

Current issues in self-regulation research and their significance for therapeutic intervention in offender groups

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Abstract

During the last decade, theory and research on human self-regulation has made significant progress. While self-regulation may be understood as a generic term comprising a range of different cognitive, emotional, and behavioral processes, most research pertains to a subcomponent of self-regulation, namely emotional self-regulation, or emotional regulation. The focus of published research is usually on the functional role of self-regulation and emotional regulation in normal behavior, and in behaviors that can easily be quantified with experimental methods, such as eating disorders, alcohol consumption, or sexual behavior. Little is known about specific functional components of self-regulation in more complex dysfunctional behaviors such as personality disorders, or, more specifically, offending behavior, which is often associated with antisocial and borderline personality disorder. If self-regulation research is to successfully inform therapeutic intervention on offender groups, two steps are necessary. First, more research must be conducted focussing on the identification of specific self-regulatory patterns or mechanisms of offender groups, and second, the findings must translate into practical suggestions for the modification of known behavioral intervention strategies. Based on the most important contemporary research lines in self- and emotional regulation, suggestions are made on where and how to incorporate existing knowledge into therapeutic action for offender groups.

Keywords: self-regulation, emotional self-regulation/regulation.

In the preface of the handbook of emotional regulation (Gross, 2007), the editor reviews citation trends for the term “emotion regulation” in the scientific literature. From the early 1980s until today there has been an approximately fivefold increase in citations each 5-year period (Gross, 2007, p. xii). This trend is likely to continue, and a similar development is seen when searching for self-regulation. While there is no full and comprehensive answer to why this is, part this boom might be due to the fact that the field of self- and emotional self-regulation cuts across traditional subdisciplinary boundaries. During the last 20 years, there has been a considerable accumulation of knowledge in biological, cognitive, developmental, personality, social, and clinical health domains, and all of these have something to say about self regulation, or vice versa, the growing field of self-regulation draws upon findings made in these disciplines. There has also been significant progress in the development of research tools that make it possible to look at self-regulation from a non-traditional point of view, e.g. functional brain imaging techniques, or high speed computers which enable researchers to devise elaborate experimental research designs. While findings are accumulating, it is not always clear what they actually mean. Researchers often disagree about the meaning of self-regulation, and they tend to have a rather idiosyncratic understanding of the conceptual framework they are working in. Instead of adding yet one more definition to the many that already exist, I adhere to the concept introduced by Gross (2007), who offers a framework useful for both generating research ideas and the theoretical understanding of contemporary research on this topic. Self-regulation is thus understood as a generic term specifying both states and processes within a system of conscious and unconscious personal health management. More precisely, it refers to the regulation of stress, moods, thoughts, attention and impulses such as hunger, aggression, sexual arousal, and, of course, emotions. Emotional (self) regulation might be conceptualized as a subcomponent of a variety of self-regulatory processes. There is reason to assume, however, that there is a common denominator of the regulation of different response domains, and that the processes by which behavioral responses are modulated, do not differ across domains (Ochner & Gross, 2005). The process

model introduced by Gross (1998) highlights five families of regulation strategies that apply to emotional processes. While he focuses on the regulation of emotions, these strategies might be ubiquitous in that they are probably shared by other processes subsumed under the heading of self-regulation. These are *situation selection* (taking actions that make it more or less likely that a person will end up in situation she expects will give rise to desirable or undesirable emotions); *situation modification* (comprising efforts to directly modify the situation so as to alter its emotional impact); *attentional deployment* (refers to how individuals direct their attention within a given situation in order to influence their emotions); *cognitive change* (refers to changing how a person appraises the situation she is in to alter its emotional significance, either by changing how she thinks about the situation or about her capacity to manage the demands it poses); and *response modulation* (refers to influencing physiological, experiential, or behavioral responding as directly as possible).

Major approaches to the study of self-regulation

Central themes include the ways people regulate both positive and negative emotions, the role of conscious and unconscious processes, and the costs and benefits of regulatory strategies in different contexts.

Researchers have focussed on basic regulatory processes investigating *underlying biological bases and processes*, drawing from the cumulating knowledge in the cognitive neuroscience of self-regulation (e.g. Banfield et al., 2004) and emotion regulation (Ochner & Gross, 2007). *Cognitive operation* is the focus of research pertaining to planning and the implementation of goals (Gollwitzer, Fujita, & Oettingen, 2004), and attention and appraisal processes (Rosario, Posner & Rothbart, 2004). Another research focus is on the *developmental trajectories of self-regulation and effortful control processes*, and their associated outcomes (McCabe, Cunnington, & Brooks-Gunn, 2004; Eisenberg, Hofer, & Vaughan, 2007). The theoretical concepts of *self-regulatory strength* (Schmeichel & Baumeister, 2004), *willpower* in a cognitive-affective processing system (Mischel & Ayduk, 2004), *emotional repercussions* of self-regulation (e.g. Ochsner & Gross, 2005), and *automatic self-regulation* (e.g. Fitzsimons & Bargh, 2004; Bargh & Williams, 2007) complement the above mentioned research lines. There is also agreement in the scientific community that *behavior change* can neither be fully understood nor explained without referring to self-regulatory processes (e.g. Rothman, Baldwin & Hertel, 2004; Linehan, Bohus & Lynch, 2007).

The far-ranging effects of self-regulation in terms of personal relationships, addiction, consumption, and the ways people differ in their basic abilities and styles of self-control are reflected in everyday problems with self-regulation. These include self-regulatory failure and addiction (alcohol and drugs), the self-regulation of eating behavior, self-regulatory failure in purchase behavior, or the regulation of sexual behavior.

Violent criminal behavior, however, has not yet been a major issue in self-regulation research. For example, two of the most comprehensive handbooks of self-regulation (Baumeister & Vohs, 2004) and emotional regulation (Gross, 2007) highlight developmental issues of externalizing disorders in children and adolescents (Mullin & Hinshaw, 2007), ADHD (Barkley, 2004) and pervasive emotion dysregulation (Linehan, Bohus & Lynch, 2007), thus focussing on psychopathology in general, but not on criminal violence in particular. Hirschi's self-control theory of crime is a topic in the Baumeister & Vohs book, and self-control has repeatedly been put into relation with offending behavior even outside the realm of Hirschi's theory (see, for example, Tittle, Ward & Grasmick, 2003; Cauffman et al., 2004, Carmichael & Piquero, 2004), but there is reason to believe that conscious self-control is better conceptualized as a functional subcomponent of a broad array of self-regulation processes including unconscious self-regulation, or as a result of these. There is not much self-control theory can say about these underlying mechanisms. In general, there is little experimental testing of self-regulatory

mechanisms in offender groups other than psychopathic individuals, or those who run an elevated risk for becoming psychopaths. Notably, Newman and his research group have repeatedly tested their concept of context-appropriate balanced attention on psychopathic individuals, which essentially states that people differ in their ability to allocate (generally limited) attentional capacity to non-dominant cues if there is a dominant neural network activated at the same time (dominant response set; for an overview see MacCoon, Wallace, & Newman, 2004). The bottom line of this research is that psychopathic individuals are less capable than controls to shift attention from dominant to non-dominant (external or internal) cues, and thus tend to stick to whatever good or bad they have in mind at a given time, without thinking of alternatives or consequences.

Studies focussing on cognitive and neuropsychological specifics of psychopaths, however, who have also been subjected to fMRI brain scans, have their say about the physiological make-up of brain systems included in emotional processing and regulation, but they normally do not directly relate to the behavioral outcomes of self- and/or emotional regulation processes. For example, we know that the frontal grey matter in psychopathic individuals is reduced by approximately 10% compared with healthy controls (e.g. Yang et. al., 2005), but we do not know how much of a prefrontal cortex is actually needed to efficiently plan ahead and to control action. The variance between individuals (and between gender, of course), is considerably larger than the variance between psychopathic and non-psychopathic subgroups. Thus, the main message of these studies is on particular neurocognitive deficits of these individuals in relation to healthy controls and on individual differences in general (e.g. Raine et al., 2005).

Self-regulation in offender samples: An alternative research framework

Focussing on conscious self-regulation, our own research group conducted a series of studies designed to measure self-regulation in non-psychopathic offender groups. Based on the fact that all modern theories of self-regulation deal with theoretical problems, most importantly the development of a testable conceptual foundation and consistent terminology, and the clarification of structures, components, and processes of self-regulation (Pintrich, 2000; Gross, 1998, 2002; Baumeister & Vohs, 2004; Ochsner & Gross, 2005), we focussed on a theoretical source that promised to reconcile findings from different and sometimes even competing research frameworks on self-regulation, for example contradicting evidence on effortful control and unconscious self-regulation. We drew on the theoretical framework proposed by Kuhl (2000; Personality Systems Interaction Theory). Since this theory is quite elaborate, it is notoriously difficult to test as a whole, but it is possible to test specific predictions derived from sub-components. The theory proposes two mechanisms that facilitate (facilitatory modes: self-regulation and self-control) and three that impede behavior (inhibitory modes: volitional inhibition, volitional avoidance, and self-inhibition). According to this theory, self-regulation comprises a number of unconscious psychological skills related to attention and decision control, self-motivation, and mood management. Typical deficits in self-regulation are rumination, preoccupation, or alienation. Self-control is consciously accessible. Mechanisms associated with self-control are planning, impulse control, or taking initiative. The inhibitory modes refer to an individual's difficulty in initiating and maintaining a previously set intention or behavioral goal. More precisely, they comprise negative mental states impeding volitional intentions or goals from being realized (self-inhibition), the proneness to being distracted from tasks and to lack energy, initiative, and concentration (volitional inhibition), and to defy tasks imposed by others or to avoid effort (volitional avoidance).

For the ability to flexibly alternate between facilitatory and inhibitory modes, PSI theory posits a mediating role of positive and negative affect, modulating the dynamics between the volitional systems. Positive and negative affect are thought to regulate the relative dominance of one volitional system over another in any given situation, and allow for specific behavioral responses. For example, surplus activation of positive affect is thought to inhibit analytical thinking (self-control) and to facilitate automatic action.

Guided by PSI theory, we tested some specific hypotheses. As a major research tool, we used the *Volitional Components Questionnaire* [VCQ; Kuhl & Fuhrmann, 2000] throughout. This instrument maps 38 functional components of self-regulation. Using a four point Likert scale throughout (from zero: item does not apply, to three: item fully applies) it provides a framework for demonstrating the individuals' experience of his self-regulation, self-control, self-inhibition, volitional inhibition, and volitional avoidance in frustrating or threatening situations. Five composite scales capturing both facilitatory and inhibitory modes were used to test the main hypothesis (self-regulation, self-control, self-inhibition, volitional inhibition, and volitional avoidance). The VCQ has undergone rigorous reliability and validity checks (Kuhl & Fuhrmann, 1998; Kuhl, 2000), and it has been validated with normal non-clinical and several clinical samples, including alcoholics, psychosomatic in-patients, and patients with obsessive-compulsive disorders (Kuhl & Fuhrmann, 2000).

First, we tested whether violent offenders (n=42) showed more deficits in self-regulation and self-control than non-violent offenders (n=28; Ross & Fontao, 2007). Since earlier studies suggested a strong relationship especially between cluster B personality disorders and violent behavior (e.g. Johnson et al., 2000; Fazel & Danesh, 2002), we controlled for personality disorder. We also compared the offender data with the norm sample of the VCQ (n=122; Kuhl & Fuhrmann, 2000).

Contrary to expectation, we were not able to find significant group differences in the offender samples, neither for the facilitatory (self-regulation; self-control) nor the inhibitory behavioral modes (volitional inhibition, volitional avoidance and self-inhibition). In the comparison between the offender groups and the VCQ normal sample, however, significant differences were shown on all scales except self-control. In other words, offenders reported more problems than healthy comparison men in self-regulation of their internal world, and more self-inhibition, volitional inhibition and volitional avoidance when faced with challenging or aversive tasks and life situations.

Second, we tested whether self-regulatory variables were significantly related to aggression in a sample of prisoners, and, if yes, whether these variables would be significantly related to aggression independently of other variables that are already known to predict aggression, i.e., personality disorders, emotional instability, and conflict behavior (Ross, Fontao & Schneider, 2007). We found that self-regulation, primarily characterized by the ability to self-soothe or to reduce stress or tension under pressure, was negatively related to aggression. Self-inhibition, volitional inhibition, and volitional avoidance were positively related to aggression. Self-control was not related to self-reported aggression. From the regression analysis it emerged that self-regulation variables did not directly predict aggression. Their relation to aggression is apparently not independent of more broadly defined interpersonal (self-determined behavior, antisocial or borderline conflict behavior, deficient problem solving skills), cognitive (attention deficits), or affective psychological concepts and skills, (e.g. social conscientiousness and the preparedness to experience shame or guilt in the face of social conflict). Thus, self-regulation did not explain unique variance on aggression in addition to what was explained by the above-mentioned variables.

On a somewhat larger offender sample (n=83), we third explored some specific predictions derived from PSI-theory. Deficient self-regulation was expected to be associated with a failure to down-regulate negative affect once it is aroused and low self-control was expected to be associated with high positive affect (Ross & Fontao, in press). In terms of the relationship between self-regulation and aggression, our results were similar to those in the above mentioned study (Ross & Fontao, 2007). Self-regulatory variables did not directly predict aggression. The correlational analysis of the self-regulation variables and two indirect measures of affect (a self-report measure for the capability of a person to restore positive affect once it is dampened [decision-related action orientation], and a measure pertaining to a persons' ability to down-regulate negative affect once it is aroused [failure-related action orientation]),

showed mixed results (for details view Ross & Fontao, in press). Self-regulation was positively related to a good ability to down-regulate negative affect once it is aroused, and both self-inhibition and volitional inhibition were negatively related to down-regulate high negative affect. The bottom line of this research is that we were not able to support our hypotheses driven from PSI-theory. The overall results suggested a rather good balance of the personality systems in our offender sample. This is what is usually found in rather healthy samples (e.g. Kuhl, 2000a). On a speculative note, it may be that most offenders self-regulate effectively most of the time but experience sudden self-regulatory failure in emotionally threatening situations, eventually leading to aggressive behavior. These occasional events may not be measured effectively in a “secure” experimental setting, and/or by self-regulatory items that usually tap traits rather than (infrequent) states.

Fourth, we compared self-regulation strategies of a small sub-sample of ten sex offenders with those applied by individuals who had not sexually offended ($n=60$; Ross & Fontao, 2006). In this study, we used the VCQ and a scale containing seven sub-scales measuring the degree to which individuals perceive their emotions and how they evaluate and cope with them (Emotional Experience Scale; Behr & Becker, 2004). Most group comparisons in the self-regulation and emotional experience scale were not statistically significant, but effect sizes were quite high, and unidirectional, with sex offenders scoring lower on most self-regulation variables and higher on emotional experience scales pertaining to the symbolization of emotions. The differences found in between the two groups indicate a rather high emotional vulnerability to threatening and/or stressful situations in sex offenders. Their lower scores on mood management and self-soothing suggest that sex offenders might have more difficulty than other offenders to adaptively regulate their mood in stressful situations, and to apply adequate self-soothing strategies. The sex offender group also reported lower emotional self-regulation than non-sex offenders, but they scored higher on dependent personality features.

Taking into account some methodological shortcomings such as small sample size, heterogeneous sub-samples, or the use of self report data, the results of our four studies allow for the following tentative conclusions: (1) Self-reported self-regulation might be largely independent of the type of offence (if violent offenders are compared against non-violent offenders), but (2) there might be a difference between sex offenders and non-sex offenders in that sex offenders tend to have more difficulty to manage their mood and self-soothe in stressful situations. Sex offenders tend to activate specific interpersonal (coping) strategies relating to personality features such as amicability, servility, or subjection. These strategies are associated with deficits in (emotional) self-regulation and the ability to self-soothe under pressure, and/or to regulate mood. (3) Self-reported self-regulatory variables do not directly predict aggressive behavior. The relation between self-regulation and aggression is mediated by more broadly defined psychological concepts stemming from different subfields of psychology, namely personality, clinical, cognitive, interpersonal and social psychologies. (4) PSI theory can not directly be tested using a self-report methodology. (5) In order to clarify the meaning of specific findings, it will be necessary to repeat the studies using experimental, non-reactive research designs with more homogeneous samples regarding sample size, personality features, and offence type.

Therapeutic intervention in offender groups

Research on the effectiveness of treatment for offenders has shown an average effect size of $ES = 0.10$ (e.g. Andrews et al., 1990; Hall, 1995). Since the average effect size of psychotherapeutic treatment for non-offenders is about $ES = 0.80$ (Bergin & Garfield, 1994), the conclusion to be drawn from the data is that treatment of offenders works, but it does not work as well as with other clinical groups. The reasons for this finding are manifold. One part of the problem might be attributed to the specific problems of offender populations (mainly externalizing behavior, Cluster B personality disorders) that are difficult to treat. Motivation for therapy is a factor, and offenders often need considerable support for starting and sustaining a therapy. Therapist variables might play a role, but after all, there might be some space to help

improve the therapies themselves. Forensic psychotherapy draws from different therapeutic ideologies, and probably, they all work to some extent. Psychodynamic approaches, for example, have not produced much (quantitative) empirical evidence that they work well with offenders, but the literature allows little doubt that in many cases they do (view for instance Cordess & Cox, 1996a,b, for a general overview, and Fontao, Pfäfflin, & Lamott, 2007 for the implementation of Transference Focused Therapy into forensic psychiatric settings in Germany). However, most research has been conducted on treatment programs adhering to a cognitive-behavioral approach (view, for example, the Reasoning and Rehabilitation Program [Ross, Fabiano, & Ross, 1986; Ross, Fabiano, & Ewles, 1988] or the Sex Offender Treatment Program [SOTP, HM Prison Service, 2000]); a general overview over treatment programs for offenders can be found in Pfäfflin & Ross, 2007).

Treatment programs are usually composed of different treatment modules. For demonstration purposes, I describe two programs in some more detail. The Reasoning and Rehabilitation Program, for example, focuses on cognitive and interpersonal skills. Each module consists of sub-components which are addressed by specific exercises. It includes modules of general problem solving skills (e.g. problem recognition, problem identification, gathering information, conceptualizing, non-verbal communication, verbal communication, alternative thinking, consequential thinking, and assertive communication); social skills (pre-training, modeling, role-playing, feedback and transfer of training), creative thinking (enhancement of lateral thinking), values enhancement ([moral] dilemma sessions), and critical reasoning. The SOTP makes use of three basic treatment methods throughout: (1) Cognitive restructuring (e.g. of minimization, using Socratic questioning), modeling (verbal and non-verbal demonstration of anti-criminal attitudes and behaviors by the therapist), and positive reinforcement (giving of some sort of [verbal or non-verbal] reward in response to the expression of anti-criminal attitudes and/or behaviour). The SOTP treatment methods are applied in 20 blocks or treatment targets: Establishing the group, understanding distorted thinking, coping strategies, my history, active accounts, fantasy, patterns in my offending, review session: coping strategies, feedback and goal setting, costs and gains of offending, victim empathy, victim perspective narratives, victim perspective role-plays, victim letters, review session: coping strategies, old me, future me, future me alternative to offending, getting to future me, setbacks, future me role-plays, feedback and goal setting.

The modules of successful treatment programs are empirically derived and supported by contemporary empirical research.

Interfaces between self and emotional regulation research and offender treatment programs

The basic underlying question is where and how to incorporate existing knowledge on self- and emotional regulation into the treatment of offenders. First, I will introduce some basic assumptions and published guidelines about therapeutic strategies and intervention tools. Second, I will give reasons why there is a need for a discrete and independent diagnosis of self-regulatory components in offenders, and third, I shall highlight five (non-exhaustive) target areas where treatment programs might profit from the implementation of ideas derived from self-regulation research.

Basic assumptions

1. Cognitive-behavioral therapy knows at least 50 different therapeutic techniques or intervention strategies, for example (cue) exposure, confrontation, imagination techniques, cognitive reattribution, (covert) conditioning, self-instruction, stimulus control, self-assertiveness, stress inoculation, coping strategies, attention training and so forth. It is unlikely that entirely new interventions can be devised and applied to treatment programs. The main task is to find out which techniques should be applied with whom, at which point of the treatment process, for how long, and under which circumstances.

2. Treatment should be delivered according to three basic principles (Andrews, Bonta, & Hoge, 1990): Criminal recidivism is most effectively reduced by well-structured treatment programs focused on the criminogenic needs of relatively high-risk offenders that are delivered in a manner that matches the learning styles of the offenders to be treated. Criminogenic needs are those modifiable characteristics of offenders that are related to their propensity to re-offend. These are the principles of need, risk, and responsivity.

3. Treatment effects might be higher in a treatment-friendly environment. The rehabilitation of offenders in prisons would be more successful if the (rare) treatment that is actually delivered in prison environments were supported by a therapeutic community.

4. Treatment needs to be surprising, non-repetitive, challenging, interesting, and rewarding (Aichhorn, 1925; Eissler, 1949; 1953; see also Pfäfflin, 1997). Many offenders (such as many scientists) are prone to boredom. If they are bored, they are unlikely to profit from treatment, since attention is shifted away from the treatment target.

5. Successful treatment should make use of unconventional methods. The Reasoning and Rehabilitation might be a forerunner in the use of these: the R & R program applies cognitive teasers and other logical tasks, (social or moral) dilemmas, or even full games (e.g. the commercially distributed games "Pictionary" and "Psychologizer" that help modify perspective-taking and which are fun to play).

Towards an individualized diagnosis of self-regulatory components

A fine-grained analysis of the individual make-up of self-regulation and emotional regulation in offenders will allow to better match the treatment needs of offenders to the tools that are offered in treatment programs. Offenders are not likely to profit from treatment at the same rate. In other words, their responsivity to treatment interventions is different. Some might need to spend more time with a certain module while others get bored if they hear the same thing over and over again. If there were a regular self-regulatory check-up, e.g. three or four times during a treatment program of 90 hrs duration, offenders could selectively be assigned to running treatment. The placement decision would then be empirically supported and pertaining to the need and responsivity principles.

A check-up could readily be made using some of the methods available for self-regulation research: self-report questionnaires (for example the Emotion Regulation Questionnaire [ERQ, see Gross & John, 2003], or the VCQ [Kuhl & Fuhrmann, 2000]) may be administered at regular intervals within a treatment scheme, yielding some information about conscious self-regulatory and conscious self-control processes. But more importantly, some of the innovative research designs that have been devised in self-regulation research could be used for individual diagnosis of self-and emotional regulation. All that is needed is a computer and some software which will readily be available from most authors of the original experimental research. If done in the suggested way, a boost of research activity in the forensic field would result as a welcome side-effect to the scientific community.

Five target areas where treatment programs might profit from the knowledge of self-regulatory processes

1. Improving executive functions (attention shifting, attention focusing and memory)

It is a well known fact in the scientific society that many high-risk offenders have attention deficits. This problem is most dominant in individuals with ADHD or psychopathic traits, who have a greater than normal likelihood to commit crimes than others (e.g. Raine et al., 2005). For over twenty years, research has been accumulating that that selective attention represents a common regulatory mechanism for emotion, cognition, and behavior (e.g. Norman & Shallice, 1986; Posner & Rothbart,

2000). Thus, although often categorized as a cognitive variable, attention is viewed as a “top-down” self-regulatory mechanism capable of enhancing appropriate cognitions, emotions, or behaviors, and suppressing inappropriate cognitions, emotions, and behaviors. If it is the case that, as described above, psychopathic behavior is in part due to deficient attentional shifting, then they may profit from specific attention training. Within a treatment program, attention training sessions could selectively and concomitantly be administered to subjects who have been diagnosed with deficient attention capacities, but not to those who have not.

2. Improving effortful control

Some offenders, especially those with impulse control disorders, have difficulty applying effortful control of emotions, thoughts, and behavior. Effortful control pertains to “the ability to wilfully or voluntarily inhibit, activate, or change (modulate) attention and behavior (Eisenberg et al., 2004, p.260). This concept has been related to social competence, social cognition, adjustment, the internalization of parental rules, empathy or sympathy, and prosocial behavior. Researchers have found that children with low effortful control tend to be at risk for social, moral, academic, emotional, and psychological problems, whereas children high in effortful control tend to exhibit relatively low levels of negative emotion, high committed compliance, high social competence, high levels of conscience and prosocial responding, and low levels of problems behaviors or criminality (see also Eisenberg, Hofer, and Vaughan, 2007).

Although relatively prone to failure in offender samples, effortful control can be taught and trained to some extent (e.g. Tice & Baumeister, 1993), and effective treatment programs all target effortful control more or less directly (e.g. Dialectical Behavioral Therapy offers a range of skills designed to exert influence on situation selection and modification, situation appraisal change, attentional deployment, cognitive change (consequences expectancies change), and response modulation (physiological and behavioral response modulation), and emotional aftereffects (reactivity to emotions change; Linehan, Bohus & Lynch, 2007). The acquisition of effortful control might be facilitated even more if existing training modules were combined with more playful exercises that are fun for offenders (positive affect has repeatedly been shown to facilitate and speed up learning processes, and delay-of-gratification tasks are related to control behavior [Isen, Daubman, & Novicki, 1987; Carver, 2003; 2004; Mischel & Ayduk, 2004]). Conceptually, these exercises might be aiming at the improvement of delay of gratification skills. There would also be a strong motivational component in it, and it is obvious for anyone offering treatment that treatment effects heavily rely on offenders’ motivation to undergo therapy. Existing research paradigms offer a variety of tasks that might be suitable for these purposes (e.g. cognitive teasers and attention and memory focused tasks within cognitive psychology; commercial games requiring memory; co-operation enhancing tasks in social psychology [such as Friend or Foe, which is a variation of the prisoner’s dilemma, and an American game show based on knowledge and trust, which aired on Game Show Network]). Some paradigms developed in game theory (e.g. variations of the so-called dictator games, see Bolton, Katok, & Zwick, 1998, for an overview) might also be applicable. If somewhat adapted for the use in prison environments, these tasks might serve to complement already existing working material tapping specific cognitive, emotional, and behavioral deficits.

3. Teaching behavior change skills

There is also evidence that the planning and implementation of behavioral goals may be facilitated if implementation intentions are used while pursuing a goal rather than goal intentions. Goal intentions or goals have the structure of “I intend to do X” whereby X may relate to a certain outcome or behavior to which the individual feels committed. Implementation intentions or plans have the structure of “If situation A is encountered, then I will perform the goal directed response B”. Holding an

implementation intention commits an individual to perform the specific goal-directed response once the critical situation is encountered. In other words, implementation intentions are formed in the service of goal intentions, because they specify the where, when, and how of respective goal directed responses. There is empirical evidence that implementation intentions have positive effects on the realisation of wanted behavior, and the control of unwanted influences on an ongoing goal pursuit (for an overview of related studies see Gollwitzer, Fujita, and Oettingen, 2004). Thus, offender treatment should focus on teaching and enhancing implementation intentions.

4. Improving dose-efficiency effects of treatment application

A series of experiments have shown that self-regulatory operations implicated in self-regulation failure result from a lack of self-regulatory resources (the self-regulatory strength model). The core of the self-regulatory strength model is that the ability to regulate responses actively relies on a limited self-regulatory resource. When regulatory resources have been depleted, self-regulation failure is more likely. Regulatory resources are required to resolve self-regulatory challenges successfully, and the expenditure and resulting depletion of regulatory resources are a cause of self-regulation failure (Baumeister, Heatherton & Tice, 1994; Baumeister, 2002a, b). Self-regulatory strength has been associated with more efficient choice making, intelligent responding, less alcohol consumption and better dieting. If there was a way to measure “ego depletion” in offender groups, and the speed by which regulatory resources deplete in different individuals, we would have better advice as to when offer offenders a rest during therapy sessions, suggest to sleep or use guided meditation, or to induce other replenishing activities (see Smith, 2002).

5. Improving non-conscious self-regulation

In self-regulation research, there are three major forms of non-conscious self-regulation: automatic evaluative processes; automatic linkages between perceptual and behavioral representations (the perception behavior link within social psychology) and, most importantly, nonconscious goal pursuit. Several studies have shown that goals of various types and levels of abstraction can be nonconsciously activated (primed) to then guide information processing and social judgment, verbal task performance, and interpersonal helping and performance (see Bargh & Williams, 2007, for an overview). In one experiment, for example, subliminal priming subjects with stimuli related to co-operation, caused participants to make a greater number of cooperative responses in a commons dilemma situation (Bargh et al, 2001). For the work with offenders, there might be a lot of use for primes of prosocial thoughts and behavior. These could also be applied in the service of mood enhancement or the build-up process of treatment motivation. If applied often enough and conceptually linked to values enhancement exercises within treatment programs, these primes might come into the service of mental representations of prosocial goals. The build-up of prosocial behavioral goals, of course, should simultaneously be supported on other treatment modules. In the best case, nonconsciously primed prosocial goals might eventually become consciously accessible and could then serve to assist conscious (effortful) control.

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