

Mindset Interventions in Academic Settings

A review

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1 Foreword

Theories about motivation and engagement developed on the basis of experimental research in psychological laboratories have been used to create and test applications in real settings for the last 15 years. Carefully designed intervention studies, based on experimental designs, have been conducted in real life educational settings and have replicated and advanced previous knowledge of motivation and learning. The present report aims to examine current research literature for one of the main groups of theories that constitute a base for interventions often used to instill motivation for learning: the theories of intelligence. Thus, the focus for the present report is to describe research based on Carol Dweck's model of mindsets through the examination of a selection of published studies and meta-analyses. The task is not to evaluate the interventions per se but instead make an interpretation regarding how the experimental laboratory-based research that guided the initial development of these innovations has been replicated in ecologically valid settings. This is done in order to prepare for the possibility of translating and testing similar approaches in a Swedish context. Here, the aim is to start building a firm evidence base for the implementation of research into practice in Swedish settings. Moreover, this paper is not a meta-analysis or systematic review, but instead aims to present published studies that can be used as inspiration for future motivation studies in a Swedish context. This is a review designed to survey one type of social-psychological intervention (i.e. Implicit theory of intelligence) in education, not a comprehensive review of all existing interventions within the field.

The planning of this paper as well as the literature search was designed by Ann Rudman (AR) and Emelie Miller (EM) and later performed by EM in collaboration with KIB (www.kib.ki.se). EM wrote the first draft of this paper. Selected articles and their results were verified by Nadja Högman (NH). Petter Gustavsson (PG) conducted separate searches for relevant meta-analyses and wrote the first draft of the sections reporting and discussing these papers. EM, AR, and PG wrote the first drafts of different paragraphs in the discussion. NH wrote the first draft of the measurement of mindsets as well as a discussion on mindsets not reviewed in this paper. AR, in collaboration with all co-authors, finalized the report. The authors are responsible for the content in this report.

The results presented in this paper have been discussed at a seminar at Ekskäret Klustret (www.klustretstockholm.se), to which social entrepreneurs with a special interest in the psychological wellbeing of youths and the educational setting in Sweden were invited. A special thanks to Kim Törnqvist from the Reinventing Learning Foundation (<http://www.reinventinglearning.org/>) for coordinating this work and the seminar. Thanks also to Erik Fernholm, Malin Rapp, and Erika Lundblad from the Reinventing Learning Foundation (<http://www.reinventinglearning.org/>) and GrowingMinds (www.growingminds.se) for input. Thanks also to everyone at Ekskäret Klustret (and friends of this organization) who attended the seminar and contributed to the discussion. This review would not have been possible without a grant from Axfoundation, Antonia Ax:son Johnson Foundation for Sustainable Development (www.axfoundation.se). We

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2 Summary and conclusions

This review summarizes educational intervention research based on Carol Dweck's theory of mindsets. Our review of mindset interventions in educational settings (seven articles including eight studies, and three meta-analyses) shows that interventions promoting growth mindsets regarding implicit theories of intelligence are effective motivational tools for students. Moreover, mindset interventions not only positively affect academic performance, but studies also show that these interventions can reduce levels of stress, symptoms of depression and anxiety, and lessen aggressive feelings and behaviors. Studies that have addressed additional mindsets (i.e., implicit theories of personality and social relations), showing that they may also have an impact on students' mental wellbeing, have also been included in the present review.

Based on calculations presented in meta-analyses and summarized in this report, it has been shown that motivation interventions in real educational settings have generally been effective. The pooled effect size was 0.49 (Cohen's *d*) corresponding to an odds ratio of approximately 2.2. Thus, children participating in a motivation intervention were generally found to be 2.2 times better off in achievement than those not participating in the intervention. The effect size was rather stable across different age groups and levels in the educational system. The average effect across mindset intervention studies, in particular, was 0.56 (Cohen's *d*) corresponding to an odds ratio of approximately 2.8. Mindset interventions have also been shown to have an effect on students' mental health. Students with a growth mindset (in contrast to students with fixed mindsets) had an average of almost 1.6 times better mental wellbeing.

The mindset intervention studies included in our review had a diverse focus; different outcomes were examined including everything from math grades to stress, on different age groups, in different countries. Although studies have shown positive results, the generalizability of the results of these studies to Nordic school settings is as yet unknown. Additional studies on mindset interventions in academic settings, especially longitudinal follow-up studies, are also needed to enable more accurate and generalizable conclusions about the long-term effects of mindset interventions. Moreover, extremely few mindset intervention studies on student motivation and learning have focused on teachers' or parents' own mindsets or the effectiveness of teacher- or parent-led mindset interventions on students' motivation and improvement. According to Carol Dweck, such studies will constitute the next generation of mindset research.

When examined together, the studies scrutinized in this review and integrated with three additional meta-analyses clearly show that the first wave of promising laboratory-based research on mindsets has now been ecologically validated in real educational settings. This second wave of research has now established a rather solid scientific evidence base for the effectiveness of mindset interventions on learning, motivation, and wellbeing. The upcoming third wave of mindset research is about to launch new applications and test the consequences of targeting teachers' and parents' mindsets as well as the

effectiveness of mindset interventions implemented by teachers and parents in everyday interactions with students.

3 Background

Based on experimental lab studies on how children respond to setbacks in learning tasks, Stanford professor Carol Dweck introduced the concept of *growth and fixed mindsets*. It is a motivational model describing two *implicit theories* that people can hold about the nature of intelligence, and other characteristics (Dweck & Leggett 1988, Yeager et al 2013b). Having a growth mindset means that you hold an *incremental theory of intelligence*; you view intelligence as a quality that can be developed. If you have a fixed mindset, however, you hold an *entity theory of intelligence* and see intelligence as something quite unchangeable. Having, or being taught to have, a growth mindset of intelligence has been shown to have a positive effect on academic performance in several scientific studies (Aronson et al 2002, Blackwell et al 2007). Having a fixed mindset of intelligence, on the other hand, can lead to underachievement and feelings of helplessness when you encounter challenges, make mistakes, or experience failure (Dweck 2000, Yeager & Dweck 2012).

A fixed mindset is associated with *performance goals*; you are primarily concerned with the end result, grades, or with impression management. You want positive assessments and you try to avoid negative reviews and it is important to appear smart in front of yourself and others, and avoid looking dumb. You achieve a performance goal by playing it safe and avoiding failure, and you only take on things you know you will succeed with. A growth mindset, on the other hand, is associated with *learning goals*, and a mastery approach to learning where your main concern is to increase your knowledge and competence. You want to understand, learn, and master new things (Henderson & Dweck 1990, Yeager et al 2013b). To achieve this you accept challenges, show your flaws, and can accept failing numerous times. Having a growth mindset is preferable as you then value *effort* and actual learning compared to mainly valuing praise and grades, sometimes at the expense of learning which is the greater tendency among those with a fixed mindset (Dweck 2000, Yeager & Dweck 2012).

Students who believe that intelligence is fixed more often see academic failure as a lack of ability compared to students with a growth mindset, who instead are more prone to see it as a lack of effort. Viewing failure as a lack of ability can create negative responses such as avoidance and withdrawal. Attributing failure to lack of effort, on the other hand, will more likely create positive responses such as figuring out better learning strategies and seeking help (Paunesku et al 2015). Even when children show equal intellectual ability, their theories of intelligence – that is their mindsets – will greatly affect their academic performance (Cain & Dweck 1995).

Several studies have shown that you can teach students of different ages to develop a growth mindset (Dweck & Leggett 1988, Yeager & Dweck 2012, Yeager et al 2013a). The teacher's own mindset may also influence the way they view students' performances (Cutts, Cutts, Draper, O'Donnell, & Saffrey, 2010). Moreover, the kind of feedback teachers give will influence the achievement and self-confidence of their students. In one classic study (Mueller & Dweck 1998), researchers gave different kinds of praise to

students solving logic problems. Students either got intelligence praise (which could induce a fixed mindset), effort praise (inducing a growth mindset), or neutral praise. The students were then given a very difficult logic problem, which none of them could solve. After this, they were given a third problem with the same level of difficulty as the first one. Interestingly, the researchers found that the students who had received intelligence praise solved 30% fewer problems, while the students who had received effort praise did better than earlier and asked for more challenging problems. Intelligence praise seemed to undermine the students' motivation after encountering a failure.

The positive results associated with a growth mindset have led to an increasing interest in different mindset interventions. Dweck and her staff at Stanford have developed an online mindset intervention called "Brainology", where students, among others, learn about the brain being a muscle that can grow just like any other muscle can (Donohoe et al 2012). There is a new trend in mindset research that tries to up-scale interventions, through online and web-based mindset programs and interventions (Paunesku et al 2015). Other researchers have done in-class experiments, and the overall result of mindset interventions is most promising. Mindset interventions are not restricted to the concept of intelligence, however. Mindset interventions on implicit theory of *personality* have been seen to effect stress, health, and academic performance during difficult adolescent transitions (Yeager et al 2014b). Researchers claim that it is especially important to promote a growth mindset when students encounter times of difficulty, such as transitions to high school or when the severity level of the academic challenge rises (Blackwell et al 2007, Mueller & Dweck 1998, Yeager & Dweck 2012).

Mindset interventions have been shown to have an especially positive effect on marginalized and underachieving students (Aronson et al 2002, Good et al 2003, Paunesku et al 2015). The concept of mindsets has become a very popular one in educational and social psychology, and sometimes it has been used in a too dichotomous, simplistic, and undifferentiated way. It is important to keep in mind that most people display both growth and fixed mindsets in different areas of their lives and in different school subjects (Blad 2016). It should also be stressed that there is no correct or true theory. Instead, theories should be seen as reflecting two alternative ways of understanding ourselves, others, and the world, and that these two ways of construing reality have different effects on how people think, feel, and behave in specific situations (Dweck et al 1995).

For simplicity reasons we have tried to exclusively use the terms *growth mindset* and *fixed mindset* in the results and discussion sections of this review, with the exception being the results tables, where we use the terms chosen by the author of each study.

3.1 Research question

Main research question:

What are the outcomes of experimentally tested mindset interventions in academic settings?

4 Method

We conducted the literature review in accordance with the guidelines in Gough et. al. (2012) and the PRISMA statement (Moher et al 2009).

4.1 Search strategy

A search strategy based on the study aim was developed, and contained three components: 1) The mindset theory i.e. synonyms to mindset, 2) The methods of interest, and 3) The dependent variables of interest and the subjects of interest. After consultation with the search laboratory expert librarians at Karolinska University Library, we decided that the literature search should be done in the databases *Web of Science*, *Psychinfo*, and *Eric*. *Web of Science* provided us with a single destination where we could access a vast amount of multidisciplinary research, *Psychinfo* is a database for psychological research, and *Eric* is a database that covers educational research. The best key words to use were also discussed. The search strategy was modified for each database and below follows the actual search words used and the “block method” of the literature search. Truncation was used when we also wanted to cover plural endings of the chosen words.

4.2 Inclusion and exclusion criteria

To be included in the review the papers needed to: (1) include some kind of intervention aiming at changing implicit theories of intelligence and/or personality, (2) be performed in a school setting, and (3) include outcomes on performance and achievement variables. For this review, the study design of included studies was set to interventions. Here the interventions could be targeted at changing teachers’ or students’ implicit theories of intelligence and/or personality. No limits were set regarding the age of the study participants or the sample size of the studies. The exclusion criteria were: (1) language (only articles written in English or the Scandinavian languages Swedish, Norwegian, or Danish were included), (2) correlation studies, (3) studies that were not available in full text within the timeframe (e.g. dissertations), and (4) studies with non-representative samples in which all participants had specific symptoms or diagnoses (e.g. general anxiety disorder).

4.3 Identification and selection of studies

Of the more than 600 studies identified in the search, only nine have been included in the results tables and are thus reported here (please see *Figure 1* and *Table 1* for more details on the review process and results). There are several factors that can explain this low number. Firstly, many duplicates, where the same study existed in more than one of the databases, were excluded. The search was conducted as broadly as possible in an attempt to ensure that no relevant studies were missed. However, this meant that a lot of irrelevant studies also were detected. Even though we hoped that the block search would bring us close to studies of mindset interventions in academic settings, there were a lot of studies that used mindset interventions in other ways. There were also studies found in languages that we do not master. In addition, many correlation studies were found. From a Meta-Analytic Review made by Lazowski and Hulleman (2016), we included two studies they

had found that we had not. While many of the correlation studies interestingly did indeed involve mindsets and academic settings and how mindset affects performance, no real intervention had been conducted so they could not be included. We also found several interesting dissertations on mindset interventions (Anderson 2010, Auten 2014, Baldrige 2011, Beth 2006, Brass 2013, Paunesku 2013, Sriram 2011, Wieland 2012) but they were not all available in full text and time restrictions made it impossible to order them in time to read and include them in this literature review. In addition to the above articles, three meta-analytic studies on mindset interventions were found and these three will be integrated with the result and discussion section (Burnette et al 2013, Lazowski & Hulleman 2016, Schleider et al 2015).

4.4 Search string

1. Mindset*
2. Mind-set*
3. "Implicit theories"
4. "Entity theories"
5. "Mastery oriented"
6. "Goal frameworks"
7. 1 OR 2 OR 3 OR 4 OR 5 OR 6

Block 2 (The methods of interest)

8. Intervention*
9. Trial*
10. Program*
11. 8 OR 9 OR 10

Block 3 (The dependent variables of interest and the subjects of interest)

12. "Academic performance"
13. "Academic achievement"
14. School*
15. Student*
16. Teacher*
17. 12 OR 13 OR 14 OR 15 OR 16

Block 4 (The combinations of the three blocks above)

18. 7 AND 11 AND 17

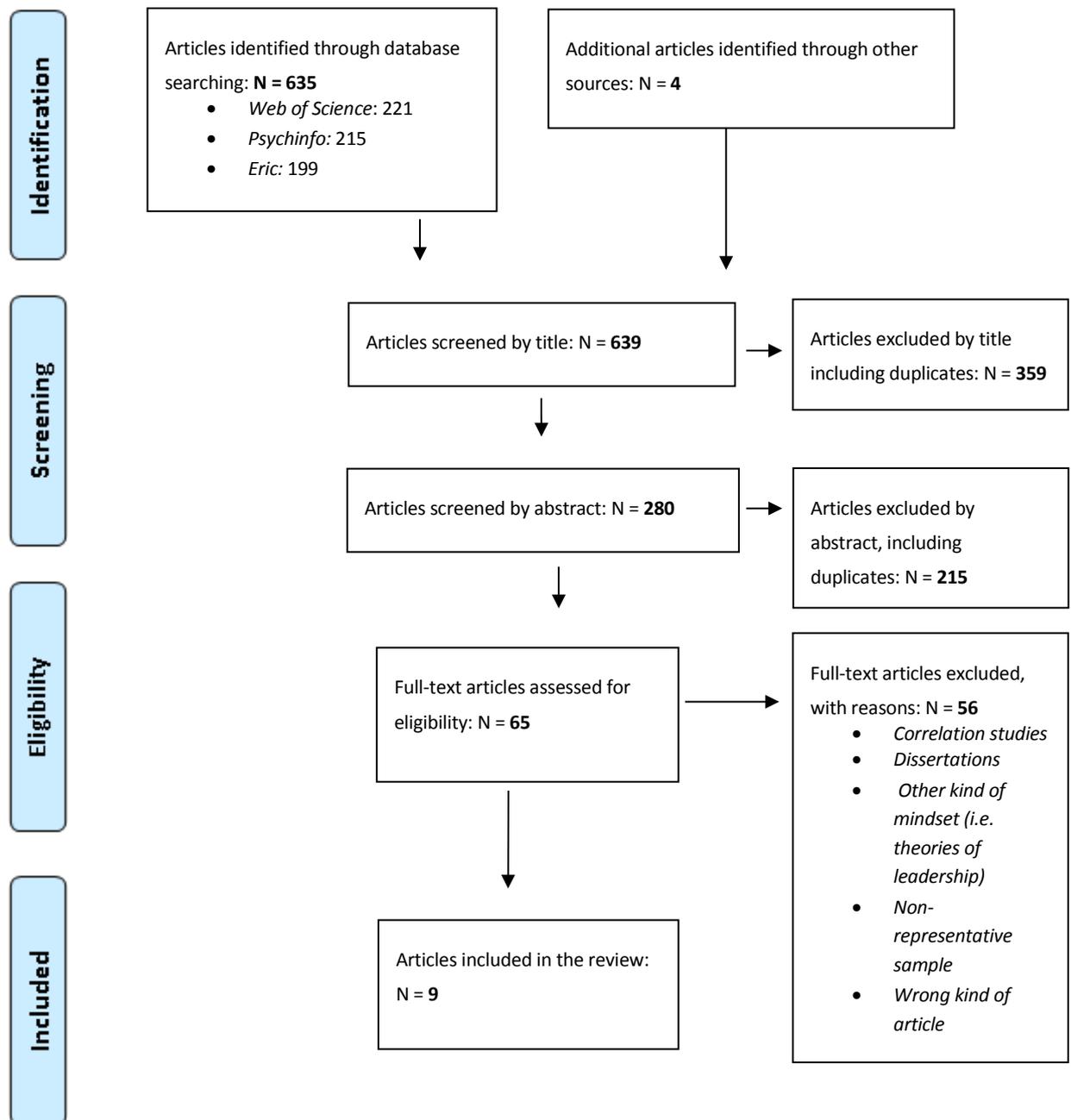


Figure 1. PRISMA flow diagram of the screening process of the literature.

5 Results

In total, nine articles (11 studies) were included from the literature search and three reviews were summarised and reported on. The identification and selection of studies are shown in Figure 1. A total of 628 articles were excluded because they were either duplicates, irrelevant to the research question, or correlation studies. Results are presented in two tables consisting of data from the nine articles (11 studies). Study characteristics, such as outcome, type, and design of intervention of included studies are shown in Table 1 and Table 2.

5.1 The empirical studies

Of the 11 included studies, ten were conducted in the USA and one in Scotland. The studies were published between the years of 2002 and 2016. Nine of the studies had collected data through survey questionnaires and/or school records. The studies included interventions with students of different ages ranging from 11-year-old students to university students (ages not stated). The schools included varied from very poor to Harvard (see Table 2 for more specific information). Four studies used researchers as facilitators, three used teachers, two used both teachers and researchers, one was facilitated by a third-party firm, and one was administered via the Internet for students to complete in their own time. Five studies had a follow-up element within three months, four had a follow-up after eight months, one after a year and one did not clearly state the timeline for a follow up (presumably short). All the interventions targeted students.

Students exposed to growth mindset interventions, even very brief ones, can demonstrate improved academic performance (Aronson, Fried, & Good, 2002). An example of this is a significant increase in math grades (Blackwell, Trzesniewski, & Dweck, 2007). It has also been shown that the benefits of mindset interventions are seen beyond achieved grades and academic performance. Students in growth mindset intervention groups also report greater academic enjoyment (Aronson et al., 2002) and greater classroom motivation (Blackwell et al., 2007).

The majority of the studies included in the present review focused on implicit theories about *intelligence* but their scope was not limited to mindset interventions targeting intelligence. A growth mindset of *personality* can lessen aggression in response to peer provocation, and interestingly enough also relates positively to academic performance (Yeager, Trzesniewski, & Dweck, 2013). Interventions promoting a growth mindset of personality have also been shown to reduce stress and physical illness (Yeager, Johnson, Spitzer, Trzesniewski, Powers, & Dweck, 2014). Mindset interventions are often most beneficial for underachieving and marginalized students (Aronson et al. 2002; Good et al. 2003; Paunesku et al. 2015).

Even if the results are promising for the future of mindset interventions it should be kept in mind that many of the studies had a small sample size and few of them addressed the long-term effects of the interventions.

Table 1. Description of the eleven included empirical studies (derived from nine articles).

Author Year Title	Mindset	Sample	Intervention Groups Facilitator	Mediation	Outcome	Time point for follow up	Results	Notes
(Aronson et al 2002) <i>Reducing the effects of stereotype threat on African American college students by shaping theories of intelligence.</i>	Implicit theories of intelligence.	N = 79 Stanford undergraduates. USA	Randomized laboratory study. 3x1h laboratory sessions. 3 experimental groups (malleable pen pal, control/entity pen pal and non pen pal). Facilitated by the researchers.	Stereotype threat.	Short and long term growth beliefs, academic enjoyment, academic achievement (grade point averages), perceived stereotype threat.	Nine weeks after the last laboratory session.	Experimental/malleable (growth) group reported enjoying and valuing academics more and they received higher grades. The intervention was, as predicted, most beneficial for African-American students. Perception of stereotype threat was untouched.	In each case, the “pen pal” was characterized as a middle-schooler coming from an impoverished community and could thus benefit from having an elder role model. The true purpose of the letter writing was to convince half of the pen pals themselves of the expandable nature of intelligence.
(Blackwell et al 2007) <i>Implicit theories of intelligence predict achievement across an adolescent transition: A longitudinal</i>	Implicit theories of intelligence.	N = 91 7 th graders. USA	Existing groups were randomly assigned to experimental or active control condition. Experimental and control conditions. 8 lessons x 25	General motivational beliefs and learning goals.	Change of theory of intelligence, Math grades, and teachers’ assessments of classroom motivation.	Three weeks post-intervention.	Students who attended the experimental condition displayed a sharp increase in math achievement and classroom motivation for the rest of the school year, an effect not shown by students who attended a control workshop that taught them study skills.	Students in the control group displayed a continuing downward trajectory in grades.

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<i>study and an intervention.</i>			min, teaching an incremental theory of intelligence (experimental condition). Facilitated by the researchers.				Students in the intervention group also displayed a greater change in theory of intelligence than students in the control group.	
(Donohoe et al 2012) <i>The impact of an online intervention (Brainology) on the mindset and resiliency of secondary school pupils</i>	Implicit theories of intelligence.	N = 33 Secondary school pupils. Scotland	Quasi-experimental design (participants were not randomly assigned to intervention or control condition). Online interactive program (Brainology) intervention. 4 x 40 min. Online facilitators (researchers).	Concern over peer and parental perceptions on effort.	Mindset, resiliency and sense of mastery.	Three months and one year follow-up.	Significant increase in pre-to post- growth mindset scores for the intervention group. No significant changes in resiliency or sense of mastery for either group.	Decline at follow-up; the initial impact of the intervention was not sustained. No effect on academic performance after one year.
(Good et al 2003) <i>Improving adolescents' standardized</i>	Implicit theories of intelligence.	N = 138 7 th graders. USA	Randomized field experiment with three experimental conditions and	Students' motivational profile.	Classroom motivation and achievement (math and reading ability).	Not clearly stated. Six months? At the end of the school year students took	Intervention group displayed positive change in classroom motivation and achievement.	Students in the control group who endorsed more of an entity theory showed a declining grade trajectory.

<p><i>test performance: An intervention to reduce the effects of stereotype threat.</i></p>			<p>an active control group. Experimental condition received messages promoting growth mindset. Eight weeks x 25 min. Facilitated by researchers.</p>			<p>statewide standardized tests in math and reading (intervention was conducted in November).</p>		<p>Mindset interventions were especially effective for female students.</p>
<p>(Paunesku et al 2015) <i>Mind-Set Interventions Are a Scalable Treatment for Academic Underachievement</i></p>	<p>Implicit theories of intelligence.</p>	<p>N = 1594 High school students. USA</p>	<p>Students were randomly assigned to a control condition or to one of three intervention conditions: growth-mind-set intervention, sense-of-purpose intervention, or the two interventions combined. Computerized intervention. A single 45 min session.</p>	<p>Pre-study beliefs about intelligence. Intervention interaction.</p>	<p>Academic persistence and performance.</p>	<p>In close proximity to intervention.</p>	<p>Interventions increased student's grade point averages in core academic courses. Intervention was more beneficial for poorly performing students.</p>	<p>Students who received both interventions did not show greater benefits.</p>

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			Facilitated by teachers.					
(Yeager et al 2013b) <i>An Implicit Theories of Personality Intervention Reduces Adolescent Aggression in Response to Victimization and Exclusion</i>	Implicit theories of intelligence and personality.	N = 230 9 th and 10 th graders. USA	Randomized field experiment with experimental and active control group. Experimental group received a growth mindset intervention about people's personality traits, including quotes from older students and a writing activity. Six sessions. Facilitated by teachers, who received training from researchers.	Baseline levels of aggression.	Mindset, attributions of hostile intent and vengeance, prosocial behavior, depressive symptoms, teacher-rated conduct problems and absences and tardies.	One month and three month follow-up.	Compared to no-treatment and coping skills control groups, the incremental theory group behaved significantly less aggressively and more pro-socially. They also received significantly more nominations from teachers for having reduced their conduct problems and were less likely to be absent or tardy post-intervention than those in both control groups combined.	The incremental theory and the coping skills interventions eliminated the association between peer victimization and depressive symptoms.
(Yeager et al 2014b) <i>The Far-Reaching Effects of Believing</i>	Implicit theories of personality.	N = 78 High school students, enrolled in Algebra I	Random assignment to growth mindset or control intervention.	Negative reactions to Cyberball exclusion.	Stress, anxiety, negative self-feelings, physical health, grades.	Eight months post-intervention.	The incremental theory group reported lower overall stress and physical illness and less negative reactions to social exclusion. They also	Only lower performing students took Algebra I. Hence this sample was academically

<i>People Can Change: Implicit Theories of Personality Shape Stress, Health, and Achievement During Adolescence.</i>		(Under-achievers) USA	During the first month of high school the researchers delivered a brief intervention that taught students an incremental theory of personality. Facilitated by teachers and researchers.				achieved better academic performance over the year.	at-risk relative to the school population. It is possible for an intervention in one domain to have effects that ripple into various domains.
(Yeager et al 2014b) <i>The Far-Reaching Effects of Believing People Can Change: Implicit Theories of Personality Shape Stress, Health, and Achievement During Adolescence</i>	Implicit theories of intelligence & personality	N = 150 Ethnic minority urban public high school students. USA	Random assignment to growth mindset or control intervention. Web-based intervention. Facilitated by the researchers and research assistants.	Cyberball exclusion. Students' construal of themselves.	English, math and science grades, reactions to social exclusion, stress, physical health, self constructs.	Eight months post-intervention follow-up.	Growth mindset group had reduced immediate negative reactions to social exclusion, overall life stress and reports of physical health problems, and improved overall grades. Most beneficial for the students with an entity theory of personality at baseline. The intervention lead students to see themselves more in terms of actions as opposed to labels.	Cyberball is an online game of catch with two "peers" purportedly from the students' school. The task is programmed so that the other "players" threw the ball almost exclusively to each other and not to the participant.
(Yeager et al 2016a)	Implicit theories of intelligence	N = 3676	Random assignment to mindset	Prior achievement (8 th grade	9 th grade GPA in core courses (science, math,	Interventions were carried out in the first	Lower achieving students in the intervention group received higher final grades	

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<i>Using Design Thinking to Improve Psychological Interventions: The Case of the Growth Mindset During the Transition to High School.</i>		Public high schools. USA	intervention or control condition. Web-based intervention with two online sessions one to four weeks apart. Facilitated by teachers.	GPA and state test scores).	English), hypothetical challenge-seeking, attribution, goals.	ten weeks of the fall semester. Grades were collected at the end of the spring semester.	than controls. There was no effect on grades for higher achieving students. However, high achieving students were more likely to show an impact on their challenge-seeking choices. The intervention also reduced fixed-trait attributions and performance avoidance goals.	
(Yeager et al 2016b) <i>Teaching a Lay Theory Before College Narrows Achievements Gaps at Scale</i>	Implicit theories of intelligence	N = 584 Senior high school students USA	Random assignment to a mindset intervention, a social belonging intervention, a combined intervention (mindset + social belonging) and a control group.	Social and academic integration.	Full time college enrollment during the first year.	Approx. one year.	There was no effect of the growth mindset intervention on college enrollment. However, the social belonging intervention and combined intervention (mindset + belonging) increased college enrollment.	
(Yeager et al 2016b) <i>Teaching a Lay Theory Before College Narrows</i>	Implicit theories of intelligence	N = 7335 First year students at a public university USA	Random assignment to a mindset intervention, a social belonging intervention, a combined	Social and academic integration.	Full time college enrollment during the first year.	Approx. eight months.	All three interventions were equally effective and increased college enrollment among disadvantaged students, but not among advantaged students. The intervention effect was mediated by	In addition, a non-randomized intervention was carried out among all incoming students two years later. In this cohort (N = 6244), college

<i>Achievements Gaps at Scale</i>			intervention (mindset + social belonging), and a control group.				improvement in social and academic integration.	enrollment increased among disadvantaged students compared with previous years where no intervention had been performed. The authors conclude that a lay theory intervention could contribute to reducing institutional-level inequalities.
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Table 2. Description of the eleven included empirical studies (derived from nine articles) continued.

Study	Survey/questionnaires	School records	Sociodemographic (of schools)	Facilitator	Student or teacher focus Age	Follow-up
(Aronson et al 2002)	Yes. Participants filled out a number of questionnaires related to academic attitudes and abilities.	Yes. Participants were asked to sign forms releasing their grade and SAT transcripts, and their general point average (GPA) from the registrar.	Harvard University. Three groups of African-American and Caucasian undergraduates participated in the study.	Researcher. The experimenter introduced herself as an educational psychologist working with an organization called “Scholastic Pen Pals.”	Student focus. N= 79 Age not stated.	Nine weeks. A few days after the intervention, the participants completed a measure of their beliefs about intelligence as a check on the manipulation, but the

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						remaining measures were given approximately nine weeks after the start of the intervention.
(Blackwell et al 2007)	Yes. A set of scales (questionnaires) designed to measure key motivational variables, including implicit theories of intelligence, goal orientation, beliefs about effort, and attributions and strategies in response to failure, was used.	Yes. Sixth-grade mathematics grades served as measures of prior student achievement. Seventh-grade fall and spring term final grades in mathematics were used to assess outcomes in the form of growth curves.	Poor. 79% of the students were eligible for free lunch. The students were relatively low-achieving, with sixth-grade math test scores at the 35th percentile nationally.	Researchers (assistants). Sixteen undergraduate assistants were recruited to serve as mentors for the students. (The math teacher was asked to cite in writing individual students who had shown changes in their motivational behavior in the spring term (after the workshop), and to describe these changes).	Student focus. N = 91. Age: 11-12 years Note from author: It is possible that our results would have been stronger if we had also included teachers and parents in the intervention.	Confusing timeline. Three weeks post-intervention. According to the authors “the students were only followed for a short time”.
(Donohoe et al 2012)	Yes. Dweck’s theories of intelligence scale and Prince-Embury’s resiliency scales for children and adolescents.	No	Not clearly stated, but the percentage of pupils entitled to free school meals was in line with the national average.	Researcher. (Who also was a teacher in the classes).	Student focus. N=33 Age: 13-14 years	Three months
(Good et al 2003)	No	Yes. The Texas Assessment of Academic	Poor. Largely minority and low-income adolescents,	Researchers + 25 college student mentors from the University of Texas, who	Student focus. N=138 Age: 12-13	Not clearly stated. Six months? At the

		Skills (TAAS) test, a statewide standardized achievement test administered to all students in the district. And math standardized test scores.	in rural school district in Texas.	participated in a 3-h training session in which they completed a required mentor-training course designed by the school district. The mentors also learned methods of conveying each of the four experimental messages.		end of the school year students took statewide standardized tests in math and reading (intervention was conducted in November).
(Paunesku et al 2015)	Yes. Brief psychological measures were administered at the start of Session 1 and at the end of Session 2.	Yes. The schools provided participating students' transcripts and end-of-semester GPA in core academic courses.	Varied. Conducted in 13 geographically diverse high schools. Eight were public schools, four were charter schools, and one was a private school. They varied widely in socioeconomic characteristics.	Teachers. Participating schools were asked to select a study coordinator who would recruit teachers to participate and follow-up with teachers if classrooms lagged. The coordinator asked teachers to create accounts on the study Web site and to schedule two 45-min sessions about 2 weeks apart. In an online registration process, teachers agreed to describe the activities to students as a part of an ongoing Stanford University study about why and how students learn.	Student focus. N = 1,594 students. Age: high school (around 14 – 18 years).	Short. In close proximity to intervention.

Results

(Yeager et al 2013b)	Yes.	Yes. The study collected information from school records. Students' gender, grade levels, absences in core subjects (science, math, English, and social studies), and lateness in core subjects were obtained from official school records.	Below average. 64% received free or reduced-price lunch.	Teachers. Two male and two female adult paid facilitators were recruited to conduct the interventions. Facilitators had 2–10 years of experience teaching or working with diverse adolescents from low-income areas. The facilitators received 40 hours training each from the researcher and were highly enthusiastic about the treatment they administered. Facilitators in both groups were blind to hypotheses (Not the students' regular teachers?).	Student focus. N = 230 (Behavioral Responses to Standardized Peer Victimization or Exclusion final sample of n = 92). Age: 14-16 years.	Two weeks, one month, and three months post intervention.
(Yeager et al 2014b) (study 2)	Yes. A baseline survey was administered. A survey assessing global stress and health was administered. Negative reactions to exclusion due to the Cyberball protocol and postintervention	Yes. After the school year, official grades were collected from the school's registrar.	Non-poor. Study conducted in a non-poor, largely nonminority context. The sample was academically at-risk relative to the school population.	Researchers and teachers. Algebra I teachers gave an overview to both the experimental and control groups of how the brain changes and learns. About two weeks later, one week after the baseline survey, researchers came into the classroom.	Student focus. N = 78 Age: 9 th grade (around 14-16 years).	Eight months post intervention.

	implicit theories were measured.					
(Yeager et al 2014b) (study 3)	Study 2 + the addition of a “warm-up” question that was useful for assessing self-construals.	Study 2. However, only end-of-semester grades were available for the two semesters and not the two additional intermediate grades per semester that were available in Study 2.	Poor. Conducted in one of the poorest performing and lowest-income schools in California.	Researchers. All data collection and the Intervention occurred in non-academic classes such as physical education or art.	Student focus. N = 150 Age: 9 th grade (14-16 years).	Eight months post intervention.
(Yeager et al 2016a)	Yes. Self-report data on hypothetical challenge-seeking, attribution and goals.	Yes. 9 th grade final grades in core courses and 8 th grade as well as national test scores.	Medium range for poverty indicators.	Third-party research firm.	Student focus. N = 3,676 Age: 9 th graders.	Approx. eight months post intervention.
(Yeager et al 2016b)	Yes. Self-report data on social and academic integration.	Yes. Course enrollment.	All students were either racial minority or first-generation students from high-performing urban charter schools.	Double-blind experiment. Administered by teachers.	Student focus N = 584 Age: High school seniors.	Approx. one year post intervention.
(Yeager et al 2016b)	Yes. Self-report data on social and academic integration.	Yes. Course enrollment.	Incoming students at a high-quality public university.	Double-blind experiment. Students completed the interventions on their own computers in their own time.	Student focus N = 7335 Age: First year of college.	Approx. eight months post intervention.

5.2 Meta-analytic reviews

In addition to the empirical studies found in the literature search, three meta-analytic reviews relevant to the research question were also found. The first review summarized the effects of motivation interventions in educational settings (Lazowski & Hulleman 2016). The second review analyzed associations between different types of implicit theories (mindsets) and their associations with different mental health outcomes among youths (Schleider et al 2015). Finally, the last review evaluated magnitudes of the proposed associations among all constructs within the mindset framework (Burnette et al 2013). The results from each of the three meta-analytic reviews are described below.

5.2.1 Motivation interventions in education

The first meta-analysis provided a summary of intervention studies in educational contexts that were grounded in motivation theories (Lazowski & Hulleman 2016). Of 158 evaluated papers (extracted from 1,471 search results), 74 papers defined the data for analysis, including 92 effects based on 38,377 participants. Data comprised experimental or quasi-experimental studies (64 vs. 28 studies, respectively) performed in settings from kindergarten up to post-secondary school. Interventions were based on different theoretical frameworks (including mindset interventions). The ecological validity was high for most studies (i.e., a high degree of naturalness) as interventions were performed in everyday school settings using dependent variables (mostly achievement) that normally occurred within that setting. The results indicated that the motivation interventions were generally effective. The pooled effect size was 0.49 (Cohen's *d*) corresponding to an odds ratio of approximately 2.2 (odds ratios transformed and calculated from paper). Thus, children participating in a motivation intervention were found to be 2.2 times better off in achievement than those not part of the intervention. The effect size was rather stable across ages, with the highest effects among 6th to 8th graders (odds ratio 2.8) and lowest among 9th to 12th graders (odds ratio 2.1). Of the 74 analyzed papers, six papers reported results from mindset interventions. The average effect across these studies was 0.56 (Cohen's *d*) corresponding to an odds ratio of approximately 2.8.

5.2.2 Implicit theories and youth mental health problems

The second meta-analysis provided a summary of implicit theories and youth mental health problems (Schleider et al 2015). Of 327 evaluated papers (extracted from 681 search results), 17 papers defined the data for analysis. The studies were based on 38,377 participants, of whom 48% were girls and 82% were from North American schools. Data comprised correlational, experimental, or quasi-experimental studies performed in settings ranging from kindergarten up to high school. Effects of mindsets reflecting implicit theories of intelligence, as well as of personality and social relations, were included and compared. The results indicated that the mindsets were associated with mental health outcomes. Students with a growth mindset (in contrast to students with a fixed mindset) had higher mental wellbeing scores on average almost 1.6 times more often. Among the different mental health outcomes, the largest effects were found for depression and anxiety symptoms. When comparing different mindsets and

the magnitude of their association with health outcomes, implicit theories of personality presented the largest magnitudes. On average, students with a fixed mindset of personality had scores reflecting general distress or symptoms of psychopathology 1.7 times more often than students with a growth mindset of personality.

5.2.3 Implicit theories and self-regulation

The third meta-analysis provided a summary of implicit theories and self-regulation (Burnette et al 2013). Of 236 evaluated papers (extracted from 2624 search results), 85 papers defined the data for analysis. The studies were based on 28,217 participants from 113 samples from different populations (age range 5-42; 44% girls; 58% from the United States of America). Data comprised correlational, experimental, or quasi-experimental studies performed across diverse achievement domains (68% academic). Firstly, associations between implicit theories and their effects on goals (performance vs. learning goals), strategies (helpless vs. mastery strategies), and responses to set-backs (effort beliefs and positive outcome expectations vs. negative emotional responses) were summarized. In this part of the model, results showed significant associations between implicit theories and their effects on goals, strategies, and responses to set-backs. Most associations were moderated by ego threat and the effects on goals were moderated by approach and avoidance goals (with larger effects between growth mindsets and approach learning goals and with fixed mindset and avoidant performance goals). The strongest associations were found between implicit theories and strategies. Secondly, the effects of goals, strategies, and responses to set-backs on performance or achievement outcomes were summarized. In this part of the model, results showed significant associations between goals, strategies (for mastery strategies but not for helpless strategies), and responses to setbacks when predicting outcomes (achievement). The strongest associations were found between responses to setbacks and achievement outcomes. In general, associations among the constructs in the mindset framework were higher when studies included demanding tasks, provoked insecurity, or reflected samples in transitions to new situations. Associations were also more pronounced when using experimental designs and outside academic settings. Results from this meta-analysis may have implications for the content and design of broader mindset interventions. For example, mindset messages and tools that, in times of set-backs, prompt positive outcomes, positive expectations, effort beliefs, as well as emotional regulation seem among the most effective.

6 Discussion

Theories about student motivation and student engagement developed on the basis of experimental research in psychological labs have been used to develop and test applications in real educational settings for the last 15 years. Carefully designed intervention studies, based on experimental designs, have been conducted in real life educational settings and have replicated and advanced previous knowledge on motivation and learning. This report presents findings from a literature search aimed at mapping and summarizing the scientific papers published on the effects of mindset interventions in academic settings. A total of nine original papers (Tables 1 and 2) and three meta-analyses (Burnette et al 2013, Lazowski & Hulleman 2016, Schleider et al 2015) are summarized and discussed in this report. A majority of the studies set in educational settings focused on implicit theories about intelligence but studies that addressed additional mindsets i.e., implicit theories of personality and implicit theories of social relations, were also found.

The meta-analysis conducted by Lazowski and Hulleman (2016) of 74 scientific studies showed that interventions based on common social psychological theories of motivation can affect learning and performance. In addition, interventions seemed to have comparable effects regardless of age (that is from kindergarten age to college age). On average, motivation interventions yielded an effect of 0.49 on learning or performance (Cohen's *d*). This equates to an odds ratio of approximately 2.2, reflecting that a youth participating in an intervention will 2.2 times more often learn more or perform better than a youth not part of a motivation intervention. When comparing different interventions, interventions based on the theoretical framework developed by Carol Dweck (i.e. mindset interventions, six studies) yielded an average effect of 0.56 (Cohen's *d*) on learning, performance, or improvement (corresponding to an odds ratio of approximately 2.7).

Our own review of empirical studies showed that mindset interventions targeting implicit theories of intelligence and promoting a growth mindset are effective motivational tools for students. Typically, the mindset intervention studies included in our own review used various measures of achievement as outcomes, and positive results were found for outcomes such as performance (e.g. grades, test scores, cognitive ability), sense of mastery, classroom motivation, academic persistence, enjoyment, and achievement. Studies that addressed additional mindsets (i.e., implicit theories of personality and implicit theories of social relations) and showed that these mindsets may also have impact on students' achievement and mental wellbeing were also included in the present review. Moreover, mindset interventions not only positively affected academic performance, but studies also showed that these interventions can reduce levels of stress and symptoms of depression and anxiety, as well as lessen aggressive feelings and behaviors. The meta-analysis on the impact of mindsets on stress, general distress, and psychopathology among youths (Schleider et al 2015) showed that these three different implicit theories (intelligence, personality, and social relations) were all associated with decreased symptoms of distress,

depression, and anxiety, as well as of aggressive feelings and behaviors. Thus, mindset interventions targeting one thing, for example implicit theories of intelligence, can benefit multiple domains of development including domains that, at first glance, seem remote to the beliefs in focus of the intervention.

The mindset interventions performed in the studies reviewed seem to vary regarding what concepts in the mindset-framework that were specifically targeted (i.e., only addressing the implicit theory, or also targeting goals, strategies, and responses to setbacks). Burnette (Burnette et al 2013) and colleagues' meta-analysis focused on the effectiveness of all common components in a mindset intervention. Although the results show general support for Dweck's theoretical framework, a consistent finding is that associations between implicit theories, goals, strategies, responses to setbacks, and learning outcomes are strongest when the research has been performed during courses, subjects, or transitions that students find challenging. The implications of this is that while we want students to challenge themselves and be able to progress in their learning, a fixed mindset may be an obstacle for just that. Moreover, Burnette's meta-analysis also points to that new mindset interventions may be more effective if taking into consideration that targeting certain components in the causal mindset chain may be much more effective than originally postulated from theory. Although our task with this review has not been to evaluate the mindset tools used in interventions (our knowledge of the specific tools included in these interventions is limited) we have during our literature search found themes that may have the potential to add important features to the toolkits present today. Firstly, interventions based on the two alternative mindsets (implicit theories of personality and social relations) may contribute to unique effects on wellbeing, and secondly, two other trends also seem promising. These include educational interventions developed by Angela Duckworth targeting mastery strategies and persistence strategies when facing challenges, setbacks, and temptations (sometimes thought of as "mindsets of effort") (Duckworth et al 2015, Duckworth et al 2016a, Duckworth et al 2016b), as well as the interventions integrating mindsets with other important drivers for productive persistence developed by David Yeager and colleagues (Yeager et al 2014a) (see also:<http://www.carnegiefoundation.org/in-action/pathways-improvement-communities/productive-persistence/>).

The results found in the present research review are promising for the future of mindset interventions. Whether it is interventions promoting a growth mindset of intelligence or interventions promoting a growth mindset of personality or social relations – they all have positive effects in several different areas of students' lives. However, the majority of studies on the impact of mindsets in general and on mindset interventions specifically are done in American settings. There is a lack of studies conducted in a European context, and there are no Swedish mindset intervention studies available to date. Two implications follow this geographically insufficient width. The first one is that we need an understanding of existing differences between the American and Swedish school systems. These differences are unfortunately beyond the scope of this

literature review, but we advise that they should be further explored. The second implication is that the work carried out in Sweden by entrepreneurs Bättre Skolor and GrowingMinds with their programs about mindset theory and practice (including mindset workshops with exercises and material) is highly relevant and needed. If carefully designed experiments can show that these methods have the same impact on student motivation in Sweden as they have had in America, such Swedish initiatives can play a crucial role in improving achievement and wellbeing in various Swedish contexts. Also, these types of initiatives, that aim at changing people's thoughts, feelings, and beliefs (Walton 2014, Yeager et al 2016a, Yeager & Walton 2011) can contribute to pioneer studies on mindset and other motivational interventions in Sweden. Moreover, another detected shortcoming concerns studies exploring long-term effects of mindset interventions. The ones with a longitudinal follow-up (one year maximum) mostly showed positive follow-up results (Blackwell et al 2007, Yeager et al 2014b), except for one study where a decline in the initial impact of the intervention was noted (Donohoe et al 2012). More long-term follow-up studies are needed.

Although no intervention studies found in the literature were conducted in Sweden, researchers in Sweden have begun including measures from the mindset framework in their studies. In collaboration with the original developers, our laboratory has translated, adapted for use in Sweden, and psychometrically tested instruments originally used in papers by the main researchers in this field (Blackwell et al 2007, Chiu et al 1997a, Chiu et al 1997b, Dweck 2000, Dweck et al 1995, Walton & Cohen 2007, Walton et al 2014, Yeager et al 2014c, Yeager et al 2011). Instruments regarding implicit theory of intelligence and related motivational measures (i.e. measures regarding learning goals, effort beliefs, strategies, and helpless attributions) have been used to predict student engagement and perceived stress in higher education (Brislöv & Nordström 2015, Johansson & Sjöström 2015). These instruments and the psychometric evaluations are described elsewhere (Högman et al 2016 in press). In addition, recent translations of measures of implicit theory of personality and morality have been carried out by our research group, as well as a translation and adaption of implicit theory of the world measure in order to assess implicit theory of work organization.

In all papers reviewed in this report, the majority of the interventions have addressed one implicit theory and most often this theory has been about intelligence or ability. Important examples of studies with expanded focus are the studies by Yeager and co-workers (Yeager et al 2014b, Yeager et al 2013b, Yeager et al 2011) where interventions have addressed up to two different mindsets simultaneously. This is an interesting development and future studies may be conducted to evaluate results on how different types of mindsets interact as well as have unique consequences on outcomes. Before we summarize studies where combinations of mindsets have been used, it may be important to state that we have not come across studies that have, in addition to the two types (own abilities and social relations as well as personality), also included a third type, that is implicit theories of the world. Implicit theories of the

world concern views of the social world as being relatively stable and predictable (entity theory) or more dynamic and complex (incremental theory) (Dweck et al 1995). An entity theory of the world has, for example, been suggested to orient individuals to adapt themselves and fit in to the current context (manifested in self-stereotyping) to a greater extent than individuals with an incremental theory of the world (Yang & Hong 2010). In addition, no study in the current review has addressed implicit theory of morality, which in previous studies has been associated with different kinds of moral beliefs (Chiu et al 1997a), social identity (Hong et al 2003), and prejudice against a maligned group (Hong et al 2004). Thus, future studies and interventions may address up to three types of mindsets, i.e., (1) implicit theories of one's own ability and personality, (2) implicit theories of others' abilities, personalities, morality, and the nature of social relationships, and (3) implicit theories of the social world, and model how these interact and affect different outcomes.

Studies by Yeager and coworkers described above included a combination of mindsets. But what do the different mindsets mean and how can your thoughts and beliefs about yourself affect how you see others and how you see your relationships? Studies have shown that implicit theories of personality affect people's goals with close social relationships (Dweck 2000, Erdley et al 1997). Dweck and coworkers showed that students with a fixed mindset of personality were more interested to confirm themselves by their close relationships whereas students with a growth mindset of personality were more interested in the opportunity to develop themselves through their close relationships, more open to adapting themselves, and taking another person's perspective. Furthermore, in a similar way that implicit theories influenced the way students looked at their own successes and failures, it affected how they saw and responded to others' failures. When in a more fixed mindset a fellow student's performance was seen as a direct reflection of the other person's intelligence and ability to learn. Correspondingly, when in a growth mindset, since the focus is on processes and not performance, one is more likely to keep in mind all the different factors that affect good and bad performance and this opens up for a focus on strategies that can help the other person out of the present situation (Dweck 2000). Not only does this demonstrate that these theories affect one's own interpersonal relationships and how one views people in one's immediate environment but also how one views other groups of people (e.g. to what extent one uses stereotypical thinking with respect to specific characteristics for members of a certain group)(Dweck 2000, Dweck 2012, Dweck et al 1995, Halperin et al 2011). Namely, it was shown that when in a fixed mindset, the judging and labeling of others was much quicker and less likely to be reevaluated if additional or contradicting information became accessible. The same was true for labeling groups. That is, when in a fixed mindset, good and bad qualities were assumed as belonging to some groups more than others (Levy & Dweck 1998, Levy et al 2001, Levy et al 1998). Higher levels of "stereotyping" were reported when in a fixed mindset both to the positive and negative side of others' characteristics and people were more likely to act on these stereotypes. Because the views people have on themselves are also reflected in how they see others, including other groups, the

interventions targeted at change in these mindsets can affect both individual wellbeing and the social climate.

It is important to realize the potential risk of oversimplification when using the knowledge surrounding the concept of mindsets (Yeager & Walton 2011). One misconception often encountered is that you have either a fixed or a growth mindset, which can lead to teachers explaining, or in the worst case scenario; *blaming*, student failures on the student's supposedly fixed mindset. In reality everyone has both mindsets, and the important questions are "what supports a growth mindset?" and "what triggers students' fixed mindsets?" (Blad 2016). Another risk when the complexity of mindset and achievement is overlooked is that we overestimate the role of effort. If students are not given the right tools, strategies, and environment to learn, mere effort will not take them all the way to great performance. Thus, the concept of effort is sometimes misinterpreted and effort praise sometimes becomes empty praise for just trying when the important thing is *learning* and benefitting from a struggle or setback. Thus, these well thought out and tested mindset interventions are no "Plug-and-play" quick solutions for large and complex problems. It is also important to stress that these types of intervention programs should complement rather than replace regular educational procedures. That is, a change in mindset will not teach students subject knowledge or give them abilities, only teachers teach students academic content and skills, but they can help students by changing how they think and feel in school so that worries regarding not being good enough do not become obstacles for learning (Dweck et al 2014). One recommended reference for further reading that gives a nuanced understanding of how social psychological interventions may work and what to consider when trying to deliver these interventions more broadly is Yeager and Walton's article on the subject (2011).

When examined together, the studies scrutinized in this review and integrated with three additional meta-analyses clearly show that the first wave of promising laboratory-based research on mindsets has now been ecologically validated in real educational settings. This second wave of research has now established a rather solid scientific evidence base for the effectiveness of mindset interventions on learning, improvement, and wellbeing. The upcoming third wave of mindset research is about to launch new applications and test the consequences of targeting teachers' and parents' mindsets as well as the effectiveness of mindset interventions implemented by teachers and parents in everyday interactions with our youths. In a recent lecture, Carol Dweck declared the importance of conducting research that targets the teacher's mindset and how they are starting to conduct research into this specific aspect now.

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7.1 Recommended reading

7.1.1 Implicit theories of (Mindsets) of Intelligence

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7.1.5 Important new publications

Haimovitz, K., & Dweck, C. S. (2016). What Predicts Children's Fixed and Growth Intelligence Mind-Sets? Not Their Parents' Views of Intelligence but Their Parents' Views of Failure. *Psychological Science*.
doi:10.1177/0956797616639727

7.2 Links to mindset intervention programs

<https://www.mindsetkit.org/>

<https://www.perts.net/>

<http://www.mindsetworks.com/>

8 Tidigare rapporter

Petter Gustavssons forskargrupp samlas under namnet ”Motivation, kompetens och hälsa” (inkludernade de så kallade LUST- och LÄST-projekten) och är en del av sektionen för psykologi, Institutionen för Klinisk Neurovetenskap, Karolinska Institutet. Som en del av verksamheten utges rapporter sammanställda i tre olika skriftserier. Skriftserierna benämns:

- A. Forskningsrapporter
- B. Arbetsrapporter
- C. Övriga rapporter

Följande rapporter har tidigare utgivits:

- No. B 2007:1. Longitudinell Undersökning av Sjuksköterskors Tillvaro (LUST-studien): En landsomfattande longitudinell enkätstudie av sjuksköterskestudenters hälsoutveckling och karriärval under utbildningsåren och i mötet med arbetslivet: Urvalsram, kohorter och genomförande 2002-2006. Gustavsson, P., Svärdson, Å., Lagerström, M., Bruce, M., Christensson, A., Schüldt-Håård, U., & Omne-Pontén, M.
- No. B 2007:2. Lärares Tillvaro i Utbildning och Arbete: LÄST-studien. Urvalsram, kohort och genomförande 2005-2006. Gustavsson, P., Kronberg, K., Hultell, D., & Berg, L-E.
- No. B 2007:3. Exit 2006: En landsomfattande populationsbaserad studentspeglning av sjuksköterskeutbildningen. Hasson, D., Omne-Pontén, M., & Gustavsson, P.
- No. B 2007:4. Lärarutbildningen anno 2006. En nationell studentutvärdering baserad på avgångsstudenterna hösten 2006. Hultell, D., Kronberg, K., & Gustavsson, P.
- No. B 2008:1. (2:a upplagan). Den nyfärdiga sjuksköterskans arbetsvillkor. En beskrivning av anställning, verksamhet och arbetsförhållanden 1 år efter utbildningen. Rudman, A., Schüldt-Håård, U., & Gustavsson, P.
- No. C 2008:1. Hjälptill självhjälp. En lathund för SPSS. Hultell, D.
- No. B 2009:1. Den nyfärdiga sjuksköterskans arbetsvillkor. En beskrivning av anställning, verksamhet och arbetsförhållanden 1 år efter utbildningen. Rudman, A., Djordjevic, A., Frögéli, E., & Gustavsson, P.
- No. B 2009:2. Det första året i yrket – Nyexaminerade lärares erfarenheter och upplevelser av arbetsvillkor och yrkesroll. Frögéli, E., Rudman, A., Hultell D., & Gustavsson, P.
- No. B 2009:3. Övergången mellan utbildning och yrkesliv: Lärares reflektioner kring yrkesförberedelse, introduktion och arbetssituation 2 år efter lärarexamen. Djordjevic, A., Rudman, A., & Gustavsson, P.

- No. B 2009:4. Lärarstudenters erfarenheter av stärkande utbildningsmoment och engagerande förebilder. Wännström, I., Djordjevic, A., Hultell, D., & Gustavsson, P.
- No. B 2009:5. Lärarstudenters erfarenheter av stöd och psykosocialt klimat under lärarutbildningen. Wännström, I., Hultell, D., & Gustavsson, P.
- No. B 2010:1. Manual of the Scale of work engagement and burnout (SWEBO). Hultell, D. & Gustavsson, P.
- No. B 2010:2. Lärarstudenters uppfattning om tillägnad kompetens och yrkesförberedelse. Frögéli, E., Wännström, I., & Gustavsson, P.
- No. B 2011:1. 235 röster om ”glappet”. Sjuksköterskors reflektioner om övergången mellan utbildning och yrkesliv 2 år efter examen. Djordjevic, A., Rudman, A., & Gustavsson, P.
- No. B 2011:2. Lärares erfarenheter av mobbing under de tre första åren i arbetet. Hultell, D.
- No. A 2012:1. A note on the assessment of performance-based self-esteem. Hallsten, L.
- No. A2013:1. A prospective study of changes in burnout and work engagement for beginning teachers. Hultell D, & Gustavsson P.
- No. B 2013:1. Utbildningens förberedelse av sjuksköterskestudenter för användning av forskningsresultat och tillämpning av evidensbaserad vård – En jämförelse mellan lärosäten. Nilsson-Kajermo, K., Rudman, A., Wallin, L., & Gustavsson, P.
- No. B 2013:2. Lärares karriärvägar och hälsoutveckling de första åren efter utbildning. Enkät använd vid LÄST-projektets datainsamling tre år efter examen (2010). Hultell D, Rudman A, & Gustavsson P.
- No. B 2013:3. Sjuksköterskors karriärvägar och hälsoutveckling de första åren efter utbildning. Enkät använd vid LUST-projektets datainsamling för X2004-kohorten fem år efter examen (2010). Rudman A, Hultell D, & Gustavsson P.
- No. B 2013:4. Sjuksköterskors karriärvägar och hälsoutveckling de första åren efter utbildning. Enkät använd vid LUST-projektets datainsamling för X2006-kohorten tre år efter examen (2010). Rudman A, Hultell D, & Gustavsson P.
- No. B 2013:5. Lärares och sjuksköterskors hälsoutveckling och karriärvägar de första åren efter utbildning: Rapport till AFA Försäkring. Gustavsson P, Hultell D, & Rudman A.
- No. B 2014:1. Orsaker till ökande problem med stress under sjuksköterskeutbildningen – En longitudinell analys. Gustavsson P, Jirwe M, Frögéli E, & Rudman A.

- No. B 2015:1. Nya sjuksköterskors exponering för höga arbetskrav, låg kontroll och lågt stöd under sina första tre år i yrkeslivet. Gustavsson P, Frögéli E, Dahlgren A, Lövgren M, & Rudman A.
- No. A 2015:1. The effects of early career burnout on long-term sickness absenteeism. Hultell D, & Gustavsson P.
- No. A 2015:2. Sickness absence in sequential cohorts of new graduate nurses in Sweden between 2001 and 2006. Lövgren M, Gustavsson P, & Rudman A.
- No. A 2015:3. A longitudinal study into the effect of induction on the development of burnout in beginning teachers. Hultell D, & Gustavsson P.
- No. A 2015:4. Yes we can! Measuring newly graduated teachers' professional self-efficacy. Frögéli E, Hultell D, & Gustavsson P.
- No. B 2016:1. Mindset interventions in academic settings. A review. Miller E, Rudman A, Högman N, & Gustavsson P.
- No. B 2016:2. Mäta mindset: Utprövning av den svenska versionen av Theory of Intelligence measure. Högman N, Gustavsson P, & Rudman A.
- No. B 2016:3. Autonomy-supportive interventions in schools. A review. Gustavsson P, Jirwe M, Aurell J, Miller E, & Rudman A.



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