The power of willpower: strategies to unleash willpower resources

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Abstract

The importance of willpower as a capability that enables a person to maintain his or hers resolution when encountering some form of resistance is well established. However, less is known about the developmental aspects of willpower, and if it is possible to train and mobilise willpower resources to improve capabilities to deal with challenges. The authors initiated three studies to find answers to these questions. In one study, willpower strength was measured and analysed over a large population. In a second study, methods for mobilising willpower were researched and in a third study, such methods were tested. The findings are not conclusive, but results are promising; they indicate that willpower is trainable and that it is possible to apply methods to unleash willpower resources more effectively. In the article we suggest strategies and tactics for such mobilisation of willpower resources. Findings also support the theory that development of willpower in one domain may strengthen overall willpower capabilities.

Keywords: willpower; will; self-control; self-discipline; self-regulation; character; personality; traits; ego depletion; action control; perseverance; persistence

Human beings have a capacity to override their impulses, alter their inner states, influence their thoughts, and in other ways change the course of their behaviour. This ability is the domain of willpower, which is regarded as an important key to success in life and one of the most distinctive human capabilities. Research has demonstrated that individuals may use willpower to improve their regulatory capabilities (Muraven, Baumeister & Tice, 1999). Such findings have led to the argument that there are ways in which the strength of willpower could be improved, and it has been proposed that such improvement is consistent with how muscular strength is increased. Research thus indicates that willpower is trainable (Baumeister, Gailliot, DeWall & Oaten, 2006) and that the use of certain methods will enhance willpower capabilities.

We sought to extend these findings in a series of studies and experiments that involved surveys, interviews with top-performers, as well as a willpower challenge for students over the course of a semester.

The research questions we asked were: is willpower trainable and, if so, what methods may a person deploy in order to better mobilise and enhance his or her use of willpower?

Theoretical background

Introduction. The study of willpower has a long tradition within philosophy. Nietzsche (1887) believed that will was the main driving force in a human being – the striving to reach the highest possible construction of one's self. Whilst Nietzsche understood will as internally motivated action, Schopenhauer (1818) stated that when people become conscious of their self, they realise that their essential qualities are endless urging, craving, striving, wanting, and desiring. These, he said, are characteristics of people's will and, according to him, will is the innermost essence, the kernel, of every particular thing and also of the whole. Schopenhauer connects the will to evil, relating it, as Freud did in his later work, with the ability for the human being to deal with him or herself as being lazy, giving up or letting things pass.

The concept of willpower. More recent definitions are that the will is a mental activity that is under an agent's direct voluntary control and it is independent of his or her mere desires or dispositions (Ginet 1990; McCann, 1998). The power of will – or willpower – is the mediating executive capacity that bridges the gaps between an agent's thoughts and action, and the faculty that enables one to maintain that resolution to bridge these gaps (Searle, 2001; Zhu, 2004). According to Holton (2003), a person actively employs willpower in circumstances in which they struggle, in cases where one encounters some form of resistance from one's inclinations or desires. Philosophical opinions also holds that willpower warrants no special attention, because it adds nothing beyond what can be said using notions like strength of desire or intention (Henden, 2008).

Within psychology, willpower represents an old variable in the study of human action, which can be traced back to the work of James (1902) and Ach (1910). Their approaches were concerned with issues of acts of willingness in order to gain

insight into the phenomenon of willpower and corresponding behaviours such as persistence. Historically, motivation was considered to have two levels. The first is *will* which referred to a person's desires, wants, or purposes together with a belief about whether it is within one's power to satisfy the desire or achieve the goal (James, 1890). The second level is the act of using the will – in the form of willpower – which refers to a process for converting intentions into actions. In some cases, the mere saliency of a desire is sufficient to lead more or less automatically to action, but often, it is necessary to make a conscious effort supported by determination or extrinsic requirements to convert intentions in to actions.

Research streams. Much of motivation theory has focused on understanding the choice of a particular action and the effort expended on it. However, motivation does not provide adequate explanation for what impels people to action and keeps them working persistently to achieve a goal. In particular, when obstacles and distractions arise during processes, motivation support may not be strong enough to tackle challenges. The basic constituent in this discussion is the human capacity to regulate other psychological functions such as emotions, motivation, and cognition in order to reach objectives, especially when obstacles arise. Willpower is a thus coordination mechanism regulating processes and subsystems in a way that optimises the implementation of intentions. Older concepts of will are too global in the sense of "strong or weak will". Newer research has differentiated willpower into several subsystems, meaning that the distributed loci of the regulating processes can be located and developed. These are attention, motivation, emotion, activation, cognition, and behaviour. Several notions and theories have been proposed, with labels such as willpower, ego strength, action orientation, self-regulation, self-control, self-discipline, grit, volition and conation.

One distinct line of research is work on volition and corresponding concepts. This tradition has its roots in research within behavioural learning and cognitive psychology. Volition is commonly

understood as a competence and is defined as the ability to maintain focus and effort toward goals despite potential distractions (Corno, 1994). Volitional control involves the use of strategies aimed at regulating emotions, motivation, and cognition in the process of goal striving (Kuhl, 1987; Corno, 1993; Wolters, 2003). Theories describe how decreased motivation or negative emotions can be dealt with by applying control strategies, and volition is the mediating factor that energises the maintenance and enactment of intended actions. German psychologists have introduced volition in action control theory (Kuhl, 1987), implementation intentions (Gollwitzer, 1999) and self-regulation (Zimmerman, 1998). A closely related concept to volition is conation, which is a term that, in addition to volition, includes aspects as planning and perseverance (Bagozzi, 1992). Another approach is to regard volition as a skill, and scholars within developmental psychology commonly view the course of human development as a matter of acquiring skills and learning to manage oneself, including volitional capabilities.

Another stream of research comes from personality psychology, and is focused on character, traits or virtues. This is a tradition supported by moral philosophers. Willpower is then frequently conceptualised as self-control, self-discipline and self-regulation, which may be understood as products of persisted willpower. The terms are used interchangeably. Self-control and self-discipline are aspects of the same processes of self-regulation. Such regulation depends on energy or strength, which is used when people perform regulating activities (Vohs, Baumeister, Schmeichel, Twenge, Nelson & Tice, 2008). A tempting impulse has some degree of strength and so, to overcome it, the person must have an equal or greater amount of strength.

Self-discipline is emphasised in many cultures, and based on a character-building model it has been argued that it is the ultimate path towards success (Brooks, 2008). Self-discipline is thus a trait, which is to marshal one's willpower to accomplish things (Baumeister & Tierney, 2011). One definition is the ability to motivate oneself in spite of a negative emotional state (Fowers,

2008). Qualities associated with self-discipline include hard work and persistence. Whereas willpower is the strength and ability to carry out a certain task, self-discipline is the ability to use it routinely and even automatically, and thereby developing it into a personality trait.

Self-control covers the assertion of willpower over thoughts, emotions, urges, desires, or impulses, and to prevent oneself from doing what is seen as undesirable. Self-control is thus the capacity to bring one's actions into line with one's self as it is embodied in what one takes oneself to have the most reason to do (Henden, 2008). What manifests particular acts of self-control is the exercise of willpower, the ability to bridge the gaps between deliberation, decision and action when one encounters resistance from one's own inclinations. One may exercise willpower in order to do anything one wants to do, but in cases of self-control one exercises it to direct attention away from unwanted desires in order to execute the original intention. Self-control is also commonly related to the ability to delay gratification.

Self-discipline also includes the inclination to persist at a task even when people are unsuccessful, a trait commonly referred to as tenacity or grit. Grit is one recent focus of attention, and is defined as the perseverance and passion for long-term goals (Duckworth, Peterson, Matthews & Kelly, 2007). Grit is considered by its sponsors to be slightly different from self-control, and it is considered as a general, positive non-cognitive trait for perseverance, which permeates behaviour. It is also seen as distinct from traditionally measured personality traits in its emphasis on stamina. Grit overlaps with achievement aspects of conscientiousness as defined in the Big Five taxonomy (McCrae & Costa, 1987). Grit is a product of persistent willpower, and individuals high in grit do not swerve from their goals, even in the absence of positive feedback (Duckworth & Quinn, 2009).

A third tradition within willpower research is work combining neurology and psychology, a research stream we shall call biological approaches. The argument is that willpower is a mind-body response, which both mobilises and depletes resources in the

body (Gaillot, Baumeister, DeWall, Maner, Plant, Tice, Brewer & Schmeichel, 2007). Researchers regard willpower as energy, strength, or even instinct (McGonical, 2012), the premise being that mind-body responses are coordinated physiological changes that allow human beings to adapt to challenges: studies have identified changes in the autonomic cardiovascular, neuroendocrine and immune systems during acts of willpower. Research indicates responses that temporarily freeze impulses, thereby assisting in focusing on achieving objectives in spite of obstacles Segerstrom & Nes, 2007). Findings also suggest that having a high heart rate variability in the face of a challenge might represent stress resilience in the form of increased ability to focus attention and, at the same time, staying calm (Appelhans & Luecken, 2006).

Researchers within this tradition argue that the exercise of willpower is an expensive mental act, engaging many areas of the brain and requiring a lot of energy (Gailliot, et al., 2007). Mobilising willpower depletes physical power, and findings indicate that willpower processes use a lot of glucose (Tice, Baumeister, Shmueli, & Muraven, 2007). Freud theorised that humans use sublimation to convert energy from its basic instinctual sources into more socially approved selections. Following Freud thoughts on self – the ego – the term ego depletion has been to describe people's diminishing capacities to regulate their thoughts, feelings, and actions, the argument being that people can overcome fatigue, but if they were to use up energy by forms of ego depletion activities they would eventually not be able to follow their commitment and would give in to their desires (Baumeister & Tierney, 2011). Such research also points to another factor: the ability to exercise willpower depends on the availability of blood glucose, the consequence being that willpower is a limited resource and exercising willpower in one area limits people's ability to do so in others (Baumeister, Vohs & Tice 2003).

It should also be noted that some neurologists argue that will in general must be understood as phantasmagorical, meaning that neurotransmitters in the brain largely explain why some people do better than others at resisting temptation and controlling their impulses. These scholars point to chemical changes in the brain that are almost impossible to resist, and they recommend researchers to switch from value judgements to biological determinism in seeking to analyse the reasons why people commit to a particular course of action and why they give in to short-term impulses (Seligman, 1999:81).

Mobilising willpower resources

Within volition research, scholars have been particularly active in developing strategies that aim to boost willpower. Their premise is that deploying mental strategies that enhance commitment and motivation, and reduce negative emotional states, may enhance the use of willpower. These control processes are complex, but the researchers argue that they may be differentiated into several competences, which can be described as consciously deployable strategies, tactics or unconsciously represented processes.

One dominant theory is the work on action control. Kuhl (1987) addresses the question of what factors influence a person's continued and persistent efforts to accomplish a goal, and he postulates control strategies that can be deployed in order to increase commitment to the action. In other words, commitment to achieving a given goal is a prerequisite to employing the set of generic processes. These include control mechanisms for attention, encoding, emotions, motivation, environmental parameters and information processing. It is assumed that processes of action control underlie most activities, but especially those in which the person faces difficulties and hindrances. (Keller, Deimann & Liu, 2005). Sponsors of action control (e.g. Corno, 2001) claim that the effectiveness of utilising action control has been tested in several studies and in a variety of behavioural change settings. Action control theory does not, however, provide a detailed examination of commitment or implementation of intentions. Gollwitzer (1999) has taken this into account and his theory categorises action into four consecutive phases. Within each phase, the person is faced with specific challenges, such as choosing a goal, committing, planning for action, goal-

oriented action, assessment and evaluation, and all tasks are arranged around an ideal course of action and assumed to facilitate successful goal-oriented behaviour.

Corno (1993) distinguishes between motivational control strategies aimed at enhancement of goal striving effort and persistence, and emotion control strategies enacted to quell negative emotions, which may disrupt performance. McCann and colleagues (McCann & Garcia, 1999; McCann & Turner, 2004) in turn focus on strategies which: enhance positive thoughts as to one's competence or self-efficacy, initiate actions which reduce anxiety or stress, and promote thoughts that make one aware of intrapersonal and interpersonal consequences of failure.

The personality researchers have, to a large extent, focused their work on goals as mobilisers of willpower. Baumeister and Tierney (2011) argues that the first step in increasing and enhancing self-control is to set clear and attainable goals, and follow this up with a detailed plan and frequent rewards. Researchers have also highlighted the importance of self-awareness, as this helps self-regulation in the sense that it monitors progress and behaviour (Carver & Scheier, 1981). Feedback mechanisms are another possible strategy. Emotional control is also frequently discussed within the personality tradition, including strategies and tactics that rely on subtle tricks such as changing how one thinks about the problem at hand or distracting one's self. Within grit research, goal setting is valued in combination with implementation plans, as well as the ability to mentally model opportunities and challenges (Duckworth, Grant, Loew, Oettingen & Gollwitzer , 2011).

Researchers argue that willpower is trainable. Baumeister and colleagues (2006) recommend people to control one thing that they are not used to controlling, and to do it every day. Their argument is that any individual act of willpower strengthens all acts of willpower, meaning that committing to small, consistent acts in any domain – from improving posture to watching finances – may increase overall willpower (Muraven, et al., 1999; Oaten & Cheng 2007). Because willpower is limited, reasonable goals

and priorities are important to conserving willpower for what really matters. Another recommendation is to recognise that willpower is not merely a mental process – the researchers stress energy balance, including rest and a healthy diet, as well as reducing stress exposure (McConigal, 2012).

Study 1: Survey of willpower strength

Method

The first study was a quantitative survey. Several measures of willpower-related concepts have been proposed, including the Action Control Scale (Kuhl, 1994), the Locomotion and Assessment Questionnaire (Kruglandski, Thompson, Hggins, Atash, Pierro & Shah 2000), the Self-Control Scale (Tangney, Baumeister & Boone, 2004), the Self-Regulation Scale (Luszczynska, Diehl, Gutiérrez, Dona, Kuusinen & Schwartzer, 2004), the Emotion Regulation Questionnaire (Gross & John, 2003), the Volitional Components Questionnaire (Kuhl & Fuhremann, 1998), and the Grit Scale (Duckworth & Quinn, 2009). With the exception of the Volitional Components Questionnaire, these scales test the products of persisted willpower, not willpower. The aim of the present study was not to test a defined concept; therefore a strength scale combining several of the above approaches was devised for the purpose (Attachment 1).

The study sample consisted of 1901 participants (58 per cent female and 42 per cent male) and included leaders on different levels in the private and public sectors, employees, academics, students, athletes, soldiers, artists, and high-achievers (top athletes and special-force soldiers), as well samples drawn from the general population. The testing period was between January 2012 and May 2012.

Results

Karp (2013) has documented the full record of the survey. For the purpose of this paper, the results of two groups are of interest:
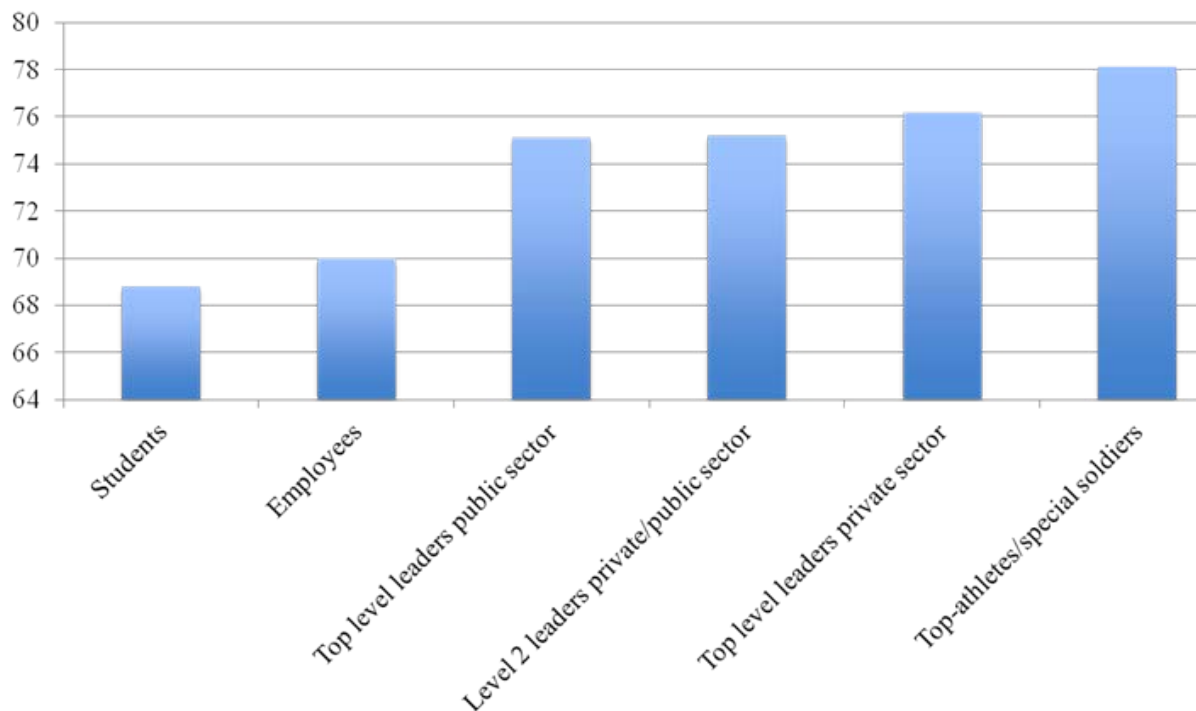
Figure 1: Results from willpower survey (Karp, 2013).

- People in performance-related occupations, such as top-level leaders (public and private sector), athletes or special force soldiers. These top-performers (28 per cent of the test sample) scored on average 5 per cent above the average.

- Students. This group (15 per cent of the test sample) scored on average 5 per cent below the average.

The survey was based on self-evaluation. The standard deviations were low, indicating that the data are close to the mean, suggesting possibly too small a variation in the questions. Also, 45 per cent of the population was in performance-oriented positions, meaning that the selected population is not demographically representative. Bearing this in mind, the data set indicated a consistent trend. People in high-achiever or result-driven occupations or positions consistently rated themselves as having higher willpower, and students scored consistently below average. The detailed data for the top-performers also indicated that they were more willing to make sacrifices in order to pursue their goals, they scored better in following through difficult decisions, they thought they better mastered difficult social situations, and they were, in their own judgement, better at keeping unpleasant agreements and promises. This is in line with other findings (e.g. Galton, 1892; Cox, 1926; Duckworth, et al., 2007). In general, the top performers tended to evaluate themselves as having positive self-esteem, as well as high self-efficacy. They judged themselves as disciplined, they were good at motivating themselves, and they were optimistic, according to their own evaluation. It should be noted, however, that research also suggests that people who think they have the most self-control are actually the most likely to lose control when tempted (McGonical, 2012).

Study 2: Interviews with individuals high on willpower strength

Method

In the next study we interviewed people about their use of willpower. Altogether we conducted 30 interviews with top

performers from the above sample (of which 60 per cent were male and 40 per cent were female, with an average age of 48 years) and 10 interviews with students. Most of the top performers were managers holding top-level leader positions (one chairman of a board, four CEOs in large organisations, three CEOs of smaller organisations), some were top-level consultants or coaches (three altogether), and others were people who had accomplished great things within sports (two of them) or in the military (also two).

From theories within action control (Kuhl, 1994), self-control (Tangney, et al., 2004), self-regulation (Luszczynska, et al., 2004), volition (Kuhl & Fuhremann, 1998), and grit (Duckworth & Quinn, 2009), we compiled a list of regulatory processes. These were: control (of emotions, of thoughts, of impulses, of encoding, of attention, and of environmental parameters), planning (planning skills, planning for action, implementation planning), goal-orientation (goal-setting, goals recollection), decision-making, self-related issues (efficacy, motivation, activation, relaxation, discipline), assessment/ learning, consistency of interests, and perseverance of effort. This list was used to structure the interviews and corresponding findings.

In the interviews, we asked about their conception of willpower in general and how they thought willpower affected their performance. We followed the reasoning, either as they continued to talk or as a response to a question in which they were asked to clarify or exemplify particular experiences or situations. Thereafter, we introduced a structure; asked direct questions about the themes listed above, and discussed each subject. The empirical material was thus produced as a result of semi-structured interviews. We then crosschecked the findings with the student group. In most cases, the awareness of the items discussed was low within this group. Obviously the students were in a phase in their life where they themselves felt freedom and a lesser need to commit; they did not so much feel a need to pursue specific goals (apart from finishing their studies) or to be disciplined. Also, most of them had lower self-awareness of the themes discussed.

Results

The themes that surfaced from the interviews were:

- Did personality characteristics influencing willpower abilities? Many of them reported that they had some kind of needs to achieve, to prove themselves, or to show their worth. Other common characteristics were high self-efficacy, as well as, in their own judgement, good self-esteem.

- What were the effects of early formative childhood experiences on putting willpower to use? Many talked about strong influencers in early childhood years, displaying role-modelling behaviours. This was frequently a grandfather, older brother, or mother. These people often showed them the value of discipline, hard work, setting goals, or displaying certain character traits or values. Most of the persons we interviewed had early positive experiences and got to know the strength of their willpower in school, in sports, or in dealing with various other challenges.

- In what kind of situations did they in particular use their willpower? They obviously gave a variety of answers, depending on their current job/project/ assignment. But some common responses included demanding/high-stressed/ high-tensed situations; incidents where somebody needed to take charge, difficult projects, assignments, competitions or missions, emotionally tense situations, change initiatives, and internal power battles in organisations.

- What made them "cross the threshold" and commit to a particular course of action? Most of the subjects talked about their "inner voice". They wanted to satisfy their personal needs, they had goals, they intended to fulfil purposes, and some of them felt they had some kind of duty to themselves or others. A few of the people interviewed were also triggered by feelings of being provoked, when someone (themselves or others) was treated unfairly, and some also used their need to protect others as a commitment.

- Had they somehow trained or developed their willpower capabilities? Most of the respondents had low awareness in this respect, but they talked in general about their ability to balance their energy, to unwind disconnect or relax, and most of them did some kind of regular physical or meditative exercises. Some also mentioned their willingness to take on new challenges, and that they regularly pushed their comfort-zones.

Analysis

The findings from the empirical material span across theories within volitional, personal, or biology oriented research on willpower. The following themes occurred frequently in the discussions:

Goals. Several researchers have stressed the importance of setting goals in order to mobilise willpower (Duckworth, et al., 2007; Baumeister & Tangney, 2011; McConigal, 2012). Studies in the last three decades indicates that strategies involving a high orientation towards future time, a high instrumentality of activity, as well as a focus on future goals, are positively related with individual achievement (Gjesme, 1996). This is confirmed by research within future time perspective – the tendency to think about or attend to the future as opposed to the present or past (Nurmi, 1991). Findings from Romer and colleagues (2010) indicate that the ability to exercise a future time perspective may augment positive motivation for success-oriented individuals (Gjesme, 1996).

Results in the study, however, indicated a lesser preoccupancy with goals, but the interviewed subjects had a perspective on future time. Sarasvathy (2001) differentiates between causally minded people, those who select or are given specific goals, and then choose from whatever is available to achieve it and effectually minded people, on the other hand, examine what means and resources are available, and then imagine what possible ends, or provisional next steps, those means might make possible. However, many of the top performers talked about a need to connect to an objective: it could be a goal, but also an objective in the form of a purpose or the fulfilment of a

need. Goals were therefore not necessarily the answer, but a connection to an objective was important.

Commitment. Gollwitzer (1999) discusses the need for commitment. Promises are made in order to commit with intent to do something by holding out the prospect of a reward. Certain characteristics of promises, such as magnitude and credibility, affect the probability of achieving the objective (DeLamater & Meyers, 2010). Promises give people both the security that something is being guaranteed and the stress that they are guaranteeing something that cannot be verified at that given moment. Bruch and Ghoshal (2004) claim that people who are committed have a clear purpose. This is supported by findings that demonstrate that the best strategy to reach goals is to limit the options and to commit to fewer, specific opportunities (Schelling, 1978). Kuhl (1987) discuss similar strategies, in the form of selective attention and encoding control.

In the study, it was found that commitment to an objective was more important than the objective itself. The actual processes of committing, often in the form of a promise to oneself or other persons, seem to create psychological contracts and bonds that possibly influenced later action. Kuhl (1987) also discusses the importance of making social commitments, such as telling people what to do, that help protect the current intention, and this strategy was confirmed in our interviews. Commitment was important for the interviewed top performers, and most important was the ability to make that commitment to oneself.

Action control. Kuhl (1987) postulates that processes of action control underlie most activities. Two tactics of action control are of particular interest: dealing with distressing feelings, and with negative thoughts. In the interviews we found evidence of both approaches. One tactic was to accept feelings. Trying to avoid unwanted feelings may lead to self-destructive behaviour – it is in many cases better to give oneself permission to feel them. Many of the interviewees experienced resistance from their own feelings, and frequently experienced fear. Fear is a distressing negative sensation induced by a perceived

physical, social or other threat (Öhman, 2000). Fear was often related to future events, such as worsening of a situation, or continuation of a situation that was unacceptable. For the interviewees, dealing with fear had to do with facing the feelings of possible future threats.

The other tactic used by the top performers was to deal with negative thoughts. Research indicates that mental or physical fatigue is not a physical event but rather a feeling (Noakes et al., 2005). When people think that their willpower is limited this reflect their beliefs about their willpower, not their true mental and physical limits. Effective tactics used by the interview subjects was to dampen negative thoughts by positive affirmations, as well as finding tactics to distract oneself. This is confirmed by the work of Seligman and Csikszentmihalyi (2000), and Baumeister and Tierney (2011). According to Bargh (1997), such measures are likely to provide people with a feeling of stability and control, enabling them to continue their course of action. Another tactic frequently used was to break the objective down into small, workable chunks, and do these one by one. Studies confirm that making progress may motivate people to engage in goal-sabotaging behaviour (Fishbach & Dhar, 2005), so the better tactic is to return to the commitment and recheck the commitment to the goal, as proposed by volition theory (Kuhl, 1987).

Tactics to create stronger emotions and thoughts influence mental processing and subsequent actions. Being able to hold on to more information and being able to hold on to that information longer means that the brain cells are better able to form useful associations (Colom et al., 2004). The brain filters out extraneous thoughts, as they might lead to unhelpful connections, but people frequently have to deal with a volume of information that exceeds their frontal cortices' capacity to process, as some situations are feeding them more complexity than they can handle. At a given moment while the cortex is struggling to make a decision, rival bits of brain tissue are contradicting one another. Distinct parts of the limbic system debate with one another, and Bechara and colleagues (1997) compare

this neural competition to natural selection, with stronger emotions and more compelling thoughts gaining an advantage over weaker ones.

Perseverance. Peterson and Seligman (2004) define perseverance or persistence as voluntary continuation of a goal-directed action in spite of obstacles, difficulties, or discouragement. More than 100 years ago, Galton collected biographical information on eminent judges, statesmen, scientists, poets, musicians, painters, wrestlers, and others. Ability alone, he concluded, did not bring about success in any field. Rather, he believed achievers to be triply blessed by ability combined with zeal and with capacity for hard labour (Galton, 1892: 33). Similar conclusions were reached by Cox who concluded that holding constant intelligence, the following traits evident in childhood predicted lifetime achievement: persistence of motive and effort, confidence in their abilities, and great strength or force of character (Cox, 1926: 218). All the interviewed top performers in our study showed persistence in their work. They worked hard, they were willing to make sacrifices, they put a lot of effort and pride into their endeavours, and they continued to do what they had determined to do in spite of setbacks. They also combined perseverance with the ability to judge when to stop an effort, as discussed by Kuhl (1987). The emphasis on perseverance is also in line with findings within grit research (Duckworth, Peterson, Matthews & Kelly, 2007) where perseverance is regarded as essential to high achievement. Many of the interviewed were not at first as gifted in their youth but they sustained commitment towards their goals.

Learning and rewarding. The empirical material showed that people frequently used learning and reward mechanisms to strengthen their efforts. These mechanisms were both cognitive and emotional. At the thought, feeling and sight of a reward, the brain launches dopamine into the areas that control attention, motivation, and action (Schultz, 1997). People thus learn to repeat behaviours that maximise rewards. It has also been proposed that fluctuations of dopamine play a role in guiding actions, telling people how they should feel about

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what they experience (Montague et al., 2006). The dopamine reward system also responds to novelty and variety; it becomes less responsive to familiar rewards (McGonical, 2012).

When a challenge was well executed the interviewed top performers sought to find ways to learn in the form of habituating parts of the event. As willpower may be a limited resource, it is important to transform challenges well executed into personal habits and routines of behaviour. Habituation is a simple form of learning and, as behaviours are repeated in a consistent context, there is an incremental increase in the link between the context and the action (Butler & Hope, 1995).

Study 3: Is it possible to develop willpower capabilities?

Method

Researchers argue that willpower is trainable (Baumeister, et al., 2006). In our last study, a sample of 39 students (of which 24 were female and 15 were male, the average age was 24 years) in two different courses in personal leadership was invited to participate in an experiment. They were asked if they would voluntarily take up a willpower challenge or find other ways to mobilise willpower in their daily life. The challenge could be in any domain: mental, emotional, physical or a combination of all these. In executing the challenge they should pay attention to processes of goal setting, commitment, action control, perseverance, learning and rewarding. The challenges varied in scope and duration.

Commonly they took form of:

- Emotional and social challenges: speaking in front of large audiences, making oneself heard in discussions, and confronting social fears in general.

- Physical challenges: doing regular physical exercise or training, or completing a specific challenge such as running a marathon or finishing a triathlon.

- Lifestyle challenges: losing weight/dieting, gaining more control over personal finances, getting enough sleep/rest, switching off social media during periods of the day, and in general finding the discipline to perform boring daily routines.

The students and their projects were monitored over the course of a semester, from January to May 2013. We used self-reports, as well as informant reports made by teachers and other observers, to follow the progress.

Results

The results of the experiment were mixed. Some examples of projects were:

One student chose to challenge his social fears of dealing with situations and relationships he would instinctively pull away from or avoid. His fears had their roots in childhood experiences and traumas. He says that:

> *For him, willpower is about his abilities to tackle resistance. He especially encounters resistance when he meets people who remind him of people who bullied him in childhood. He works with accepting the situation he is in, staying calm, and he mobilises his willpower by the use of the tactics he learned. He reports that he feels that his willpower is trainable, and that he experiences positive effects on his ability to tackle difficult social situations by the use of willpower.*

> (Student: male, 30 years)

Another student had personal and life style challenges. She had low self-esteem, she was easily annoyed and other people had a tendency to frustrate her in general. She says that:

> *She understood that she had to start by taking better care of basics as her energy was low. She changed her diet, started regular physical exercise and improved her sleeping patterns. In doing so she found that her abilities to deal with challenges, in the form of following*

through and reaching her objectives, improved dramatically. When taking care of basics, she gradually improved her ability to mobilise her willpower in dealing with difficulties. She managed to stay calm, she better understood what the challenges were really about, and she felt she had the mental energy needed to deal with the situation at hand.

(Student: female, 25 years)

A third student found that he often took the easy way out when facing a challenge. His project was then to challenge this escape mechanism and to a larger degree confront the challenge, whether small or large. He says that:

Challenges for him took many forms. They can vary from mobilising the motivation and energy to attend a lecture to dealing with difficult situations and persons in his side-job as a manager for a football team. When mobilising willpower, he has positive experiences when he manages to commit to the objective, and he finds positive self-talk helpful, focusing on positive aspects of completing the challenge and controlling what he can control, such as his breathing, when facing a challenge.

(Student: male, 25 years)

Other students did not complete their challenge or the project took a different turn. One example is a student who wanted to lose weight. She ate too many sweets, especially when she was feeling down, and she had established habits of rewarding herself with sweets. She was not content with her body. She reported that:

She managed cycles of 1-2 weeks at a time; she had a bad day, and felt she needed her chocolates and sodas. She did not manage to mobilise the willpower needed when facing this challenge. She felt her willpower reservoir was depleted when following a disciplined diet for a week or two, and when she faced the challenge of having a bad day, old habits took over. Neither did she manage to replace the old habits with new and healthier ones.

(Student: female, 25 years)

Altogether, the results from the study were not conclusive: 71 per cent of the students reached their objectives. Observations indicated that willpower played a part in dealing with challenges, but it was difficult to measure its contribution. However, patterns of effective methods existed. For the students who did not manage to complete their challenge, a number of explanations prevail. Some common themes were lack of commitment, poor decision-making processes, procrastination, as well as negative self-talk. Other had chosen projects outside the scope of willpower, challenges that frequently demanded big life-style changes or deep level personal transformations where therapeutic interventions or other means was needed.

Although the test developed for this research was not designed and calibrated for measuring the effects of interventions, we asked the participants who successfully completed their challenge to redo the willpower survey. Five months after the original test, this group scored on average 10 per cent better than the previous time they did the survey.

Strategies and tactics for mobilising willpower resources

Certain methods seemed to have a better effect when facing challenges. We found patterns, analysed these, compared them to the findings from the top performers, and discovered similar experiences in mental and emotional processes when willpower was in use. We experienced that mental processes were not as distinct and dominating as proposed by theories: emotions as well as mind-body responses played a large part in people's strivings to mobilise and use willpower. Neither was control-oriented or schemata-influenced strategies in frequent use. However, most of the top performers had methods for dealing with challenges and committing to courses of action.

We will therefore suggest a process model for how to unleash willpower capabilities more effectively. The model consists of

a set of strategies and tactics. Four of the themes discussed above are included in the hypothesis. We consider goals to be secondary to, and part of, tactics for committing, and we regard perseverance as the product of persisted willpower. We also learned in the experiments that decision-making processes influenced the use of willpower and we chose to pay attention to such processes. The hypothesis thus put forward postulates that people better mobilise willpower capabilities if they pay attention to processes of commitment, decision-making, influencing action, and how they reward themselves. Strategies and tactics for this influence is elaborated below, and exemplified with findings from the interviews, bearing in mind that the connections between research and findings are on the account of the authors of this article:

Committing. This is the initial stage in which a person commits to a cause or objective, possibly with a future time dimension. It may be a situation-specific cause, or it may be something deeper, or it may be a re-connection to a previous commitment. We found that the actual goal is not as important as the commitment itself. The tactic is to make a promise to oneself or others – a promise to keep the commitment – even go public if need be. The commitment may be supported by a cause: a goal, a purpose, or the fulfilment of personal needs. Many of the subjects talked about the importance of having a deeper purpose or to satisfy an important need. Examples are a coach who says he has a deep commitment to setting his own standards: *be whatever he can be*. Another leader was goal-oriented, but below the goals was a deep drive to use her abilities; *put her full self to use...* A leader had a *drive to change* – change was the purpose – and she used goals actively in this process.

Deciding. This is the process where people decided to act. It is a decision to *cross the threshold* – the deliberate movement from one mental state to another state beyond it, a conversion of the wish of motivation into the will of resolute engagement. We found that disciplined engagement was influenced by

the subjects' emotional state. One tactic used by some the interviewed people was to make an emotional connection to the commitment. Another tactic was to visualise the challenge ahead. A coach ensured that the feeling of achieving the objective felt better than maintaining the status quo – this gave him momentum to his action. A leader simply said: *the more it hurts, the bigger the motivation*. Also, several of the top-performers thought that their momentum of action got stronger when the time-span between decision and action was shortened.

Action influencing. The notion control was experienced by the top performers to be too instrumental. Influencing better describes the processes they used. One tactic frequently deployed was to accept negative feelings. A consultant had a fear of social rejection and speaking in public, not uncommon among high-achievers. She frequently challenged her fear, and took on assignments that forced her to extend her comfort-zone. Common fears experienced by the top performers were often of a social nature; fear of social rejection, being alone, being a failure, not being good or clever enough, and losing control. A consultant worked with her body language and physiology when challenging her social fears. A coach said he tried to control the parameters that are somehow controllable, thereby reducing the feelings of uncertainty; control of his own breathing, body language, voice, as well as situational or contextual variables, if possible.

The other tactic used was to deal with negative thoughts by distraction. A leader said it was a matter of *defining your own reality*, another leader said she got temporary tunnel-vision when she executed a challenge and worked towards an objective, and a coach said he tried to *put things in perspective*. Many of the top performers broke the objective down into small, workable chunks, and did these one by one. A leader always took one, small manageable step at the time, and then evaluated and decided what to do next. Two others had similar strategies; they concentrated fully on the task ahead, not the overall objective. This enabled them

to maintain full concentration on the process, thereby distracting their thoughts or feelings away from the threats, pain or unpleasant circumstances. The ability to persevere may obviously also reflect a refusal to disengage that stems from an unhealthy and counterproductive need to continue with something even when it does not make sense to do so. This was not the case. What counted was the capacity to choose whether and when to persevere, rather than a tendency to do this in every situation. The interviewed subjects talked about the need to *pick their fights* and then apply their efforts.

Rewarding and learning. Several of the top performers talked about the importance of small victories, and the need to celebrate these, as well as the ability to promise themselves a reward upon achievement of an objective. A consultant said she treated herself with chocolate and women's magazines, whilst a coach competed with himself and rewarded himself for his victories afterwards. People's brains are responsive to experience. We found that in order to extend one's "repertoire of experience" by reducing differences between expectations and reality in the future, one tactic was to re-connect with unpleasant emotions and re-experience the pain in situations in which willpower was used. A coach said he *stays with the emotions for a while, instead of using energy to push them*

away. One hypothesis is that such tactics create an emotional library that helps a person to recognise similar emotional scenarios next time challenges emerge. This may lead to a smaller energy loss in ego-depleting activities. Some of the top performers also created personal habits and routines of behaviour for their willpower use, thereby increasing the link between context and action.

These strategies and tactics are obviously dependent on situational and personality variables, as well as the challenges involved. The time span may vary from seconds to hours to days, depending on the context, and the sequence may repeat itself. The stages proposed are not necessarily linear and sequential, but may be displayed as follows in Table 1:

The hypothesis put forward is a mind-body model, where energy is mobilised and depleted in the body, as suggested by Baumeister and colleagues (2003). Certain strategies and tactics influence this
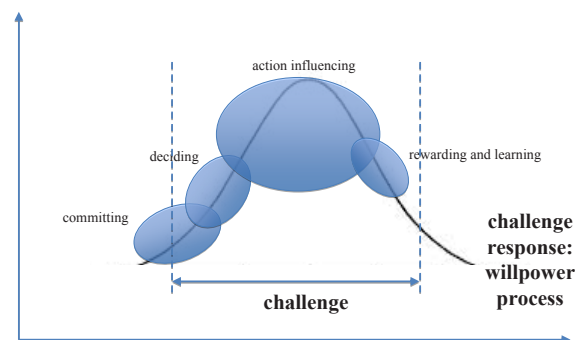
Strategies	Tactics
Committing.	Making promises to oneself or others, connecting promises to larger objectives such as a goal, purpose or a need.
Deciding.	Creating emotional connections to the commitment, visualising the challenge ahead, and creating momentum by shortening the time-span between decision and action
Action influencing.	Enhancing positive thoughts and feelings, as well as distracting attention from negative thoughts and feelings. Focusing on controlling what can be controlled, and not spending energy worrying about uncontrollable circumstances.
Rewarding and learning.	Celebrating small victories when underway, as well as when reaching an objective. It also includes tactics for creating an emotional library on completion by revisiting unpleasant feelings.

Table 1: Strategies and corresponding tactics to unleash willpower more effectively.

mobilisation and depletion of resources. This process of challenge and challenge-response in the form of willpower may be displayed as shown in Figure 1

Figure 1: Model of the willpower process.

Evidence also suggests that regular use of willpower may strengthen overall capabilities, and the recommendation is that people frequently engage in challenges (Baumeister, et al., 2006). What is experienced as challenging is obviously an individual consideration. Our experiments showed that one effective method of developing willpower is to extend one's comfort zone. This is the behavioural state where a person operates in an anxiety-neutral condition (White, 2009), and it is a type of conditioning that causes people to operate their mental boundaries in a way that creates an unfounded sense of security. When people step outside their comfort-zone, they experiment with new behaviours, and thereby expand their limits of effective and anxiety-neutral operation. It was also clear from the interviews and the experiment that the use of willpower has to do with taking care of basics (Karp, 2013). Baumeister and Tierney (2011) claim that people's diet has an effect on the ability to exercise willpower. Other researchers focus on rest and recommend brief but regular breaks at specific intervals throughout the day (Schwartz & McCarthy, 2007). The benefits of physical exercise for maintaining physical fitness and psychological wellbeing are well known (Cohen & Williamson, 1991), but findings also indicate that physical exercise in general may strengthen willpower capabilities (Oaten & Cheng, 2006).

Discussion

Our focus was to study how to unleash the capability of willpower, not so much the capability in itself. The studies were inductive in their approach, as there are still many interesting hypotheses to test if one wants to produce fresh insights.

We found in our experiments that many subjects improved their abilities to deal with circumstances in which they felt they were struggling. We also found similarities in strategies and tactics people in high-performance professions used to deal with challenges, indicating that there are certain generic mental, emotional and physiological methods that may be transferred to others. We learned that control-oriented or mental schemata-influenced strategies were not as distinct and dominating as proposed by theories: emotions as well as mind-body responses played a part when people used their willpower.

We see five limitations to the current research. We used a non-validated questionnaire in the survey, thereby introducing possible bias elements in the data. But as measurement and prediction was not the scope of the study, we believe that this does not impact the conclusions. Based on the present work, we however intend to validate measurement tools in future studies. The survey was based on self-evaluation, and the limitations of self-report instruments are well known (e.g. Lucas & Baird, 2006). The interviews with the top-performers were open and dialogue-oriented, opening up potential for subjectivity, interpretations and biases in the reported findings. The experiments with the students may include placebo effects, as well as elements of peer pressure. Alternative explanations are therefore possible. This may include motivation, social desirability, and short-term efforts not producing lasting changes. We also relied partly on self-reporting for the experiments, as we were not able to monitor and follow the students 24/7. Most importantly, willpower involves complex simultaneous mental, neurological and biological processes involving subsystems such as attention, motivation, emotion, activation, cognition, and behaviour, and singling out the dominating regulating source is a challenging undertaking.

Earlier research work proposes that willpower is trainable, suggesting that it is possible to enhance the use of willpower capabilities. Our findings indicate that this is the case, even if we factor in the above research limitations. We argue from a pragmatic standpoint: our conclusions should be viewed in terms of their practical uses and successes rather than in terms of representative accuracy.

Conclusion

Willpower is a crucial ability in life. In this paper we have tested whether willpower is trainable and, if so, are there certain effective methods people may use to unleash their willpower capabilities? We have conducted three studies and experiments to answer these questions. Our findings are not conclusive, and limitations exist, but the results indicate that it is possible to train willpower, as well as use certain methods to stimulate willpower resources and thereby better deal with challenges.

In 1907, James recommended psychologists to address two broad problems: What are the important human abilities and, by what means do individuals unleash these abilities? In the century that has passed since James's challenge, science has made progress in answering the first question, but we know comparatively little about how to unleash abilities. In the current research we have proposed a hypothesis for better unleashing willpower capabilities. The model includes processes of commitment, decision-making, influencing actions, and learning and rewarding, and it is our argument that paying attention to such strategies improves people's ability to use their willpower resources. This hypothesis has been tested on a small sample with positive results, and we will further develop this in future research. Findings also indicate that frequent use of willpower in one domain may stimulate overall capabilities.

If people want to develop their willpower, a recommendation is to engage in challenges that extend their comfort zone. To know the possibilities and limits of their willpower, people must discover it in themselves. It is one of those experiences that must be lived individually and the discovery of willpower is the discovery of a person's being: You are what your deep, driving desire is. As your desire is, so is your will. As your will is, so is your deed. As your deed is, so is your destiny, reads one of the postulations from the Brihadaranyaka Upanishad, one of the earliest Hindu texts, dating back more than 3,500 years.

The study of willpower is diverse and in its infancy. Different schools of psychology provide fragmented solutions to a complex subject. Our argument is that, despite a volume of theories on subjects as action orientation, self-regulation, self-control, self-discipline, grit, volition and conation, we still do not know enough about willpower. Research approaches which tie together psychology and neurology, as well as cognitive, emotional and physiological domains, are needed. This will open up the field for further development.

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Appendix 1: Willpower Strength Scale

The Willpower Strength Scale developed for the purpose of this research is included below. The questionnaire examined factors influencing willpower strength and consisted of 27 statements with which respondents were required to indicate agreement on a five-point scale (where 1 = not at all true, and 5 = completely true). The scale contained six elements that were negatively keyed. After reversing these negatively keyed items, a total willpower strength score can be obtained by summing responses to all items.

Item	Norwegian	English
1	Din lege forteller deg at du bør begynne å følge en streng diett, vil du gjøre det selv om det betyr at du må ofre en del?	Your doctor tells you that you should start on a strict diet. Will you do this even if it means that you have to make a lot of sacrifices?
2	Du blir spurt om å gjennomføre et prestisjefylt og krevende prosjekt og du må avstå fra fritid/ familieliv de neste 3 ukene. Vil du gjøre det?	You are asked to participate in a prestigious and demanding project, meaning that you have to give up leisure and family time for the next 3 weeks. Will you do this?
3	Du har en viktig presentasjon/opptreden/ fremføring i morgen og du trenger å forberede deg, men en venn ringer og inviterer deg med på noe sosialt. Holder du deg hjemme og forbereder deg?	You have an important presentation/ performance tomorrow and need to prepare yourself. A friend calls you and invites you to a social gathering. Do you stay home to prepare?

4	Du blir med på et nytt krevende og relevant treningsopplegg for å bedre formen din. Kurset varer i 4 måneder og vil være ganske tøft. Vil du delta på alle timene?	You are enrolling in a new and relevant training programme to improve your physical condition. It will last for 4 months and be challenging. Will you participate in all the sessions?
5	Du har funnet et kurs som kan gi karrieren din et løft, men det er krevende og du må delta på hele kurset. Vil du gjennomføre?	You have found a course that will give boost your career. But it is a demanding and you have to participate in the whole course. Will you finish the course?
6	Du har fått en diagnose på en sykdom og du har fått medisin mot denne. Men medisinen har uheldige bivirkninger. Vil du ta medisinen allikevel?	You have been diagnosed with a serious disease and a medication has been suggested. The medication however has unfortunate side effects. Will you still take the medication?
7	Ville du klart å være trofast mot din partner i lange perioder med fravær, si 6 måneder?	Are you able to remain faithful to your partner in long periods of absence, say 6 months?
8	Når du tar en overveid men vanskelig beslutning om noe som vil kreve noe av deg, gjennomfører du den uansett?	When you take a well-thought, but difficult decision about something that will demand something of you, do you always act on it?
9	Når du målene du setter deg?	Do you reach your goals?
10	Er du en som ikke gir deg når ting er vanskelig/du møter motstand?	Do you not quit or give up when things are tough, when you encounter some form of resistance?
11	Hender det at du utsetter eller avlyser avtaler/oppgaver fordi du føler deg lat eller ikke er motivert?	Do you cancel or postpone agreements or tasks when you feel lazy or unmotivated?
12	Unngår du ubehagelige sosiale situasjoner som gjør at du føler deg utrygg eller usikker?	Do you occasionally avoid unpleasant or uncomfortable social situations that make you feel unsure or uncertain about yourself?
13	Unngår du fysiske utfordringer som skremmer deg, selv om andre prøver å fortelle deg at det ikke er noe å være redd for?	Do you avoid physical challenges that frighten you, even though others tell you that there is nothing to be afraid of?
14	Hvis du mislykkes (profesjonelt eller i andre sammenheng) selv om du har synes du har gjort ditt beste, prøver du da alltid igjen?	If you fail (professionally or in other situations) even though you know you have done your best, do you then try again?
15	Utsetter du å ta fatt i vanskelige samtaler/problemer/uoverensstemmelser på jobb, hjemme eller i andre sammenheng?	Do you frequently avoid difficult or emotionally loaded conversations, disagreements or problems at work, privately, or in other contexts?
16	Når du har bestemt deg for noe, gjennomfører du det uansett?	When you have decided on a course of action, do you follow through at any cost?

17	Vil du si at du generelt får til det du virkelig bestemmer deg for, det som er viktig for deg?	Is it your evaluation that when you decide on something, you succeed when it is important for you to succeed?
18	Har du noen ganger forgjeves forsøkt og modere/slutte med laster du eventuelt har, som for eksempel røyking, alkohol eller usunn mat?	Have you ever tried, without success, to moderate or stop any bad habits you may have; as for example smoking, alcohol, and unhealthy foods?
19	Har du noen gang gjennomført et fast treningsopplegg på minst 3 ganger i uka over en periode på 1 år eller mer?	Have you ever done a regular training programme with a minimum attendance 3 times per week over a period of 1 year or more?
20	Har du lært deg en ny ferdighet/kunnskap (som et språkkurs, beherske et nytt instrument, ta et sertifikat, lære seg en ny aktivitet..) som krevde disiplinert jobbing fra din side over en lengre periode på, si noen måneder?	Have you ever learnt a new skill (like a second language, taken a certificate, taken up a new hobby..) that demanded a disciplined effort from your side, over say, some months?
21	Vil andre si om deg at du har mye viljestyrke?	Will others say that you have a lot of willpower?
22	Ser du på deg selv som disiplinert?	Do you evaluate yourself as disciplined?
23	Vil andre si om deg at du er sta?	Do you have a tendency to be stubborn?
24	Er du flink til å motivere deg selv?	Are you good at motivating yourself?
25	Har du høy selvtillit?	Do you rate yourself as having good self-efficacy?
26	Er du optimistisk?	Are you an optimist?
27	Tilpasser du dine handlinger til dine prinsipper og verdier, eller tilpasser du dine prinsipper og verdier til dine handlinger?	Do you change your behaviour according to your principles or values, or do you adapt your principles or values to your behaviour?