: Waarom is ondernemerschapsonderwijs een topic op ResearchED?**

**Vraag 2: Is evidence-informed praktijk niet gekend en geïmplementeerd?**

**Vraag 3: Hoe kunnen we dagelijkse praktijk ondernemerschapsonderwijs effectiever maken?**

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	Belgium 2015		Netherlands 2015		Netherlands 2015	
	Value	Rank/60	Value	Rank/60	Value	Rank/49
<b>Self-perceptions about entrepreneurship</b>						
Perceived opportunities	40,3	36	48,4	22	66,7	7
Perceived capabilities	31,9	54	40,6	47	46,1	32
Fear of failure	48,5	58	33,2	21	34,7	25
Entrepreneurial intentions	10,9	44	9,4	47	7,7	40
<b>Activity</b>						
TEA	6,2	51	7,2	46	12,3	18
Established business ownership rate	3,8	52	9,9	15	12	10
Entrepreneurial employee activity (EAA)	6,1	12	6,3	10	7,9	4



Bedrijven:



**Vlaamse PIAAC 2016:**

- Sleutelvaardigheden 16-65j
- 8% Hoog opgeleiden te lage problem solving skills.
- Zelfregulering, leren, zelforganisatie veel gebruikt.



Medewerkers:

- Future proof skills
- Ondernemend gedrag
- Learning agility



Ondernemerschap:

- Innovatief

Wellbeing

**De Nederlandse ondernemerschap paradox**  
Arbeidsmarktregulering en ondernemerschap in Nederland.

Erik Stam

In de afgelopen 20 jaar is het aantal nieuwe bedrijven en zelfstandig ondernemers enorm toegenomen in Nederland. Deze ondernemerschapsevolutie is mede mogelijk gemaakt door overheidsbeleid. De Nederlandse economie is dynamischer geworden, met veel meer toetredende en uitredende bedrijven, en Nederland is zeker geen karretparadijs meer. Ook heeft de groeiende groep zelfstandigen zonder personeel voor flexibeler arbeid gezorgd, en heeft ze als een buffer gefungeerd tegen hoogoplopende werkloosheid. Met innovatie heeft dit niet veel te maken. De toename van ondernemerschap ging niet gepaard met een toename van innovatie: de Nederlandse ondernemerschap paradox. In dit artikel wordt uiteengezet hoe ondernemerschap wordt beïnvloed door arbeidsmarktregulering, met name op het gebied van werkloosheidsbescherming, sociale zekerheid en werkgeversbescherming. Ook wordt de categorie van ondernemerschap besproken, met name de verschillen tussen de categorieën zelfstandigen zonder personeel en zelfstandigen met personeel. Ten slotte worden de beleidsimplicaties besproken op het gebied van arbeidsmarktregulering en ondernemerschap.





Contents lists available at ScienceDirect

Journal of Business Venturing

journal homepage: [www.elsevier.com/locate/jbusvent](http://www.elsevier.com/locate/jbusvent)



## Switching to self-employment can be good for your health<sup>☆</sup>

Milena Nikolova

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### ARTICLE INFO

**Keywords:**  
Mental health  
Physical health  
Self-employment  
Difference-in-differences  
**JEL code:**  
I10  
J01  
J26

### ABSTRACT

Relying on theoretical insights from the Job Demand-Control model, which links occupational characteristics to health, this paper provides the first causal evidence of the physical and mental health consequences of self-employment. I utilize German longitudinal data for the period 2002–2014 and difference-in-differences estimations to study switches from unemployment to self-employment (necessity entrepreneurship) and transitions from regular- to self-employment (opportunity entrepreneurship). I find that necessity entrepreneurs experience improvements in their mental but not physical health, while opportunity entrepreneurship leads to both physical and mental health gains. Importantly, the health improvements cannot be explained by changes in income or working conditions and are not driven by personality and risk preferences or the local unemployment conditions. As such, the findings highlight an additional non-monetary benefit of self-employment and have implications for entrepreneurship theory and practice, current and would-be entrepreneurs, as well as policy-makers.



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## Entrepreneurship and well-being: The role of psychological autonomy, competence, and relatedness<sup>☆</sup>

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### ARTICLE INFO

**Keywords:**  
Entrepreneurship  
Well-being  
Self-organization  
Psychological needs

### ABSTRACT

Drawing upon the self-determination theory, we develop a two-stage multi-path mediation model in which psychological autonomy mediates the relationship between active engagement in entrepreneurship and well-being partially through its effect on psychological competence and relatedness. We test this model on a representative sample of 1837 working individuals (251 early-stage entrepreneurs) from Sweden. We find active engagement in entrepreneurial work tasks to be strongly associated with well-being relative to non-entrepreneurial work. Thus, we highlight the importance of individual self-organization—with autonomy at its core—which makes entrepreneurial work more beneficial in terms of basic psychological needs compared to other work alternatives.



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## Entrepreneurship and eudaimonic well-being: Five venues for new science

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### ARTICLE INFO

**Keywords:**  
Eudaimonic and hedonic well-being  
Entrepreneurial types  
Health  
Impact on others

### ABSTRACT

Researchers in entrepreneurial studies are increasingly interested in the psychological well-being of entrepreneurs. Approaches to well-being tend to be partitioned into hedonic and eudaimonic formulations. Most entrepreneurial studies have focused on hedonic indicators (life satisfaction, happiness, positive affect). The central objective of this essay is to examine the relevance of eudaimonic well-being for understanding entrepreneurial experience. The theoretical background and key dimensions of eudaimonic well-being are described and their relevance for entrepreneurial studies is considered. Illustrative findings from prior well-being studies are examined, also with emphasis on possible extensions to entrepreneurship. Five key venues for the entrepreneurial field are then considered: (1) entrepreneurship and autonomy, viewed both as a motive (self-determination theory) and as an aspect of well-being (eudaimonic well-being theory); (2) varieties of entrepreneurship (opportunity versus necessity) and eudaimonic well-



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**THE EFFECTIVENESS OF ENTREPRENEURSHIP EDUCATION:  
REEXAMINING FIVE META-ANALYSES.**

Bart Derre<sup>1</sup>, Pedro De Bruyckere<sup>2</sup>, Jimme Keizer<sup>3</sup>, Mathieu Weggeman<sup>4</sup>

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- 1. Education in general and entrepreneurship education, in particular, can have an impact on various outcomes,**
- 2. From the reported statistical heterogeneity of the  $I^2$  value, it can be concluded that there is high systematic heterogeneity that is not attributable to change.**
- 3. This systematic high statistical heterogeneity may be due to methodological and/or pedagogical heterogeneity of the included individual studies (Melsen et al, 2013). The results of this systematic literature review show that both elements play a role.**



**These findings also confirm Hattie's (2015) position on the importance of within-school variability and its impact on students' learning for entrepreneurship education:**

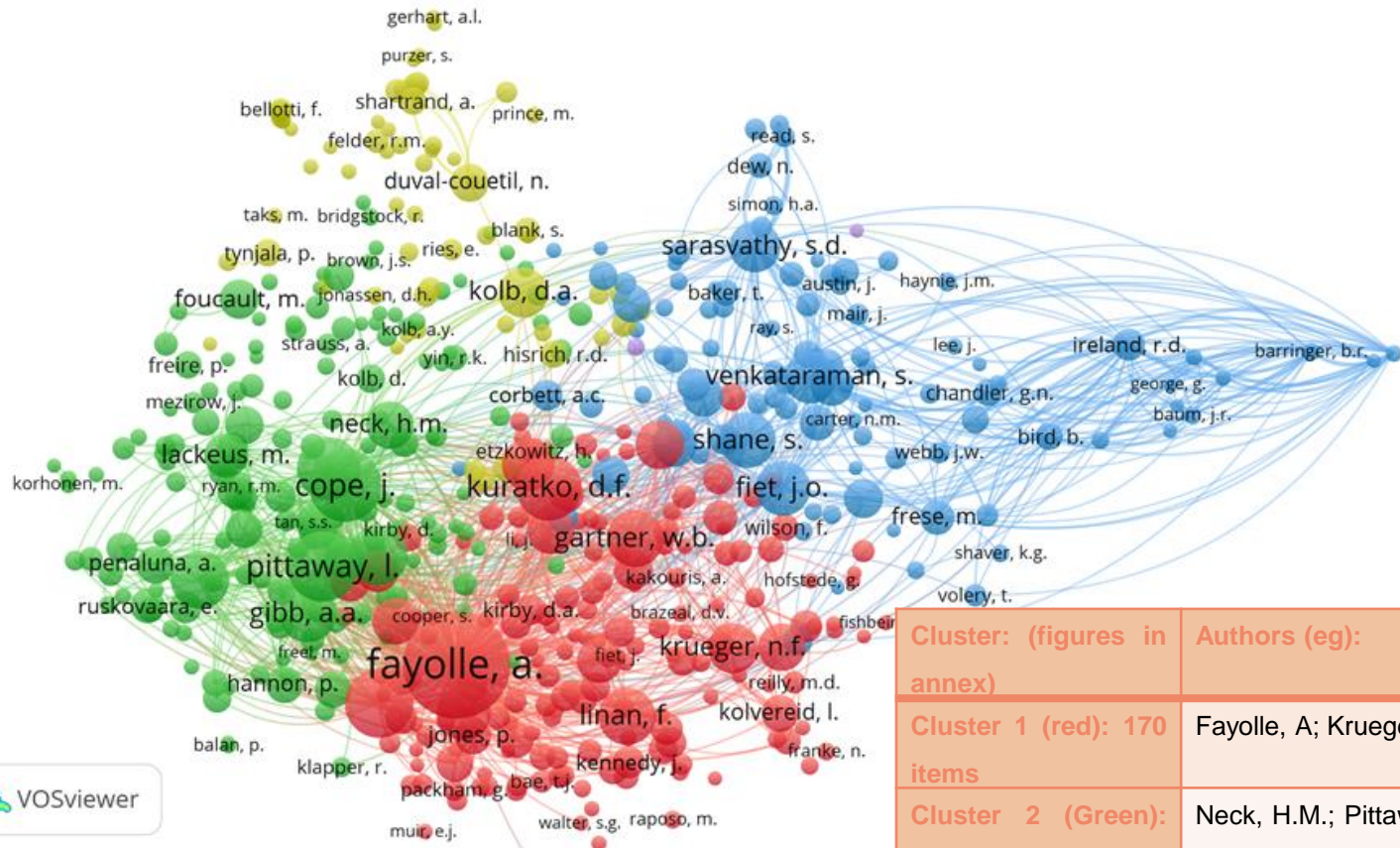
**' There are many causes of this variance within schools, but I would argue that the most important (and one that we have some influence to reduce) is the variability in the effectiveness of teachers. I don't mean to suggest all teachers are bad: I mean that there is a great deal of variability among teachers in the effect that they have on student learning. This variability is well known but rarely discussed, perhaps because this type of discussion would necessitate potentially uncomfortable questions. Hence the politics of distraction are often invoked to avoid asking them' (p.1).**



**Waar ligt de root cause van deze variabiliteit...**

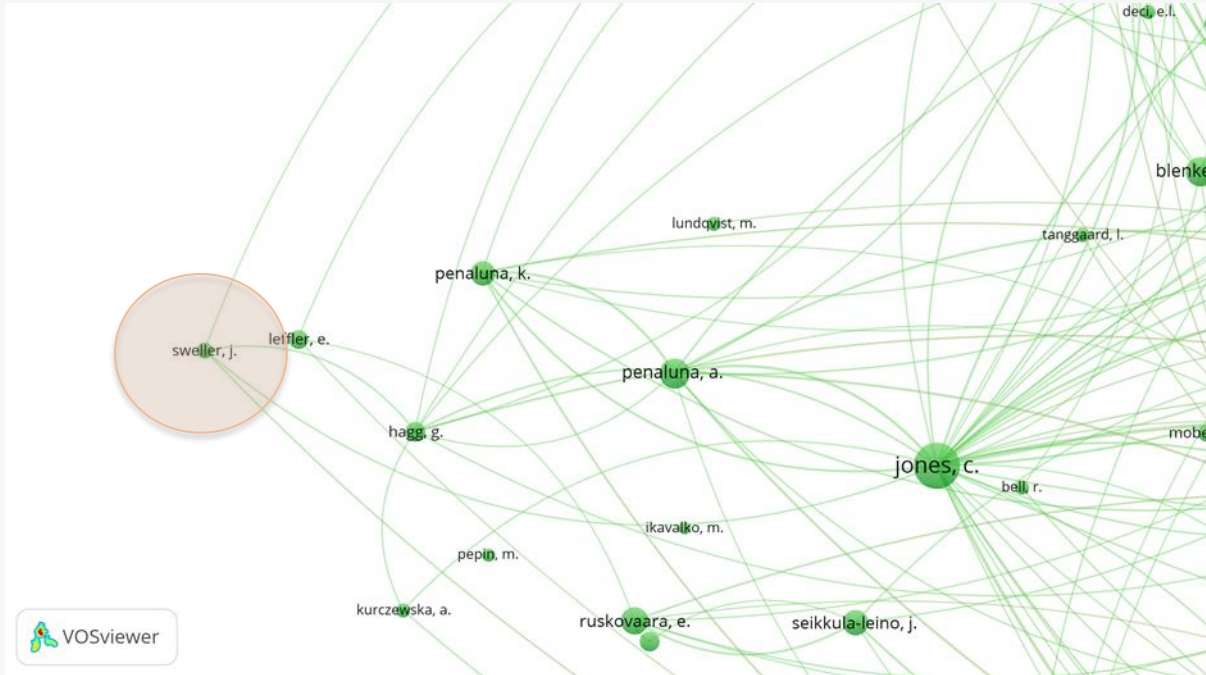
**op zoek in de onderzoeksliteratuur  
ondernemerschapsonderwijs pedagogie...**

**Hoe: meta-narratieve review aangevuld met bibliografische  
co-citation analyse studie mbv VOSviewer.**

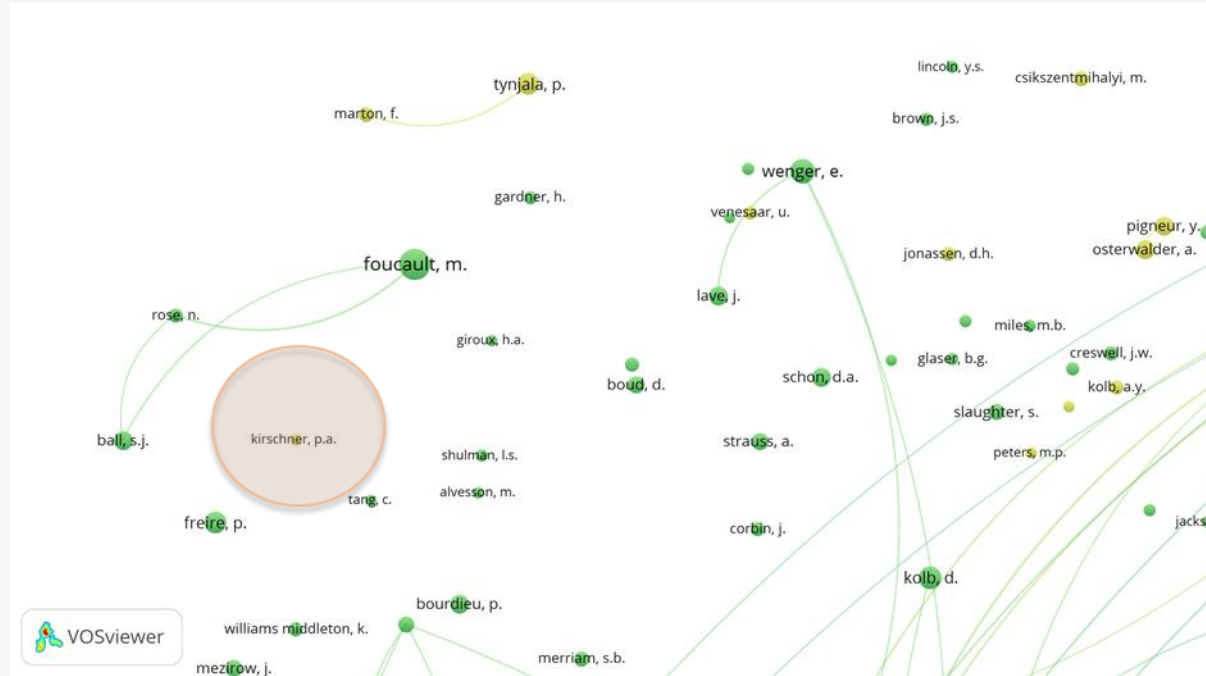


Cluster: (figures in annex)	Authors (eg):
Cluster 1 (red): 170 items	Fayolle, A; Krueger, N.F.; Linan, F; Gailly, B, Ajzen, I.
Cluster 2 (Green): 108 items	Neck, H.M.; Pittaway, I; Cope, J, Dewey, J; Jones, C, Lackéus, M; Biggs, J.
Cluster 3 (Blue): 102 items	Sarasvathy, S; Venkataraman, S; Shephard, D; Shane, S.
Cluster 4 (Yellow): 65 items	Kolb, D.; Duval-Couetil, N. ; Kirschner, P.; Sheppard, S.

24 key works with insights on learning and teaching from the cognitive literature (Kirschner, Claessens, and Raaijmakers, 2018).



## 24 key works with insights on learning and teaching from the cognitive literature (Kirschner, Claessens, and Raaijmakers, 2018).



## **2 meta-narratieven:**

- EE as a 'method'**
- EE as a process towards an outcome**

## **EE as a 'method'**

**Approaching entrepreneurship education from a 'method' approach has the following underlying assumptions, according to Neck and Green (2011):**

- **The method works independently of whether a novice or expert is involved. It is a generic approach, applicable to all student populations, 'Learning a method, in our opinion, is often more important than learning specific content.'**
- **The method is inclusive, meaning that it is applicable across entrepreneurial definitions.**
- **Reflective practice is indispensable for entrepreneurship education.**
- **The approach is specifically designed for 'unpredictable' environments.**
- **The premise is that entrepreneurship is 'learnable'. It can be taught within formal education as long as the above points are met.**

## EE as a 'method'

**Neck and Green (2011) propose specific teaching methods to teach entrepreneurship.**

**They propose a portfolio that includes the following forms: 'starting businesses', 'serious games and simulations', 'design-based learning' and 'reflective practice'. **These forms of education are largely based on how expert entrepreneurs learn in practice, implicitly referring to the epistemology of entrepreneurship.****

**Since 2000 → 'entrepreneurial methods'**

	Logic	Model	Tactics
Discovery-driven planning	Uncertainty can be reduced by systematically converting assumptions to knowledge and redirecting activities in the face of emerging understanding.	Six areas of discovery-driven planning realized through 10 steps	Reverse income statement, targeted experiments
Effectuation	As future outcomes that are driven by human beings are largely unpredictable, instead of prediction, control should be at the core of all the activities.	Five heuristics of effectuation, effectual cycle	N/A
Disciplined entrepreneurship	In pursuit of entrepreneurial opportunities, instead of perpetually fighting uncertainty, entrepreneurs should manage uncertainty through a disciplined approach.	A set of prescriptions accompanied by a number of heuristics in a loosely ordered manner	Targeted experiments
Evidence-based management	In situations characterized by high degrees of uncertainty, the quality of decisions could be increased by relying on data and feedback processes in line with an 'attitude of wisdom'.	A set of heuristics with no specific order	N/A
Prescriptive entrepreneurship	Instead of searching the entire world as their search space, entrepreneurs should focus their search only on sources of possible matches with what they already know and their consideration set.	A punctuated process model with clear order and structure	Information channels, consideration sets
Entrepreneurial bricolage	Through recombination and reusing of idiosyncratic resources at hand, the (resource) uncertainty of the environment can be significantly reduced.	A set of heuristics with no specific order	N/A

Kirschner (2009) outlines two reasons why, 'the epistemology of practicing in a domain is not a good pedagogy for learning that domain' (p.145).

1. in developmental psychology and biology that clearly show that children are not miniature versions of adults and that "adult learning" theories consequently cannot be copied one-to-one in education.



2. A second issue that comes with using epistemology as pedagogy that even when adolescents have abstract frames of mind, **they are still novices and novices are also not miniature versions of experts.**

Kirschner (2009): four key differences between novices and experts that are important for pedagogy:

- Experts notice more meaningful differences in complex situations or problems than novices.
- Experts possess more accessible content knowledge that reveals a deeper meaning of the problem or situation.
- That accessible content knowledge is also embedded in context for experts; Kirschner (2009) speaks of contextualized knowledge.
- And finally, the retrieval of knowledge costs less energy for experts than for novices.

**The question that EE pedagogy must answer is, how can we help students, through the creation of a learning environment, in evolving from novice to expert entrepreneurial behaviour.**

**But this does not mean that there is no longer a place for 'entrepreneurial methods'.**

**On the contrary according to Kirschner (2009) epistemological features can be embedded in the learning environment very early in the novice's learning process.**

**The acquisition of the epistemology by the novice and the evolution to expert entrepreneurial behavior, is the ultimate goal of the pedagogy that then makes a translation to teach that epistemology or as Kirschner (2009) puts it,**

**'In other words, the choice of pedagogy can and must possibly be informed by the epistemology that the learner should acquire but is not the same as making use of that epistemology as a pedagogy' (p. 153).**

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- **Methodologie ontwerp ELED-canvas.**
- **ELED als een Entrepreneurial Education Method.**
- **Ontwerpprincipes.**

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THEORY:  
researchers

PRACTICE (N):  
educators

PRACTICE (n)

science

design  
principles

ELED  
EE method

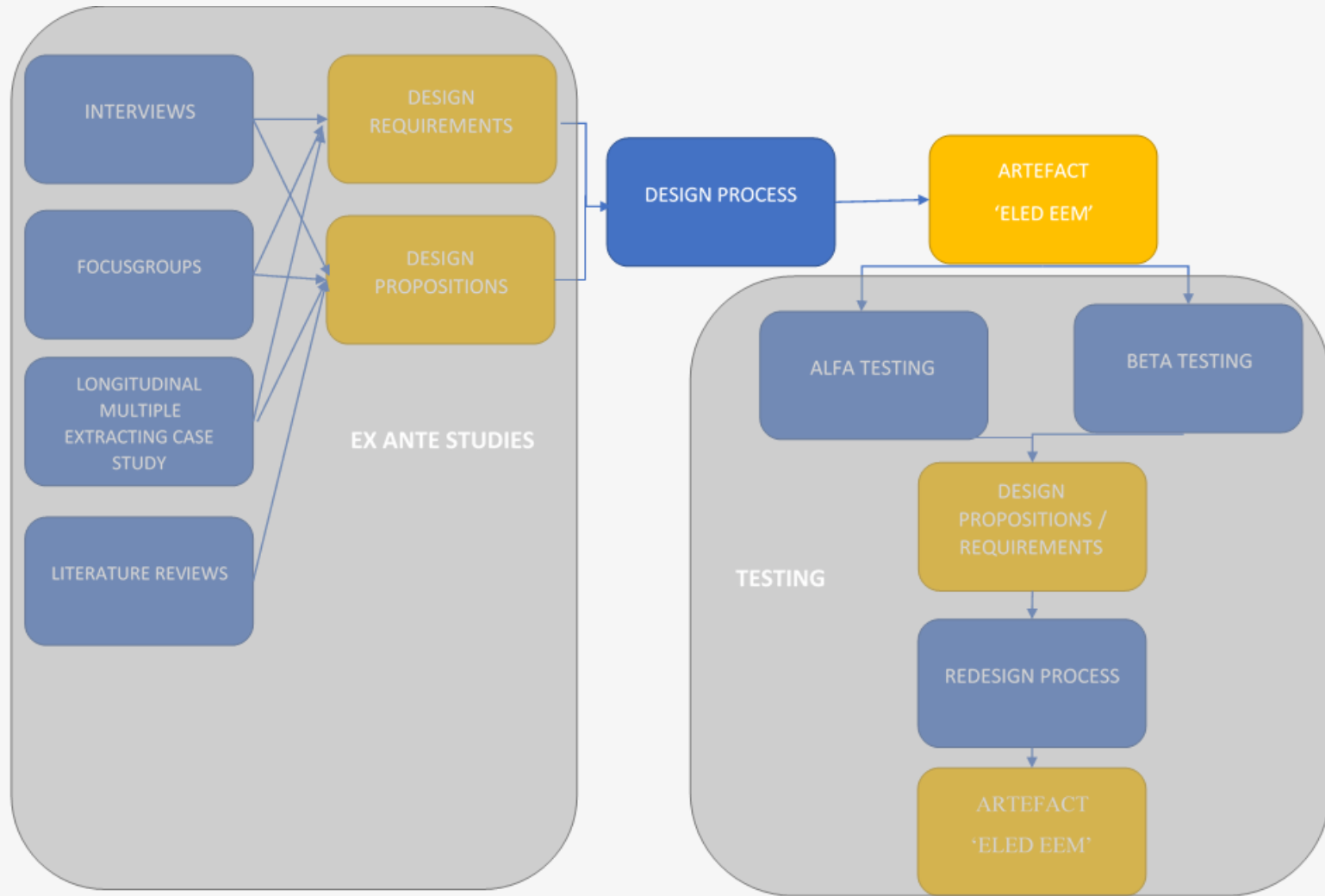
Course  
design

educational  
design-science  
research

Science-based  
design practice  
educators

Students taking course

Community Of Practice





- **Methodologie ontwerp ELED-canvas.**
- **ELED als een Entrepreneurial Education Method.**
- **Ontwerpprincipes.**

# Entrepreneurial Education Method

Set of entrepreneurial education principles and instructions that aim to guide the EE educator's behaviour by providing strategies to help instructional design (ID) judgement.

Based on Mansoori (2017)



## ENTREPRENEURIAL EDUCATION METHOD

**An arrangement of design Principles:** as a set of 'general guidelines' that guide and support educators in designing effective entrepreneurship education.

**Protocol:** solution-oriented roadmap with related courses of action and decisions in order to design effective EE.

**Tactics:** tools & techniques used in the protocol.

Designing effective entrepreneurship as an instructional design process embedded in an overarching philosophical and cognitive rationale or logic that guides the activities within that process.



## ELED ENTREPRENEURIAL EDUCATION METHOD

LOGIC: Design principles

**MODEL:** ELED-canvas

TACTICS: tools &  
techniques used in  
ELED canvas

Educators perform a number of minimal activities related to that design process in order to implement that logic.

the model visually. The model within an EE method specifies the related courses of action for conducting those minimal activities. A protocol is therefore an appropriate format to represent

## ELED ENTREPRENEURIAL EDUCATION METHOD

LOGIC: Design principles

MODEL: ELED-canvas

**TACTICS:** tools &  
techniques used in  
ELED canvas

In order to perform certain activities and to enable the design process to progress, the method also includes tactics consisting of various tools and techniques.



A structured representation of entrepreneurial methods on the levels of logic, model and tactics

	Logic	Model	Tactics
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# ELED ENTREPRENEURIAL EDUCATION METHOD

LOGIC: Design principles

MODEL: ELED-canvas

TACTICS: tools & techniques used in ELED canvas



- **Methodologie ontwerp ELED-canvas.**
- **ELED als een Entrepreneurial Education Method.**
- **Ontwerpprincipes.**

## DESIGN PRINCIPLES

Stimulate 'social-emotional and cognitive' entrepreneurial learning.

Develop EE as an entrepreneurial journey from novice to expert entrepreneurial behavior.

Focus on entrepreneurial behavioral learning outcomes.

Develop 'activity-based' learning tasks embedded in an authentic entrepreneurial learning environment.

Focus on 'deliberate practice', self-directed entrepreneurial learning and deep reflection.

Use the guiding principle: 'It's all in the timing' when choosing the didactical and supporting learning strategies.

Embed entrepreneurship education in domain-specific knowledge learning paths and/or curricula.

Use a datadriven EE design approach.

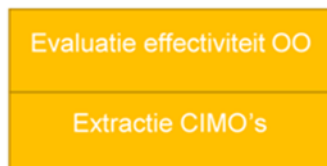
Design EE within a community of practice and stimulate educational professional development from novice to expert.



## DESIGN OO



## LEER & CONNECTEER



## IMPLEMENTEER & MICRO REDESIGN



OO Community of Practice

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# ENTREPRENEURIAL BEHAVIOUR?

AGENCY –  
ARTEFACT

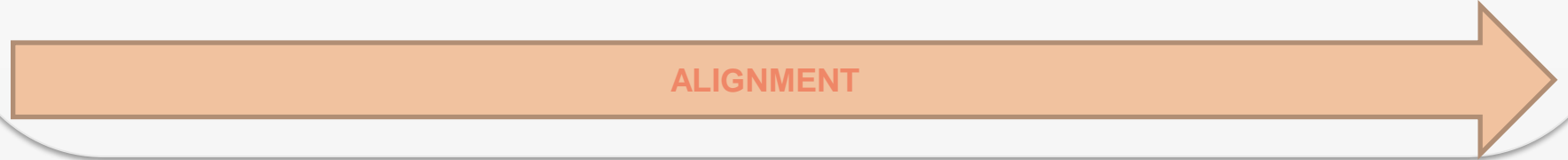
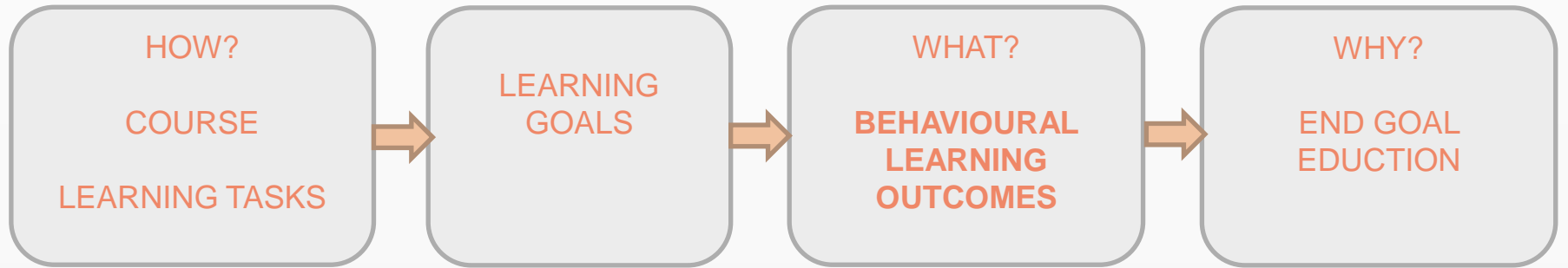
CREATING VALUE

REFLECTIVE  
PRACTICE

OPPORTUNITIES  
DETECTING OR  
CREATING

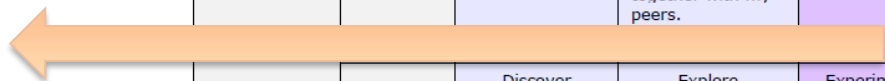
**TU/e**

'value-driven, opportunity detecting or creating, resource allocating process that changes over time due to the interaction of the person with the opportunity and, or context. (adapted definition motivation van Kanfer en collega's (2017)'



# COMPETENTIES & LEERRESULTATEN

COMPETENTIE	LEERRESULTATEN
<b>Detecting/creating opportunities:</b>	De mate waarin individuen opportuniteiten identificeren, grijpen of creëren om toegevoegde waarde voor stakeholders te creëren.
<b>Valuing ideas</b>	De mate waarin individuen strategieën aanwenden om maximaal waarde te genereren uit opportuniteiten.
<b>Sustainability</b>	De mate waarin individuen strategieën aanwenden om duurzaamheid te realiseren.
<b>Self-awareness (and feedback)</b>	De mate waarin individuen strategieën aanwenden om hun eigen sterktes/zwaktes te detecteren en 'team up' met anderen om deze te versterken of compenseren.
<b>Perseverance</b>	De mate waarin individuen strategieën aanwenden om het oog op hun passie en doelen te houden en blijvend toegevoegde waarde te creëren ondanks hindernissen.
<b>Mobilizing resources</b>	De mate waarin individuen strategieën aanwenden om de noodzakelijke middelen te mobiliseren om hun vooropgestelde toegevoegde waarde te realiseren.
<b>Mobilizing others</b>	De mate waarin individuen strategieën aanwenden om anderen te inspireren en hen aan boord te halen bij waardecreërende activiteiten.
<b>Financial &amp; economic literacy</b>	De mate waarin individuen inzicht en domeinspecifieke financieel-economische kennis hebben waardoor ze betrouwbare financiële plannen kunnen opstellen.
<b>Taking initiative</b>	De mate waarin individuen zelfstandig actie ondernemen om opportuniteiten te detecteren of te creëren.
<b>Planning</b>	De mate waarin individuen kunnen plannen en prioriteiten leggen in onzekere en volatiele omgevingen.
<b>Coping with uncertainty</b>	De mate waarin individuen kunnen voor en nadelen afwegen en rationele beslissingen maken in onzekere en ambigue omstandigheden.
<b>Learning through experience</b>	De mate waarin individuen hun bekwaamheden om toegevoegde waarde te creëren, kunnen aanscherpen door te reflecteren op ervaring en interacties met anderen.
<b>Insight into the market</b>	De mate waarin individuen inzicht en domeinspecieke kennis hebben van de markt(en) waarin ze toegevoegde waarde creëren.



Level of proficiency	Foundation		Intermediate		Advanced		Expert	
Progression	Relying on support from others		Building independence		Taking responsibility		Driving transformation, innovation and growth	
	Under direct supervision.	With reduced support from others, some autonomy and together with my peers.	On my own and together with my peers.	Taking and sharing some responsibilities.	With some guidance and together with others.	Taking responsibility for making decisions and working with others.	Taking responsibility for contributing to complex developments in a specific field.	Contributing substantially to the development of a specific field.
	Discover	Explore	Experiment	Dare	Improve	Reinforce	Expand	Transform

Area	Competence	Hint	Descriptor	Thread <sup>10</sup>	Level 1	Level 2	Level 3	Level 4	Level 5	Level 6	Level 7	Level 8
Ideas and opportunities	Spotting opportunities	Use your imagination and abilities to identify opportunities for creating value.	Identify and seize opportunities to create value by exploring the social, cultural and economic landscape. Identify needs and challenges that need to be met. Establish new connections and bring together scattered elements of the landscape to create opportunities to create value.	Identify, create and seize opportunities.	I can find opportunities to help others.	I can recognise opportunities to create value in my community and surroundings.	I can explain what makes an opportunity to create value.	I can proactively look for opportunities to create value, including out of necessity.	I can describe different analytical approaches to identify entrepreneurial opportunities.	I can use my knowledge and understanding of the context to make opportunities to create value.	I can judge opportunities for creating value and decide whether to follow these up at different levels of the system I am working in (for example, micro, meso or macro).	I can spot and quickly take advantage of an opportunity.
				Focus on challenges.	I can find different examples of challenges that need solutions.	I can recognise challenges in my community and surroundings that I can contribute to solving.	I can identify opportunities to solve problems in alternative ways.	I can redefine the description of a challenge, so that alternative opportunities address it may become apparent.	I can take apart established practices and challenge mainstream thought to create opportunities and look at challenges in different ways.	I can judge the right time to take an opportunity to create value.	I can cluster different opportunities or identify synergies among different opportunities to make the most out of them	I can define opportunities where I can maintain a competitive advantage.
				Uncover needs.	I can find examples of groups who have benefited from a solution to a given problem.	I can identify needs in my community and surroundings that have not been met.	I can explain that different groups may have different needs.	I can establish which user group, and which needs, I want to tackle through creating value.	I can carry out a needs analysis involving relevant stakeholders.	I can identify challenges related to the contrasting needs and interests of different stakeholders.	I can produce a 'roadmap' which matches the needs with the actions needed to deal with them and helps me create value.	I can design projects which aim to anticipate future needs.

Business planning

Effectuation

Entrepreneurial bricolage

Discovery-driven planning

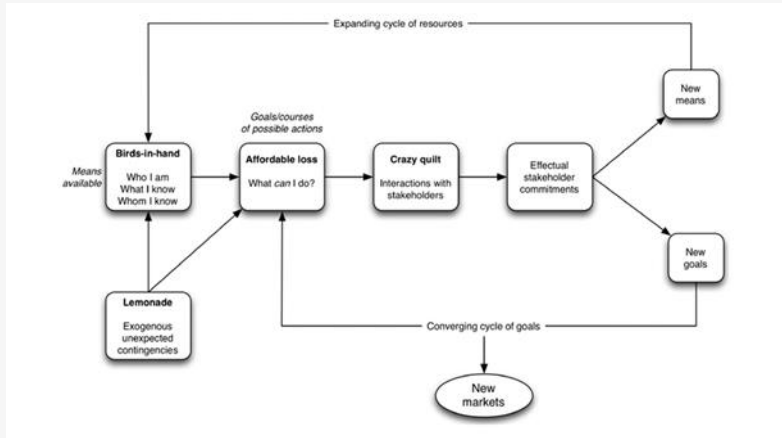
Disciplined entrepreneurship

Evidence-based management for entrepreneurial environments

Prescriptive entrepreneurship

The Lean Startup methodology

Design thinking



OPINIE

## Ondernemen in crisistijden doe je met wat in je koelkast zit

YANNICK DILLEN, BART DERRE, JIMME KEIZER

01 augustus 2020 00:05

Veel ondernemers zien nu hun doelstellingen in het water vallen en moeten nieuwe overlevings- of groeipaden zoeken. 'Effectueel denken' kan hen helpen.

**Ook interessant voor u**

1. Dermine wil dat Europa 5.000 miljard euro in klimaat pompt
2. Na weken begrotingsgesprekken stijgt staatschuld nog altijd
3. 'Zonder nieuwe opvangplaatsen' slapen asielzoekers volgende week op straat



## DESIGN PRINCIPLES

Stimulate 'social-emotional and cognitive' entrepreneurial learning.

Develop EE as an entrepreneurial journey from novice to expert entrepreneurial behavior.

Focus on entrepreneurial behavioral learning outcomes.

Develop 'activity-based' learning tasks embedded in an authentic entrepreneurial learning environment.

Focus on 'deliberate practice', self-directed entrepreneurial learning and deep reflection.

Use the guiding principle: 'It's all in the timing' when choosing the didactical and supporting learning strategies.

Embed entrepreneurship education in domain-specific knowledge learning paths and/or curricula.

Use a data-driven EE design approach.

Design EE within a community of practice and stimulate educational professional development from novice to expert.

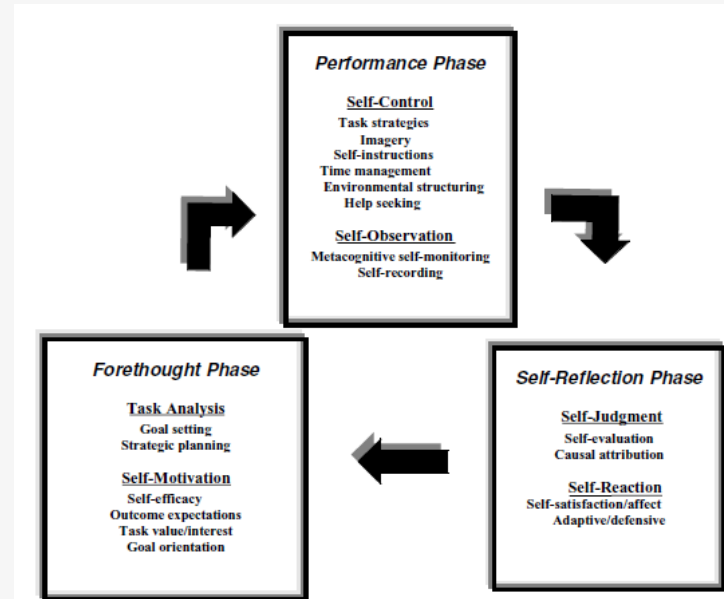
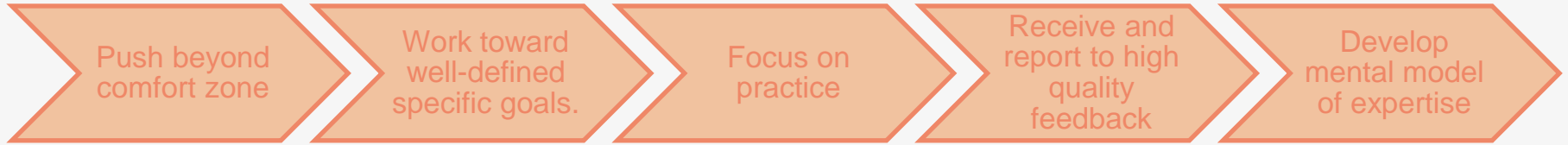


Figure 39.2. Phases and subprocesses of self-regulation. From "Motivating self-regulated problem solvers," by B. J. Zimmerman & M. Campillo, 2003, in J. E. Davidson & R. J. Sternberg (Eds.), *The nature of problem solving* (p. 239). New York: Cambridge University Press. Copyright by Cambridge University Press. Reprinted with permission.



6/10/2021

# De Wondernemerscan

Ondersteunt de ondernemende reis van novice naar expert ondernemend gedrag en ondernemerschap



Valerie Verbeeck  
Webshop eigenaar  
Antwerpen  
Aangesloten sinds 2010



# Wondernemerscan

Meet jezelf met expert ondernemers



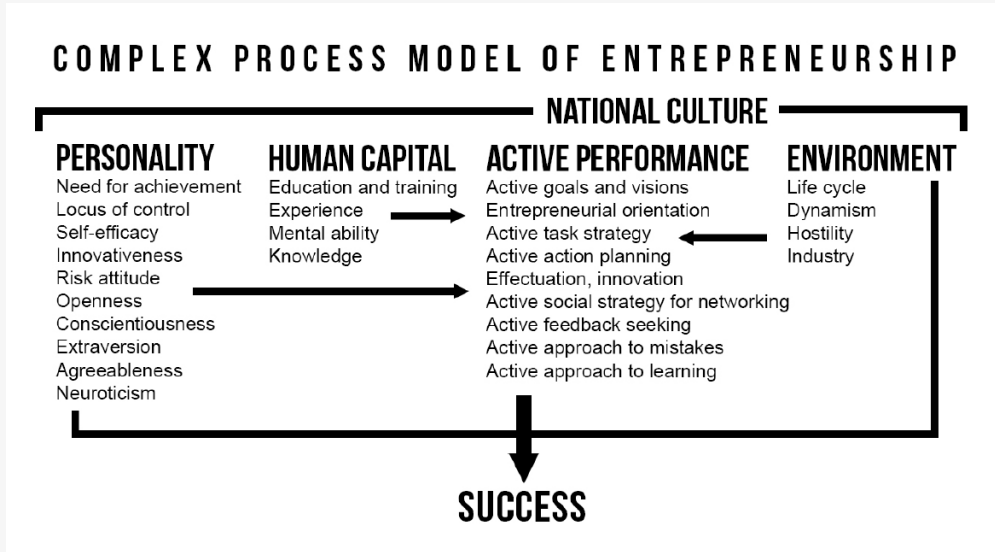
- **gratis** webapplicatie
- **laagdrempelig** en voor iedereen – 12'
- een **wetenschappelijk onderbouwde** online bevraging die niet alleen peilt naar competenties, persoonlijkheidskenmerken en mate van 'effectual denken'.
- Waar gepositioneerd tov expert ondernemers op die elementen: sterktes? - zwaktes en opportuniteiten

# Wondernemerscan

## Onderscheidend

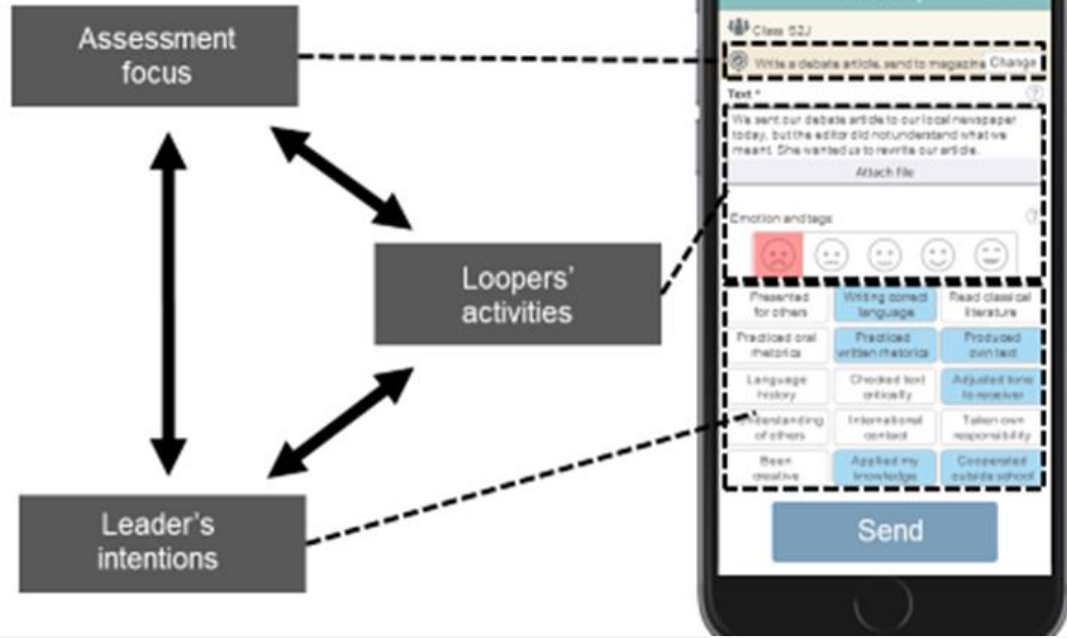


- De Wondernemerscan is wetenschappelijk onderbouwd en voor iedereen!
- De scan peilt niet enkel naar competenties, ook persoonlijkheidskenmerken én de mate van 'effectual reasoning' (uitkomst).



Kerr et al, 2017.

# Applying constructive alignment in LoopMe



# Template: Formulate a planned reflective action

## Some hints

Formulate a headline for the task, encompassing both doing and reflecting.

Formulate the doing that will trigger learning. Try to give connections to literature

Specify how you want them to sense-make the experience after (and during) the doing

Specify exactly which questions you want them to reflect around.

Choose a specific and mandatory add-on question that can deepen reflection even more

Ask them to identify desirable / undesirable outcomes

Ask them to identify emotions they experienced

Planned reflective action	Develop your own personal cold-calling method	Task	
1. Doing	Conduct a minimum of five successful cold-calls related to your project where you get to talk to a relevant person at a relevant potential customer. Use the course literature to prepare for calls.		Act
2. Reflection	After this is completed, reflect here in LoopMe upon your favourite methods for making successful cold-calls, ...		Act
3. Deep reflection questions	...answering the question: What is YOUR own personal approach for making successful cold-calls?		Act
4. Even deeper reflection question	How has this task changed your perspectives and beliefs around sales?		Act
5a. Outcomes	<ul style="list-style-type: none"> <li>• Used my previous knowledge / experience</li> <li>• More self aware</li> <li>• Disappointed in myself</li> <li>• Disappointed in others</li> <li>• Expected a different outcome</li> <li>• More commercially aware</li> <li>• Out of comfort zone</li> <li>• Becoming more resilient</li> <li>• Better leader</li> <li>• Communicated more effectively</li> <li>• More socially/globally aware</li> <li>• Increased customer understanding</li> <li>• Becoming more creative</li> <li>• More able to cope with uncertainty</li> <li>• Increased my social skills</li> <li>• Considered other people</li> <li>• Considered wider impact</li> </ul>	Tags	Act
5b. Emotions			Act

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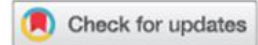
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Use a datadriven EE design approach.

Design EE within a community of practice and stimulate educational professional development from novice to expert.



ARTICLE



# Exploring the experiences of teachers undertaking Educational Design Research (EDR) as a form of teacher professional learning

Ryan Dunn, John Hattie and Terry Bowles

Graduate School of Education, University of Melbourne

## ABSTRACT

The study discussed in this article examines the experiences of teachers participating in a district-wide Educational Design Research (EDR) initiative, with a particular focus on any perceived changes in teacher practices. McKenney and Reeves (2013) claimed that one of the two main goals of EDR is to benefit practice, but to date this claim has been underexplored in the literature. To test this claim, data for this quantitative study was collected from 344 teachers in an urban school district in California. The findings illustrate that EDR did enable the majority of teachers to enhance their teaching practices.

## ARTICLE HISTORY

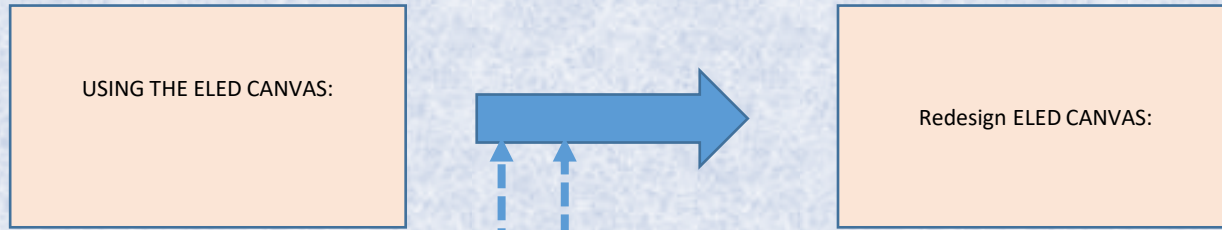
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Accepted 2 July 2018

## KEYWORDS

Teacher professional learning; educational design research; latent growth curve modeling; mathematics

**KNOWLEDGE STREAM.**



**PRACTICE STREAM.**

